THE SPIRIT OF EXPLORATION:
THE GATEWAY TO NEW FRONTIERS

CONFERENCE PRESENTATIONS

INTERIOR DESIGN EDUCATORS COUNCIL
2009 ANNUAL CONFERENCE
ST. LOUIS, MISSOURI

MARCH 25-28, 2009

The Spirit of Exploration:
The Gateway to New Frontiers

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The Spirit of Exploration:
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INTERIOR DESIGN EDUCATORS COUNCIL
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THE SPIRIT OF EXPLORATION:
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PAPER PRESENTATIONS

ABSTRACTS AND NARRATIVES

The Elements and Principles of Interior Design: Investigating Educators' Perceptions Concerning Usage

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ABSTRACT

PURPOSE

Critical to the discipline, both professionally and academically, are the elements and principles of interior design. These are recognized as the tools and vocabulary used to create and communicate successful interior environments. As tools, they are the universally accepted governing ideas and quantifying principles upon which the design of spaces can be objectively evaluated in order to determine its success (Nielson and Taylor, 2007).

Research indicates a lack of consistency in both the identification of what constitutes the elements and principles of design and the specific definitions for each of them. An analysis of introductory textbooks (Potthoff and Woods, 1995) found that the elements and principles of design vary from textbook to textbook, thereby creating inconsistency and resulting in confusion in the interior design vocabulary.

The purpose of this research study was to gather baseline information concerning the elements and principles of design. Survey questions assessed educator perceptions about the use of elements and principles in the classroom, foundational textbooks utilized, and where the elements and principles were being introduced. Other

questions included: Which elements and/or principles were hardest to teach? Which were most difficult for students to comprehend? Did they believe any elements and/or principles of interior design should be added or removed from the current teachings? Did they feel one element or principle was more or less important than others?

METHODOLOGY

An electronic survey requesting demographic information and containing 11 other open- ended questions was sent to 146 CIDA-accredited institutions. The responses were analyzed using King's template analysis (King, 1998) for the purpose of transforming unique individual responses into objective data. Template analysis employed the use of a coding template to summarize and organize emerging themes in the data while recording relative frequencies. See attached Table 1 for survey template and relative response frequencies.

FINDINGS/ RELEVANCE TO INTERIOR DESIGN

Findings indicated that 10 foundational textbooks were used to teach students about elements and principles. Some specifically reference elements and principles, while others do not, further leading to the lack of consistency in interior design vocabulary. Many educators felt the elements and principles of design should be updated and re-examined periodically to remain relevant in the ever-changing world of interior design and offered suggestions on how to modernize them. Study results also indicated that over half of respondents utilize a combination of studio and lecture to introduce students to the design elements and principles with the vast majority occurring during the first semester of the first year.

The elements and principles of interior design are an integral part of a design student's education and will contribute substantially to his/her skill set in the professional realm. For this reason, it is important that the design elements and principles are taught in a consistent manner, with emphasis placed on their meanings, substance and appropriate applications.

NARRATIVE

INTRODUCTION

Critical to the discipline are the elements and principles of interior design. These recognized tools are used as the vocabulary to create and communicate successful interior environments. As tools, they serve as universally accepted, governing ideas and quantifying principles upon which the design of spaces can be objectively evaluated in order to determine its success (Nielson & Taylor, 2007). As vocabulary, the elements and principles explain and defend design decisions. The elements and principles of interior design are the building blocks upon which good design is created.

A review of current textbooks indicated differences in both the identification of what constituted the elements and principles of interior design, as well as the specific definitions for each term. The differences illustrate a lack of consistency that may be important when creating a single cohesive language for interior design. According to a recent study, “language is a living thing and evolves in everyday use; it also evolves in its use within disciplines.” (Bracken & Oughton, 2009, p. 375). Just as a clear and cohesive language is needed to communicate with others effectively, interior design students require clear instruction on the language considered native to their discipline. To fully understand the language (and their associated meanings) of interior design, an assessment of how the elements and principles of design are currently being taught in higher education, as well as an examination of educators’ perceptions and usage of the design elements and principles is necessary.

This study assess educators' perceptions concerning the design elements and principles, which are the most difficult to teach, and the textbooks most commonly used to teach them. In addition, a new model is proposed that offers a definitive list of the elements and principles in an attempt to bring consistency and clarity to this area of interior design vocabulary.

REVIEW OF LITERATURE

The literature review revealed that the design elements and principles have rarely been studied consistently and in their entirety. In many cases, research pertained to much broader topics, with elements and principles only briefly discussed as an outlying factor in the study. In a study conducted by Pothoff and Woods (1995), seven introductory interior design textbooks were compared to ascertain their differences and similarities. Textbooks were analyzed based upon pages allocated to individual topics. Results varied widely in page numbers allocated to the design elements and principles, ranging from 11.6 pages (Ching, 1987) to 31.1 pages (Nissen, 1994). In a second study conducted by Albanese, Hines and Rainey (1995), the importance of entry-level interior design skills were ranked by professionals and then compared to the ranking of CIDA's recommended achievement level for each individual skill. Results indicated that practicing professionals placed a greater perceived importance on students' knowledge of elements and principles than did CIDA. In third study conducted by McCoy and Evans (2002), the elements of color, texture and light were studied to determine their impact on creativity potential. Results indicated that light was "significantly related to the creativity potential of settings" (McCoy & Evans, 2002, p.415). Additionally, cool colors had negative correlations to potential creativity, while warm colors did not alter

perceived creativity. Lastly, results indicated that the amount of texture of wood grain was found to be positively associated with creativity potential (McCoy & Evans, 2002). Although studies were conducted on several individual elements and/ or principles of design, none have studied them as a collective whole. Which set of design elements and principles is being taught and which textbooks are utilized? Should equal importance be placed on each element and/ or principle or is one more important than the others?

METHODOLOGY

Qualitative research methods using an open-ended survey were employed for this study. The survey involved the posting of an online questionnaire to interior design educators teaching in CIDA accredited programs in the United States and assessed perceptions of interior design educators concerning their use of the design elements and principles.

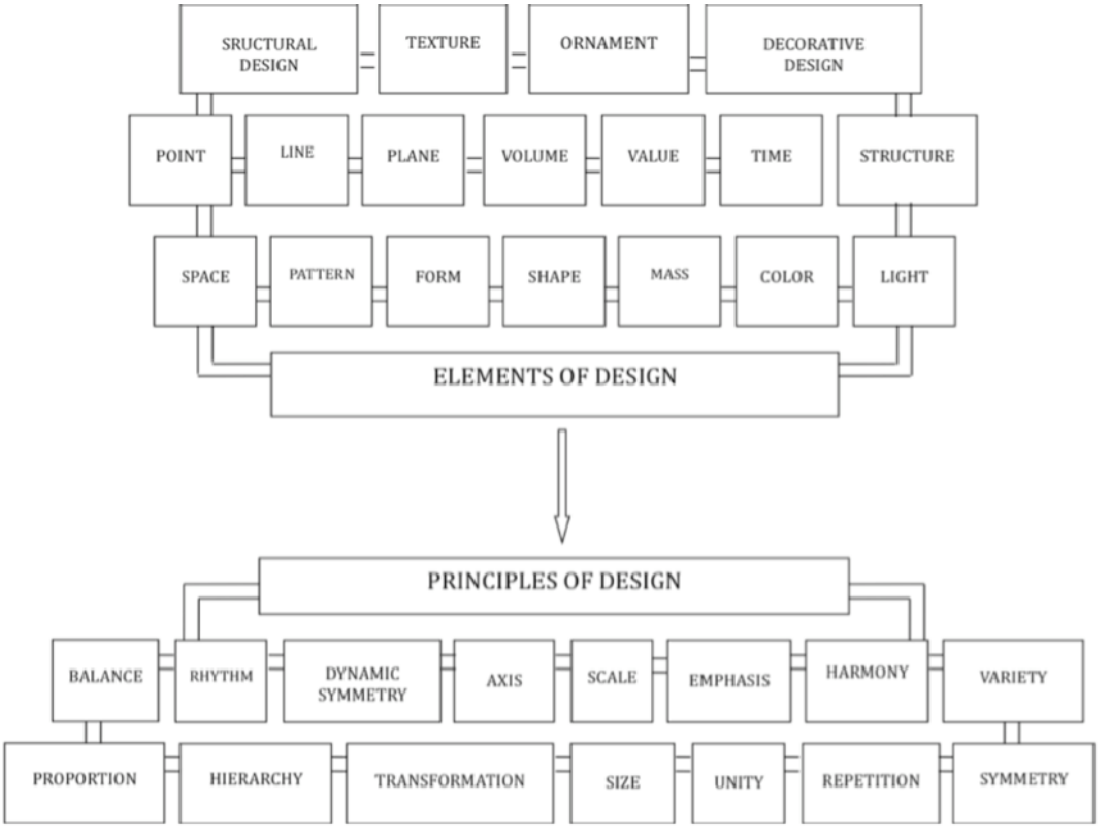
All open-ended responses generated from the survey were analyzed using King's template analysis (King, 1998). A coding template was developed to identify and organize categories or themes identified as being relevant to the research question. Themes were selected on the basis of recurrence, with several categories being grouped together to produce a more general, overarching code. The final template is illustrated in Table 1. It is important to note that template analysis allows for parallel coding, in which the same segment of text might be classified under two or more categories.

FINDINGS

Of the 147 CIDA accredited institutions invited to participate in the study, 38 educators returned the survey (38.6% response rate). Responses from 29 participants were utilized in the analyses for this research. Of those who responded, 22 were female (75.9%) and seven were male (24.1%), with over 70% of participants over the age of 45. Respondents' educational backgrounds and areas of study indicated that while over 65% of respondents had earned at least one degree in interior design, over one-third of the educators (34.4%) had earned degrees in non-interior design fields, such as music performance, civil engineering and hospitality management.

Findings indicated that a majority of design programs (72.4%) introduced the elements and principles to students during the first semester of their first year with over half (59%) teaching them in a combination studio/ lecture format. Typically, they were taught as part of a course, as only four faculty indicated an individual course was dedicated to covering the elements and principles. Over 40% of the design programs utilized foundational textbooks authored or co-authored by Francis D.K. Ching to teach the elements and principles, while six institutions did not have required textbooks for students. Findings indicated that the principle of proportion was identified as both the "most difficult element and principle to teach" and "most difficult for students to comprehend." Nearly 60% of educators believed that each interior design element and principle was equally important when designing an interior, while 40% stated that harmony, balance, proportion and scale, color, pattern, texture and rhythm were more important than others.

Findings from the open-ended portion of the study indicated that the identification of elements and principles of design lacked clarity and consistency (See Table 1) and that many different textbooks, rather than one, were used to educate students about the elements and principles of design (Table 2). This is where a lack of consistency was evident. In some textbooks, harmony, light, emphasis, space, time and pattern were not included as elements of design. In others, plane, structural and decorative designs were added as design elements. When principles of design were compared across textbooks, some authors did not include proportion, scale, rhythm, harmony and variety as principles of design. The following diagram indicates all of the elements and principles of design identified by educators in this study.



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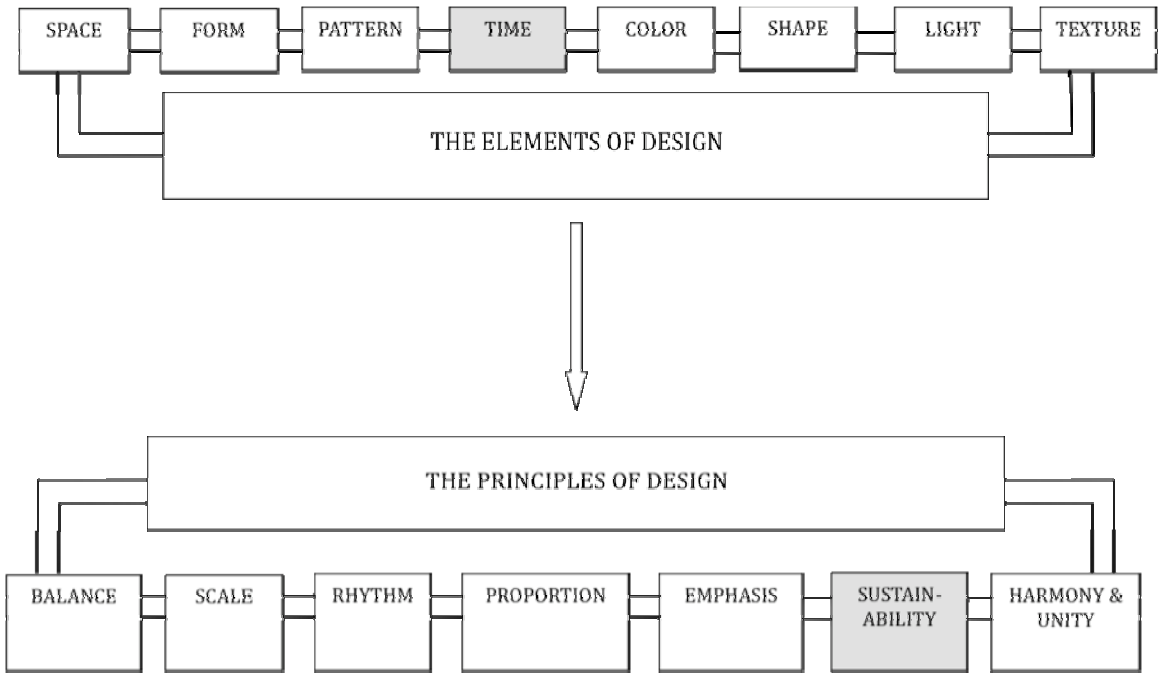
Inconsistencies were further illustrated in the inability of several educators to respond to the survey questions due to their confusion of which list of elements and principles were being questioned. One educator responded, “It really depends upon which theorist’s list you are using.” Another educator explained, “Which author’s elements and principles are you using? Architects (Ching, mostly) uses one set; art uses another, and various basic design authors use still others.”

Many educators offered suggestions on how they thought the list of elements and principles of design might be modified. Educators’ suggested that point, plane, concept, volume, light and shadow, design theory, design history, a time-based element, sustainability and human response be added to the elements and principles. After analysis and evaluation, a new model of elements and principles of design is being proposed and is indicated in the figure below. This presentation will discuss the rationale for including each element and principle.



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CONCLUSION

As the review of literature and the findings of this study suggested, there appears to be a lack of cohesiveness, consistency and clarity when discussing the elements and principles of interior design. Research findings indicated that many educators believe they need to be updated. As one educator explained, “principles need to be updated and re-examined with a view towards what we see in architecture and industrial design” as well as interior design.

As students move through the curriculum and towards professional practice, educators instruct students on the knowledge and skills they need to be successful in interior design. This skill set includes the vocabulary of interior design, hence the

elements and principles of design (Nielson & Taylor, 2007). The lack of consistency is not uncommon as a profession matures and develops. As a language grows and evolves, so should the professional language of interior design. This research is one suggestion for creating a more consistent, clear interior design language.

Future research suggestions relate to the proposed new model of design elements and principles, as outlined in this research study. A qualitative interview could be conducted with educators at annual conferences to determine the strengths and weaknesses of the newly proposed model of elements and principles. An additional area of research would be to conduct interviews with CIDA's visiting teams to examine their opinions on the inconsistencies viewed at various institutions concerning the interior design elements and principles. Interviews would explore the prospect of CIDA implementing a recommended list of elements and principles to be used in all CIDA accredited interior design programs.

REFERENCE LIST

(APA Style)

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Table 1

Template used in this study

Theme/ Category	Frequency
1. Design language	14
A. Communication of design concepts/ decisions	9
B. Cohesive language (multi-discipline/ education & profession)	5
2. Knowledge & Application	29
A. Definable & concrete process/ place to “begin”	16
B. Ability to apply and manipulate	13
3. Significance	34
A. Fundamental to occupation/ design (as a collective whole)	23
B. Individual hierarchical importance/ dependant upon project	11
4. Evaluation	24
A. Defense for design decisions	3
B. Critique tool	10
C. Parameters to define a “good design(er)”	11
5. Introduction to higher level of thinking	18
A. Transition between 2-D and 3-D thinking	6
C. Step to developing critical thinking	6
6. Suggested modifications/ alterations	6
A. Additions	5
B. Removal	1

Table 2

Textbooks Used

	Frequency
None	6
Ching's *Architecture: Form, Space & Order*	7
Nielson & Taylor's *Interiors:Aan introduction*	6
John Pile's *Interior Design*	4
Kilmer & Kilmer's *Designing Interiors*	3
Ching & Binggeli's *Interior Design Illustrated*	2
Bevlin's *Design Through Discovery*	2
McCreight's *Design Language*	1
Busic-Snyer & Wallschlaeger's *Basic Visual Concepts & Principles*	1
Frank Mahnke's *Colour, Environments & Human Response*	1
Allen, Jones & Stimpson's *Beginning of Interior Environments*	1

Table 3

Suggested Modifications to the Interior Design Elements and Principles

“ light and shadow”
“ more design history; more design theory”
“ some do not include time and I believe it should be addressed”
“ I think that human’s response to the elements and principles of design should be addressed, but that is all.”
“Part of sustainability will be the ability to design in a lasting way and that will require a focus on the elements and principles of design”
“ a principle that is time-based”
“ I think point, plane, and volume should be added to Kilmer & Kilmer’s list. Why? Well, I like Ching’s emphasis on them and I think they would help the students understand interiors better.”
“ emphasis on CONCEPT. All together they [the design elements and principles] should create, or be created by, a concepts. I don’t think this is stressed enough or explained very well, as in “Where is all this leading and why do I need to understand these?”

Learning about sustainability from the traditional houses of Kula, Turkey: a case study.

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ABSTRACT

Purpose:

Traditional and indigenous houses, having evolved out of necessity that demand the most efficient and simple solutions for shelter, duly respect climate, site, culture and region. These environments offer us the invaluable lessons of sustainability in their most natural and authentic ways. Learning about sustainability from such communities involves an understanding of the socio-cultural institutions: family structure, social mores, religion, economics, education and politics of the setting and finally how these values are manifested in the built-environments.

As designers our first obligation is to protect these environments and then to enhance them as we learn from them. We need to respect what is around us, honor what is left to us, celebrate what we create and finally cherish it as our offering to humanity. As the Native American adage goes, **"**We do not inherit our land from our ancestors; we borrow it from future generations."

This paper focuses on the typology of traditional houses and interiors based on the socio-cultural and design aspects of one such environment, Kula, a town in the province

of Manisa, Turkey. The purpose of the project is to preserve the life of Kula, its people, traditions, buildings, history, thus celebrate a “living architecture”. The project aims to weave the past, present, and future of this place into a fabric that not only enriches the experiences of those who live there, but also of all those, who wish to cherish every aspect of its tradition. The intention of the study is to develop a better understanding of such communities holistically and re-interpret patterns of sustainability which keep the vibrancy of these communities intact which in turn teach us about sustainability.

Process:

The architectural heritage of Kula is better understood through the documentation of the houses (drafted plans, interior/exterior elevations of selected structures), analysis of the materials used and by interviewing the inhabitants. Photography is used extensively to capture and record the visual aspects: Typology of plans, architectural elements, structural details, materials and colors used.

Relevance:

Finally, recommendations are made to the municipality, elders of Kula, and the public. Hospitality and rich craft traditions of the people of Kula can be effectively used in improving the economy of the town by opening up its invaluable heritage to the international and domestic visitors. The involvement and experience of the guests are enriched by their active participation in the day to day activities of the natives, thus portraying Kula not as a “museum city” without life but as a “living architecture” from which we can learn about sustaining and preserving our environments.

The site research in Kula sponsored by a grant from Earthwatch Institute is extremely relevant to interior design today because of its architectural and cultural context as being an environment offering excellent examples of sustainability by demonstrating the utilization of passive solar energy, natural ventilation, energy conservation, local materials and the organic food grown in the courtyards of the Kula houses.

NARRATIVE

> "I am not interested in vernacular to be sentimental. I am interested in what it can teach us. All vernacular architecture is sustainable. It is always inherently related to the region."
>
> Frank Harmon, Architect
> (Dwell, Dec/Jan 2008)

Introduction:

Traditional environments respect climate, site, culture and region or geography. Two hundred-year-old Kula houses are socio-cultural institutions sustaining the heritage of the community: family structure, social mores, religion, economics, education and politics of the setting. These environments are the results of life styles. They teach us about sustainability because the builder/designers applied sustainable methods and materials not because it was big business and fashionable as it is today but because they addressed the climatic conditions and utilized the native resources of the region as they responded to the life styles in the most natural way.

Purpose or Issue:

This paper focuses on the methods and materials used in the different typologies and architectural elements of the Kula houses as examples of sustainability. The study aims to weave the past, present, and future of this place into a fabric that not only enriches the experiences of those who live there, but also of those, who wish to cherish every aspect of its tradition rooted in self–sustained life style and built environments. The

intention is to develop a better understanding of such communities holistically and re-interpret patterns of sustainability which keep the vibrancy of these communities intact. Learning from the basic and traditional elements and creating parallels in our modern times could only enhance our environments.

Historical context:

Anatolia (Asia Minor) has been home to Turks for over nine centuries where evidence of settlements dates back to 7000 BC. People who established their homes in Anatolia, from the Prophet Noah, the Hittites, the Phyrgians, the Persians, the Greeks, the Celts, the Romans (Byzantium of Eastern Roman Empire), to the Turks, brought their own building techniques. Yet, each civilization was impacted by the climatic and topographical structure of the different regions. This, naturally, had a profound effect on the development of the Kula house.

Even more varied were the non-physical factors which included social structure of the family unit, the Turkish domestic life-style, religion, tradition, economy and finally, local craftsmanship in building. In spite of these many influential factors, certain basic principles emerged which were accepted and applied without too many variations throughout Asia, Europe and Africa, but it was in Anatolia (Asia Minor) where the Turkish house evolved and proliferated. (Akkurt, 1991)

Background:

Kula house is a direct expression of the lifestyle of its natives. It is a two-story structure with high walls and vibrant colors separating the house and the courtyard from the street, thus from the public. Its turned-inward orientation derives from cultural, especially religious values explaining the insulation of the women from the public and the communal life. Yet, the second story, projects itself over the street almost, as if, to keep an eye on the activities of the street.

It was this contradiction between the desire for privacy behind the wall and yearning for the public embracement of the second stories that intrigued architect Le Corbusier during his journey to Istanbul. “Wooden houses with large spread out roofs warm their purple color amidst fresh greenery and within enclosures whose mystery delights me. The houses join the upper stories over extremely narrow streets. There is a lot of cohesion even completion, within this feverish activity so much so that it brings about not only a sense of unity , but also beauty.” (Le Corbusier, 1987)

Characteristics of the Kula house:

There are many influential factors behind the formation of the Kula house. Among them are the following major contributors.

Street

Streets follow the topography of the land and the row houses respect the contours of the streets thus creating a maze. Streets are not only the major arteries of circulation

but they become extensions of public piazzas (**meydan)** and courtyards (**avlu)** for public gatherings such as weddings, political gatherings and other meetings.

House

Kula houses are typically two-story, post and beam structures with masonry ground floors and timber upper levels. Masonry walls follow the street whereas projections (**cumba**) of upper levels provide a better and longer view of the street. Masonry walls are built with local materials: “kayrak”stone, marble and volcanic stones of basalt and tufa from a volcanic mountain nearby and locally made brick. Structural timber, mostly used in the upper floors, is from the locally grown poplar and pine trees with some cedar and maple used for millwork and wall units.

Plan typology:

Typical plan demonstrates all rooms opening to a **sofa** (hallway) surrounding an **avlu** (a courtyard). These rooms regardless of their orientation get their light from the courtyard and the street. Though the plans look symmetrical on the paper, symmetry is not a must in the Kula house, but function is. Each room has to be functional and flexible as an area to sleep, eat, rest, wash, work, worship and socialize, thus providing the functions of a house which is a symbolic cohesion of nomadic life where each tent functioned as a house therefore as a room. (Akkurt, 1993) The functions remain constant for any given room though room dimensions may vary according to need. Certain units, however, gained functional autonomy because of their specialization,

such as the kitchen with the fireplace where major cooking like bread making takes place.

Avlu/Courtyard

Avlu is the organizational architectural element which connects the house to the street. It is a transitional space between the private rooms and the public street. It provides a playground for the children, a cool social area for women under the trees and among the fragrant flowers and a source of subsistence with a garden of vegetables, herbs and fruit trees. Traditionally, people of Kula get all of their fresh food from their gardens and daily markets which support the local farmers.

Heating/Cooling/Ventilation

One-foot-thick masonry walls insulate against heat and cold. There is no central heating in the houses. A fireplace (**ocak**) in the kitchen is used for cooking but also to provide embers for the brassiere (**mangal**) used to heat the rooms. Organic cotton and wool are used for cushions, beds and quilts according to seasons. Tea kettle, a constant element on the mangal, provides hot water for tea and humidity for the comfort of the room. In the wintertime, cold and unused rooms are always closed creating the necessity of the warm rooms to become a gathering place for the family.

Windows

The windows facing the street and the courtyard provide cross ventilation. Windows are consisted of glass, grill and shutters. Shutters are used to prevent intense sun rays in

the summertime and to protect against wind and cold in the wintertime. Grills prevent accidents and provide security.

Water

The site sits on a volcanic porous rock bed which enables water to be purified through percolation. Traditionally, rain water is collected in wells, cisterns and terra cotta urns (Dolium). Collected water is used for the irrigation of the garden, washing, bathing and boiled water for cooking. It is only in the last fifty years that the houses have been using water provided by the city.

Baths

Outhouses function as toilets and there are no bathrooms other than one-person cleansing spaces as part of the wall-units in the upper rooms, used mostly after sexual activities. Traditionally, twice a week, people visit the local **"hamam"** equivalent of modern spas, for cleansing, facial and bodily skin rejuvenation, henna applications, massaging, and relaxation.

Wall paint

Plaster applied on brick or mud brick of the walls is a mixture of dirt, straw, sand and local clay. Exterior and interior walls of the houses and courtyards display vivid colors with homemade paints containing low or no VOC (volatile organic compounds that outgas) obtained from local vegetation. Most popular is the **çivit (**indigo) obtained from

the indigo plant and used with different intensities in painting of the walls and in the whitening of the weekly wash of white bed sheets and clothing.

Ornamentation

Ornamentations appear mostly in the wooden elements, such as, shelves, balustrades, ceilings, the capitals of weight-supporting columns, fireplace hoods, doors, cupboards, closet doors and windows. Maple, cedar and pine are the local materials used for these elements. Women are reflected through their crafts displayed around the room and men through the decorations applied in the architectural elements of the house. Kula is famous for its carpets, woven by women as a form of personal expression. In carpet making, the women use fleece from the sheep they raise and dyes from local vegetation.

Kula house is a holistic, self sustained unit that functions harmoniously. “For harmony to exist the constituents parts must form a logical whole; unity must perceptibly dominate fragmentation.” (Smith, 1987) Unity of the Turkish house is the physical manifestation of the family structure based on the social, economic, religious and human values. Kula houses, like other traditional Turkish houses, look quiet, simple and a bit mysterious from outside. It is difficult to distinguish the rich houses from the poor houses as they all exhibit the same humility on the outside.

Conclusion:

We learn from regional indigenous societies and their traditional environments. Therefore, as designers we should protect these environments from globalization and then to enhance them. We need to respect what is around us, honor what is left to us, celebrate what we create and finally cherish it as our offering to humanity.

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Effective Collaboration in Interdisciplinary Teams:

Healthcare Design Studio as Vehicle

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ABSTRACT

Purpose

Multi-disciplinary teams are not new; they are present within the academic as well as professional realms of design. Effective teaming within these efforts is, however, often a challenge. This teaching forum describes an effective approach and the outcomes of a unique inaugural learning experience in an upper-level multi-disciplinary design studio course.

Framework

Thirteen 4th year interior design students (one of two fourth year sections), and a "vertical studio" consisting of thirteen 5th and 6th year architecture students all elected into the studio. Students were combined in a common studio space to investigate, explore, and discover possibilities for a healthcare, restaurant, and boutique hotel project on a regional medical campus. A major architecture/engineering/interior design

firm offered to sponsor the studio experience, underwriting an off-campus studio space, furnishing the space, and providing a variety of professional consultants to supplement the teaching staff (one interior design and one architecture professor).

During the summer months, professors worked in tandem to develop both the sequence and timing of events in studio. Initially, professors began by developing typical expectations of each discipline's students by project phase. Several iterations of the schedule and expectations were necessary to fine-tune the choreography of learning, exploration, and application for the semester. Additionally, members of the sponsoring firm engaged with the faculty in discussions centered on project scope and scale, timing of input from content experts, appropriate tours to reinforce research, and potential critics. Collaboration, therefore, occurred not only for students, but among the faculty and firm members as well.

Each phase of the project was designed to require student teamwork in some form. Each phase also resulted in a pre-defined outcome that students presented in both a graphic and verbal manner. Peer evaluation formed an important component of the studio experience and immediately followed each project phase. In some instances, peer evaluations were conducted by individuals, and at other times, were structured to act as team reinforcement experiences. Professors designed the peer evaluations to guide critical observation and constructive feedback.

Formative and evaluative feedback was also provided by the educators at the termination of each phase. A common rubric encompassed the objectives of the course for each phase and guided a consistent evaluative approach among educators. This feedback loop provided students with written formative feedback every 2-3 weeks plus

an evaluation of each phase resulting in a grade. Guest critics (practicing interior design and architecture professionals as well as other faculty) were involved in presentations, offering valuable differences in approach for students to consider in their project.

Importance of the Topic

Teamwork is critical in the design disciplines. Effective interdisciplinary teamwork is important to ensure the best design solutions for clients and the global community. This multi-disciplinary studio approach provides an example of collaborative techniques and activities embedded within the normal course of an academic studio course to encourage effective teamwork. Project phase examples, successes and suggestions, and implications for future studios are presented.

NARRATIVE

Purpose

This teaching forum describes an effective approach and the outcomes of a unique inaugural learning experience in an upper-level multi-disciplinary design studio course. Multi-disciplinary teams are not new; they are present within the academic as well as professional realms of design. Effective teaming within these efforts is, however, often a challenge.

Literature Review

Teamwork in the design disciplines has a rich framework of examination, whether in determining effective means of establishing collaborative teams, or analyzing common challenges cited by faculty and students (Anderson, Honey, Kaup, Zuo 2005). Teamwork in interior design education has been considered through the effectiveness of Myers Briggs Type Indicators to assemble teams or evaluate effectiveness of team output (Amor and Wilson, 2005). The importance of team preparation and the relationship of team training to positive student perception have been discussed by Webb and Miller (2006).

Schwarz introduced a 1997 Journal of Interior Design Focus Report with the statement “Creation in all the arts demands two opposing abilities: developing novel ideas with the imagination and selecting from those ideas with informed, critical thinking.” Kolb posits that experiential learning is “the process whereby knowledge is

created through the transformation of experience. Knowledge results from the combination of grasping and transforming experience." (Kolb, et al., 2000)

Each of these processes, experiential learning, cognitive learning, and interactive processes, can play a role in interior design education and the teamwork occurring within it. In a team framework, the sharing and integration of knowledge can empower students and allow high achievement (Ankerson & Pable, 2007). The Comprehensive Unified Learning Theory addresses prior knowledge, learner ability, motivation, and learner confidence (Shell & Brooks, 2007) where working memory is one component of prior knowledge. Working memory can sometimes be extended by writing notes or making sketches (diagramming) while working on a task. Working in groups may also extend working memory (Shell & Brooks, 2007) when a thought is kept activated by one member of a group so that it can resurface during a group exchange. Thus one group member takes advantage of the working memory within the mind of another group member.

Teamwork is valued among accrediting bodies (CIDA and NAAB) as evidenced by accreditation standards. Throughout the design professions, teamwork and interdisciplinary collaboration are also valued as evidenced in IIDA's publication Perspectives: *"As our panel of leaders from IIDA and the American Institute of Architects (AIA) attest, designers and architects realize the time for turf battles has ceased, and now, more than ever, it's all about collaboration."* (Bowles, 2007)

Context

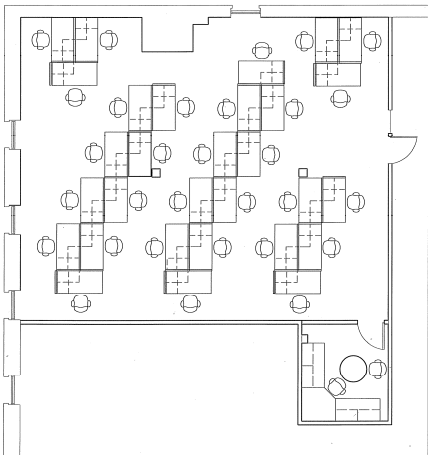
Fruition of the idea blossomed for the Fall semester 2008, to incorporate a collaborative studio experience teaming the profession with interior design and architecture students and faculty, approaching a real project with a real client. The inaugural healthcare design studio incorporated students from two of the four programs within the College of Architecture at the University of Nebraska-Lincoln, interior design and architecture.

The Setting

An off-campus studio space, (located in an existing 1904 office building located within the historic Haymarket District, approximately 4 blocks from Architecture Hall) comprising approximately 1,200 SF was procured and furnished by HDR, Inc., sponsoring firm for the studio. Typical open office systems furnishings were provided, with 5’ high panels in most cases.

Off Campus Studio Site

Interior Public Shared Space



Studio Plan Layout

Interior View

The Project

The regional medical center campus serving a 14 county area in Iowa provided the site for design of an ambulatory surgical care facility (ASC), boutique hotel, and restaurant.

Collaborators

One senior interior design faculty member and one senior architectural faculty provided continuous planning and presence for the course, supplemented by the college dean and faculty for reviews. HDR, Inc. supported a principle's involvement in studio one day per week. In addition, the course was supported through involvement of content experts provided by HDR, Inc including equipment planners, programmers, project architect, and client's representative from the project, master planners, and interior designers. Other professionals contributing to the course included designer/restaurant owner, branding specialist, nursing staff, and health care administrators.

Offered as a Fall 2008 event (August 15-December 22, 2008), and serving as one of two fourth year studio choices within the Bachelor of Science in Design (Interior Design) program and one of four choices of vertical studio within the Masters of Architecture program (incorporating a combination of fifth and sixth year professional students), the course was populated by 13 fourth year interior design, 8 fifth year architecture, and 5 sixth year architecture students.

Process

Summer months found professors and professionals working in tandem to develop both the sequence and timing of events in studio. Initially, professors developed typical expectations of each discipline's students by project phase. Several iterations of the schedule and expectations were necessary to fine-tune the choreography of learning, exploration, and application for the semester. Additionally, members of the sponsoring firm engaged with the faculty in discussions centered on project scope and scale, timing of input from content experts, appropriate tours to reinforce research, and potential critics. Since both programs involved must meet separate accreditation standards (NAAB and CIDA) within their individual programs, as well as curricular goals contributing to the professional educational sequence, faculty initially mapped out expectations for individual discipline-specific studios. These expectations then played an important role in strategizing experiences and outcomes for individual phases and overall achievement in the course and represented by stated course objectives within the singular syllabus. Collaboration, therefore, occurred not only for students, but among the faculty and firm members as well.

Each phase of the project was designed to require student teamwork in some form, see Figure 1. Each phase also resulted in a pre-defined outcome that students presented in both a graphic and verbal manner. Throughout the semester, students had the opportunity to participate in site visits of comparable projects, meet with the client in simulated user group sessions, and conduct design charrettes and peer reviews to take advantage of the collaborative nature of an architectural/interior design studio setting.

Students were required to present their solutions to the client, instructors, peers, and professionals at benchmark stages and for the final solution in a more formal setting.

Peer evaluation formed an important component of the studio experience and immediately followed each project phase. In some instances, peer evaluations were conducted by individuals, and at other times, were structured to act as team reinforcement experiences. Professors designed the peer evaluations to guide critical observation and constructive feedback.

Team Strategy by Project Phase					
Phase	**Professionals/Input**	*Team Compositions*			*Products/Output*
RESEARCH	**Firm's Presentation**: Healing Environment & Evidence-Based Design	ID Team (3 people)		ARCH Team (3 people)	8 Teams for Research = **8 Research Findings + Presentations**
	Tour of Current Surgical Facilities (**2 firms' architects & designers**, **2 surgical center staff** and administrators	ID Team (3 people)		ARCH Team (3 people)	
		ID Team (3 people)		ARCH Team (3 people)	
	Research Findings + Presentations (Sponsoring firm: **4 design professionals**)	ID Team (4 people)		ARCH Team (4 people)	
PROGRAMMING & MASTER PLANNING	**Restaurant Designer/Owner**: Presentation + Plan Examples (**1 architect/designer**)		ARCH/ID Team (5 people)		5 Teams for Program and Master Planning = **5 Programs + 5 Master Plans**
	Approach to **Programming & Equipment** (Sponsoring firm: **1 architect, 1 planner**)		ARCH/ID Team (5 people)		
	Master Planning (Sponsoring firm: **Healthcare Director/Architect + Planner**)		ARCH/ID Team (5 people)		
	Client Discussion (Sponsoring firm: **Project Architect; Client**)		ARCH/ID Team (5 people)		
	Review (Sponsoring firm: **1 architect**)		ARCH/ID Team (6 people)		
CONCEPT (GENERATIVE DIRECTION)	**Creative Branding Firm**: Presentation + Individual Team **Strategy Meetings** (**1 partner**)	ARCH/ID Team (3 people)		ARCH/ID Team (3 people)	8 Teams for Concept/Generative Direction generating 3 alternatives each = **24 Concepts/Generative Directions for Design**
		ARCH/ID Team (3 people)		ARCH/ID Team (3 people)	
	Review (Sponsoring firm: **1 architect**)	ARCH/ID Team (3 people)		ARCH/ID Team (3 people)	
		ARCH/ID Team (4 people)		ARCH/ID Team (4 people)	
SCHEMATIC DESIGN	Desk critiques (Sponsoring firm: **1 architect 1 day every week** in studio)	ARCH/ID Team (4 people)		ARCH/ID Team (4 people)	7 Teams for Schematic Design generating 3 alternatives each = **21 Schematic Designs**
	Review (**18 architecture** and **interior design professionals** representing **9 firms** from **2 cities**)	ARCH/ID Team (4 people)		ARCH/ID Team (4 people)	
		ARCH/ID Team (4 people)		ARCH/ID Team (2 people)	
		ARCH/ID Team (4 people)			
DESIGN DEVELOPMENT	Final Review (Sponsoring firm: **space, food & drink**)	ARCH/ID Team (2 people)	ARCH/ID Team (2 people)	ARCH/ID Team (2 people)	13 Teams of 2 for Design Development each generating team design = **13 Designs**
	Final Presentation & Review (**Over 40 architects, interior designers,** and **engineers** representing over **14 firms + Client - traveled 6 hours to attend**)	ARCH/ID Team (2 people)	ARCH/ID Team (2 people)	ARCH/ID Team (2 people)	
		ARCH/ID Team (2 people)	ARCH/ID Team (2 people)	ARCH/ID Team (2 people)	
		ARCH/ID Team (2 people)	ARCH/ID Team (2 people)	ARCH/ID Team (2 people)	
		ARCH/ID Team (2 people)			

Figure 1: Team Development

In addition to the peer evaluations accomplished among individual students and student groups, formative and evaluative feedback was provided by the educators at the termination of each phase. A common rubric encompassed the objectives of the course

for each phase (based upon the initial agreed-upon discipline objectives) and guided a consistent evaluative approach among educators. This feedback loop provided students with written formative feedback every 2-3 weeks plus an evaluation of each phase resulting in a grade. Guest critics (practicing interior design and architecture professionals as well as other interior design and architectural faculty) were involved in presentations and critiques, offering valuable differences in approach for students to consider in their project.

Implications

There is a growing need for designers and architects with the knowledge and skills to contribute to the creation of healthy environments. There is increasing awareness of and need for effective collaborative efforts among varied disciplines engaged in design. Evidence-based design is a growing approach to both gain and incorporate knowledge as an integral part of the design process. The Center for Health Design's Pebble Projects research program is one such example of collaboration between healthcare organizations and design partners to document those instances where facility design has made a difference in quality of care.[1] This collaborative course was designed to continue the development of students' ability to investigate and incorporate varied and complex information and issues in the design of a specific project type. Students were expected to actively explore a range of theoretical and practical issues germane to their project. This spectrum included areas of knowledge coming from both within and outside the design professions. Students were expected to

[1] http://www.healthdesign.org/research/pebble/ The Center For Health Design Research accessed 10/13/08

show initiative in identifying and including these issues within their design process. In addition, the expectation for students to be an active participant in the critical dialogue of the studio was paramount.

Through modeling collaborative behaviors at each phase of the planning and conduct of the class, professors, professional consultants, and each of the supporting partners provided inherent examples to follow. Several facets of the studio contributed to the successful teamwork: off-campus location, collaborative behaviors of faculty, evidence-based design approach, refusal to delineate roles according to discipline, and complexity of project.

Many examples may be found of teamwork and interdisciplinary work, some more or less effective in output and overall experience. This course is distinguished by the modeling of behaviors by professors and collaborating professionals and consultants, and in the quality of knowledge and output evidenced by student work. Success of the semester may be gauged by one of several means, appreciation for unique intrinsic as well as extrinsic contributions by discipline, energetic involvement of diverse professionals from varied firms, invitations for presentations at additional firms, and recognition of excellent collaboration by the NAAB team on the accreditation visit.

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Forging Frontiers:

Development of a Multi-Disciplinary Design Innovation/Research Institute

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ABSTRACT

Purpose

A creative approach to quality design education within the increasingly competitive academic and professional world calls for resourceful strategies, not only in project and course design, but in learning, discovery, and engagement as a university. This paper explores one such approach to the development of a proposed multi-disciplinary umbrella of the College of Architecture Centers for Design Innovation and Research focused on multiple issues including health and healthcare design, sustainable environments, educational and institutional, digital design and innovation, and historic preservation.

On a number of levels, the innovative strategies of such an approach may forge relationships among multiple constituencies across the state university system and beyond. Public-private partnerships advantage synergies by pooling economic, human capital, and knowledge resources, poising the institute for additional opportunities to exercise entrepreneurial ventures in discovery and engagement to the advantage of the

university and the people of the state. Storberg-Walker and Torraco state: "…higher education now finds itself in a new era and environment in which it is confronted with an array of challenges and forces for change"(2004). The tripartite mission of teaching, research/creative activity, and outreach/service (herein referred to as the umbrella structure of **learning**, **discovery**, and **engagement**) establish a framework to envision potential outputs of the Centers.

Learning

The Centers create opportunities to enhance undergraduate design education and carry those opportunities into graduate education over an even wider disciplinary audience. Within these seminar courses, opportunities for integration with other disciplines and non-specific-track design students arise. Design studios running concurrently to seminars will build upon this knowledge by featuring programming and design projects that are environment- or content-specific in nature.

Discovery

With the inherent 'problem-based' or 'issue-based' strategy of education present in the design disciplines, the opportunities for partnerships across disciplines are many. Partnering with related domains across and beyond the university system will strengthen the education of students and have the opportunity to significantly impact the contribution to the bodies of knowledge in individual disciplines (especially in translational and applied research) drives the quest for collaboration on this front.

Engagement

Ultimately, responsibility to engage the broader context of the state and society with knowledge and service will be well-served through the integrated approach of the proposed Centers.

Importance of the topic

With the aging population, advances in medical care, changing delivery systems, and aging current facilities, there is a growing need for designers and architects with the specific knowledge and skills to contribute to the creation of healthy and sustainable environments.

Relevance to Interior Design

The CIDA 2009 Professional Standards not only continue to support the importance of knowledge of behavioral science and human factors, but emphasize the importance of engaging in multi-disciplinary collaboration (2009). Graduate endeavors can amplify the knowledge and established relationships, with investigation and design research furthering the body of knowledge in interior design. Interior design educators, practitioners, and users of the designed environment will benefit from such an effort.

NARRATIVE

Introduction

A creative approach to quality design education within the increasingly competitive academic and professional world calls for resourceful strategies, not only in project and course design, but in learning, discovery, and engagement as a university. Importantly, synergies that can positively influence college missions come from within the university walls, and from creatively exploring external strengths and compatible interests.

Broader Context

The Oxford Conclave on Global Ethics, citing the rapidly changing context facing our globe, issued a statement by university leaders calling for the transformation of universities to make them more effective agents for the transformation of society. The National Center for Public Policy and Higher Education (NCPPHE), in a recent special report (April 2008), stated:

> *"There is little question that higher education must be among the most important intellectual and creative resources assembled to address an array of critical challenges confronting society-including the sustainability of natural resources; the provision of health care for all in a growing, aging population; and the renewal of economic vitality across a wide demographic range, which entails helping more working adults acquire higher-level skills and knowledge, instilling core human values, and strengthening social structures to ensure that future*

generations experience lives of justice, equity, and fulfillment. Higher education must organize its resources for increased responsiveness to, and engagement with, society's core challenges in the century ahead."

Development of interdisciplinary centers can provide a powerful structure for both breadth and focus to examine issues currently facing the global environment and peoples, even more importantly, lead in the creative search for solutions to many of the problems and their sources. David and Michael Siegel in "Cross-Sector Collaboration in the Public Interest" observe:

"The modern condition is a boundary-less one that has obscured and complicated traditional notions of the roles universities, corporations, government organizations, and others play in the world, both on their own and in league with others."

Opportunities for collaboration between higher education and business, when envisioned creatively and with the educational, research, and service goals of the university in mind, elevate the partnership beyond mere economics. Leaders in business can contribute to the effectiveness of higher education by helping define the learning outcomes a global society requires (NCPPHE, 2008), collaboratively providing research inspirations, and learning examples for faculty and students. Such collaboration works best where there is good understanding on both sides of the need

for independence, autonomy, respect for intellectual copyright, and a focus on education rather than training as the central teaching mission of universities.[1] While some discuss the "triple helix" of the entrepreneurial university, operating according to an interactive model of innovation; industry moving closer to an academic model of training and knowledge sharing; and government acting as a public entrepreneur and venture capitalist (Etzkowitz, 2003), others caution to maintain the integrity of each*: "Dance carefully with the porcupine, and know in advance the price of intimacy."*[2] These concerns grow from the fear that, as universities become more attuned to the needs and rewards of the economic marketplace, academic priorities may be replaced with profit-oriented priorities.

Cross-Disciplinary Focus

While some issues fit cleanly into one area of responsibility or profession, many fit under an umbrella of social, cultural, political, and environmental concerns (an example is the topic of "livable communities"). On a number of levels, the innovative strategies of a cross-disciplinary collaborative approach may forge relationships among multiple constituencies across university systems and beyond. Public-private partnerships advantage synergies by pooling economic, human capital, and knowledge resources, poising the Centers for additional opportunities to exercise entrepreneurial ventures in discovery and engagement to the advantage of the university and the state's citizens.

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[1] http://www.meccsa.org.uk/papers/responses/hm-treasury-lambert-review-of-business-university-collaboration

[2] CMAJ • September 18, 2001; 165 (6)

"The most important educational goal confronting higher education in the 21st century is to optimize learning by students and by society in general: to educate a growing, increasingly diverse set of learners to be effective and fulfilled as workers and citizens, capable of meeting new challenges they will encounter throughout their lives. To optimize learning means setting forward-looking expectations for universities and colleges, conveying the need to educate graduates for living effectively in a complex world, in terms of personal health as well as financial and social well-being. Optimized learning is that which helps strengthen democratic and civic institutions in the nation. This conception of learning extends beyond the education of students in classrooms to include higher education's impact on societal organizations, businesses, corporations, and value-based organizations – all made possible by a greatly expanded sense of higher education's educational mission. To optimize learning entails an increased sense of responsibility – within the nation at large, its individual states, and in public and private institutions of higher education – to achieve learning outcomes and meet educational standards that address growing societal needs."

The Structure

With an emphasis on creative endeavors, a formal structure for collaborative inquiries going beyond faculty-to-faculty original and translational research was instrumental in this transformative approach. Development of the College of Architecture Centers for Design Innovation and Research promotes an umbrella for entrepreneurial opportunities, public-private partnerships, and collaborative efforts

between and among universities. The proposed Centers will encompass five divisions for interdisciplinary and intercollegiate research, teaching, and public service, with focus on a broad range of topics:

- Health and Healthcare Design
- Digital Design and Innovation
- Sustainable Environments
- Educational and Institutional Design
- Historic Preservation

The Centers will provide an umbrella structure encouraging collaborative efforts among constituents and focuses these efforts as well. Development of the College of Architecture Centers for Design Innovation and Research situate the University of Nebraska in the advancement of leadership in delivering education to students from a broader array of social and economic circumstances, seeking to be effective in a more complex world of international politics, opportunities, relationships, and in a competitive global economy. This will require balance, between societal and self-interests – moving beyond the perspective that regards individual well-being as fundamentally at odds with the achievement of a collective good. What is required is a perspective that understands individual and collective benefits to higher education as conjoining parts of a whole. Explicit responsibilities fall to different players in a partnership for public purposes.

An example of the interrelationship of collaborations and sponsorships foreseen is illustrated here[3]:

[3] Inspired by a diagram originally created by Timothy Hemsath, et.al. to illustrate interrelationships among grant participants, 2008.

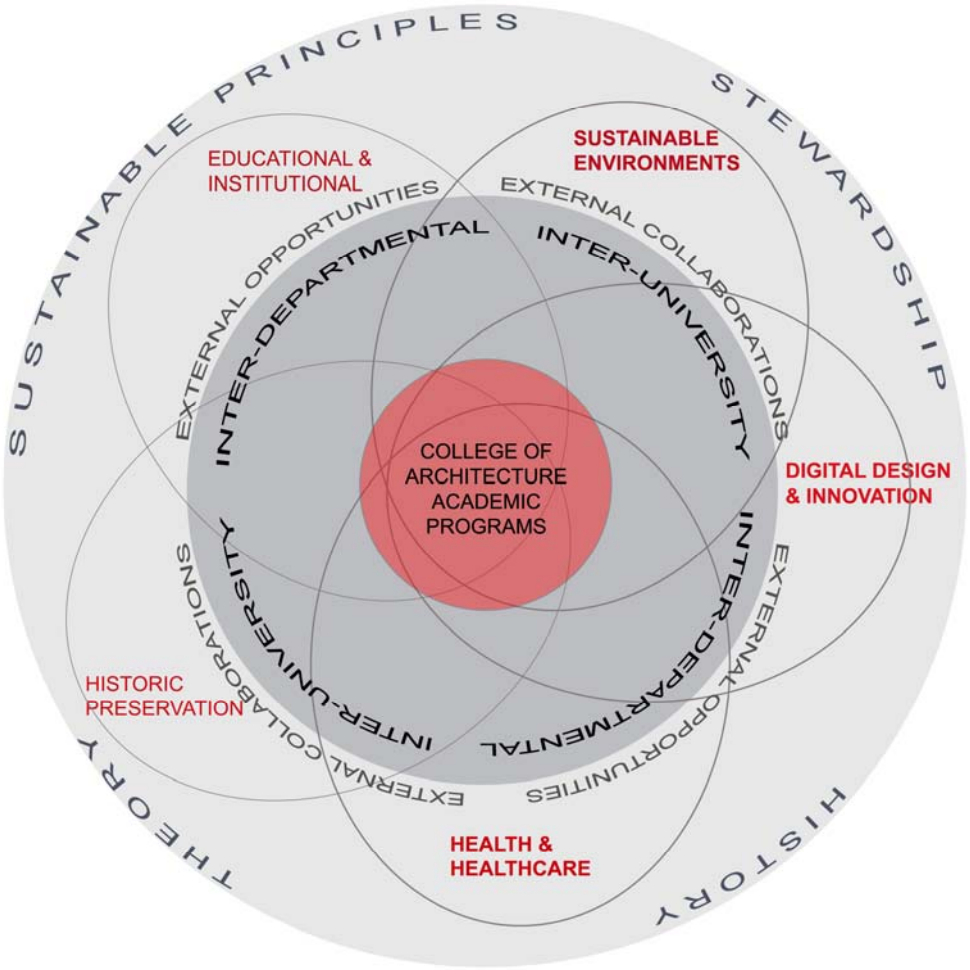

Figure 1: Synergistic Relationships

The proposed Centers create opportunities to enhance undergraduate education in a multi-disciplinary approach, and carry those opportunities into graduate education over an even wider disciplinary audience. The public-private partnerships between the College of Architecture and architecture/design firms take advantage of synergies by pooling economic, human capital, and knowledge resources for mutual advantage and to the betterment of the educational experience for students. In the words of the International Healthcare Director of HDR, Inc. Douglas Wignall,

“We take seriously our role as one of the leading healthcare design firms in the world, and we realize that our position carries with it responsibility--a responsibility to serve not only as design innovators, but also a responsibility to take a visionary view of an industry that touches nearly every person from nearly every walk of life. In creating the Program in Healthcare Design at the University of Nebraska-Lincoln, we believe we are fulfilling our duty to improve the healthcare experience not just for this generation, but for generations to come. We are helping to educate tomorrow's leaders who will shape our healthcare environments throughout the 21st century. It is a critical mandate, one we are excited and proud to be a part of.”

Synergies such as these poise the College of Architecture Centers for Design Innovation and Research to seek additional opportunities to exercise entrepreneurial ventures in research and engagement to the advantage of the university and the people of Nebraska. Additionally, collaborative efforts among disciplines across the University of Nebraska situate the Institute well for successful external grant funding. See Figure 1 for the diverse array of collaboration and sponsorship opportunities contributing to the Centers, as well as proposed outputs distinguished by mission.

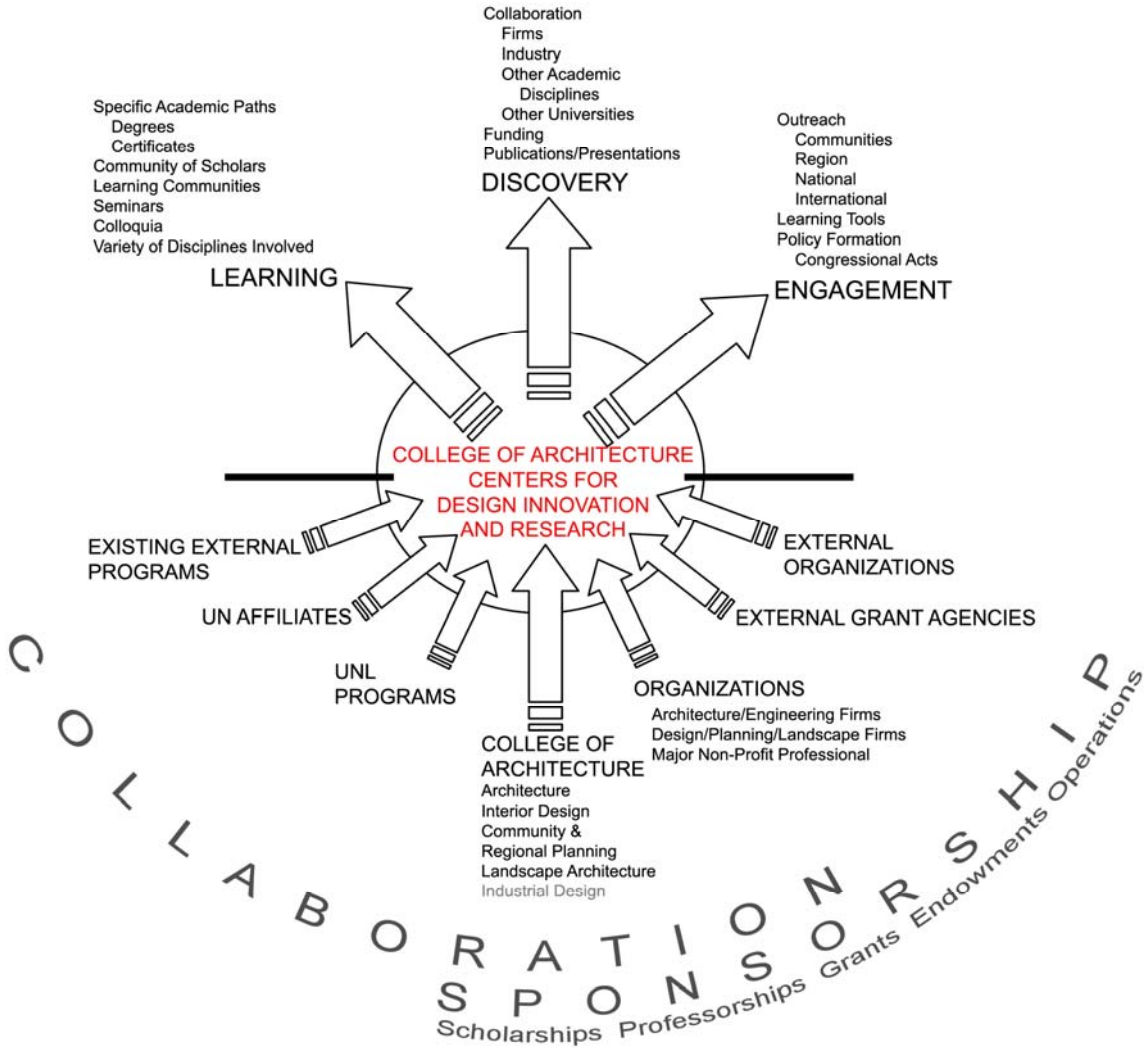

Figure 1: Opportunities for Collaboration, Sponsorship, and Output

Learning

The College of Architecture Centers for Design Innovation and Research creates opportunities to enhance undergraduate design education and carries those opportunities into graduate education over an even wider disciplinary audience. Within seminar courses, opportunities for integration between other disciplines and design students increasingly arise. Design studios running concurrently to seminars build upon

specific knowledge by featuring programming and design projects that are related to the individual Center focus. With the inherent ‘problem-’ or ‘issue-based’ strategy of education present in the design disciplines, the opportunities for partnerships across disciplines are many.

Engagement

Ultimately, responsibility to contribute to the body of knowledge for each discipline, especially in translational and applied research, drives the quest for collaboration on this front. The overall vision for the College of Architecture Centers for Design Innovation and Research is to conduct innovative and collaborative investigations, forging new territory that will contribute to the betterment of the human condition and the natural, designed, and built environments through a synergistic approach of interdisciplinary design research. Synergy is the norm, exceptional output the expectation.

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The Effects of Dressing Room Lighting Direction on Consumers' Perceptions of Self and Environment

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ABSTRACT

Dressing rooms are a key to the retail experience and often represent that final moment where the consumer decides whether or not to make a clothing purchase (Osborn, 2000; Rea, 2000; Wilson, 2002; Winchip, 2008). Retailers need to understand what affects this decision moment in order to increase sales. The main retail servicescape has long been the focus of examination as researchers attempt to understand how the physical environment affects users' emotional states and self-evaluations. However, despite the acknowledged importance of dressing room lighting (Osborn, 2000; Wilson, 2002), no researcher has yet taken a look at how the physical environment affects consumers along any key dimensions in the dressing room.

The purpose of this study was to examine the effect of dressing room lighting direction along key experience variables: state of pleasure and arousal, self-evaluations, and dressing room evaluations. The Mehrabian (1977) model of emotional states in the built environment was adapted as the conceptual framework for this study since the state of pleasure and arousal affects the retail experience and the decision to buy (Donovan & Rossiter, 1982; Donovan, Rossiter, Marcoolyn, and Nesdale, 1994). Additionally, self-evaluations are shown to be important within the dressing room (Rea, 2000) and the perception of the room is affected by lighting direction (Flynn, 1977).

A field study was conducted in a local area boutique store, chosen for its prime location and the design of its dressing rooms. A total of sixty female participants between the ages of 18 and 35 were randomly assigned to one of two dressing room lighting conditions, overhead and frontal. The overhead lighting condition was created using the existing surface mounted incandescent lamps while the frontal lighting was installed for the study and consisted of two fluorescent lamps mounted on each side of the mirror. The color of light and the illuminance level were controlled. Color of the light was approximately 3000K and the average illumination in each room was about 400 lux.

Participants filled out questionnaires rating one condition along emotional state, self-evaluation, and dressing room evaluation. Differences between ratings for the two groups were compared using independent sample *t*-tests. The results revealed no statistical significance between lighting direction and any of the variables. However, there was statistical significance for items within the scales for self- and dressing room evaluations: cramped/roomy ($p=0.002$) and harsh shadows/no shadows ($p=0.003$).

Results indicate that shoppers are not significantly affected by differences in dressing room lighting direction except when shadowing or the perceived room size is the main concern. In both cases frontal lighting is superior. This may be because, though people can tell the difference when comparing lighting directions side-by-side, they are generally incapable of noticing the effect when immersed in the experience. Also, lighting direction may be registered as a part of the entire experience. Additionally, the effects of lighting direction are not universal and there is no single definition of lighting quality that can satisfy all individuals.

Other dimensions of lighting, like lighting color and brightness, may be more important. As long as these are accounted for interior designers and retailers can focus on the feeling the lighting creates. Further studies should look at examining the effects of other lighting properties and other environmental dimensions for their effect on the dressing room experience using larger samples. Interior designers must understand how the consumer thinks and rates the experience in order to design for their needs and enhance the shopping experience.

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NARRATIVE

Purpose

Retail lighting has long been studied for its effects on consumers in the main store environment and impacts emotional affect in the shopping experience (Donovan & Rossiter, 1982; Roush, 1994). It has also been investigated in order to understand how to increase customer interaction with merchandise (Areni & Kim, 1994; Park & Farr, 2007; Summer & Hebert, 2001). However, with all the effort being put into the main store, the dressing room is often overlooked. Dressing rooms are a key to the retail experience and often represent that final moment where the consumer decides whether or not to make a clothing purchase (Osborn, 2000; Rea, 2000; Wilson, 2002; Winchip, 2008). Standards have been set forth by the Illuminating Engineering Society of North America (IESNA) but these standards need to be evaluated within the context of shopper reaction and impressions. The dressing room represents the greatest opportunity for designers to enhance positive customer interaction with clothing store product and increase sales. Therefore, the purpose of this study was to examine the effect of dressing room lighting direction along key experience variables: state of pleasure and arousal, self-evaluations, and dressing room evaluations.

Framework

The Mehrabian (1977) model of emotional states in the built environment was adapted as the conceptual framework for this study in order to investigate the effects of lighting direction on consumer emotional states. Mehrabian (1977) revealed the state of pleasure and arousal affects the retail experience and the decision to buy in the main

store (Donovan & Rossiter, 1982; Donovan, Rossiter, Marcoolyn, and Nesdale, 1994). Furthermore, since self-evaluations are shown to be important within the dressing room (Rea, 2000) and the perception of the room is affected by lighting direction (Flynn, 1977) these variables were included in this study.

Review of Literature

Within the dressing room, shoppers evaluate themselves and the product in an emotional dialogue (Rea, 2000). Yet, it is unclear how they perceive differences in lighting along key variables of emotional states, personal evaluations, and dressing room evaluations. Lighting's relationship with emotions as well as with personal and spatial evaluations has been evaluated on the main sales floor and in other environments.

Lighting has an emotional affect in the main retail setting causing increases in arousal and pleasure which affects shoppers' desires to approach or remain in the retail setting (Areni & Kim, 1994; Summers & Hebert, 2001). Most importantly, emotional affect translates into people remaining in the store longer and spending more money than intended (Donovan, et al., 1994). Using a similar emotional framework, many other researchers have tried to investigate the specific effects of different lighting variables on emotional states. Summers and Hebert (2001) found that lighting intensity affected approach and avoidance, as did Areni and Kim (1994). Park and Farr (2007) also found the color of light affects emotional states differently based on their cultural background. Personal evaluations are also affected by lighting. The IESNA recommends frontal sources in dressing rooms in order to eliminate harsh shadows on the face and body (Rea, 2000). The IESNA further makes recommendations regarding color temperature

and lighting intensity based on the need for appropriate illumination of the shopper (Rea, 2000). Though these standards have never been tested within the dressing room, other research on the effects of lighting on personal appearance suggests that the effects will cause differences in preferences. Differences in skin tone affect preference for different color-temperatures (Quellman & Boyce, 2002; Veitch, Tiller, Pasini, Arsenault, Jaekel, and Svec, 2002) and the direction of lighting affects ratings of facial appearance in office settings (Veitch, Miller, McKay & Jones, 2006).

Evaluations of space are also affected by differences in lighting. The most significant study of the effects of lighting composition on spatial perception was by Flynn (1977) who found that differences in lighting composition without variations in lighting intensity affected feelings of spaciousness, privacy, visual clarity, relaxation, and preference. People preferred peripheral, non-uniform lighting to more direct sources and peripheral lighting increased the perceived spaciousness of the area.

Although lighting direction is crucial in dressing rooms (Rea, 2000), there is no clear understanding of how lighting direction affects shoppers emotionally or how it affects personal and spatial evaluations in dressing rooms. Considering the importance, designers are beginning to place on using frontal lighting instead of overhead lighting, the effect of lighting direction needs to be further understood.

Methodology

The study was conducted in a local, boutique, clothing store carrying an assortment of upscale men and women's clothing and was located close to a major university. Two dressing rooms were used to test the different effects of overhead and frontal lighting on emotional states, personal evaluations, and dressing room

evaluations. Overhead lighting was afforded by two overhead PAR 20 track mounted lamps. Frontal lighting was composed of two four-foot fluorescent lamps with one mounted on each side of the mirror. Other lighting dimensions were held constant: the illuminance level was about 400 lux, color temperature was about 3000K, and color rendering was about 85-95 CRI.

A convenience sample of women between the ages of 18 and 35 were solicited from the store and via campus advertisements and referrals. Participants were assigned to one of two dressing room lighting conditions, overhead or frontal lighting and they experienced only one lighting condition. Participants were asked to rate their emotional states, to evaluate both their personal appearance along dimensions of facial and body appearance, and to rate the dressing room along several key environmental dimensions.

Differences between the two groups were compared using independent *t*-tests. Qualitative data were also collected and participants were asked to comment on the lighting and the dressing room. A content analysis was conducted of comments to assess participant perceptions and emotional reactions.

Results and Discussion

No emotional affect was observed with lighting direction. Both dimensions used to assess emotional state showed no significant relationship to lighting direction: state of arousal ($p=0.413$) and state of pleasure ($p=0.612$). This is despite strong indications that environmental cues in a retail setting, especially lighting, affect emotional states.

The lack of correlation may be due in part to the differences in evaluations taking place between the main store and the dressing room. Though consumers may respond

in terms of arousal and pleasure in the main store, customers may be experiencing a different type of emotional reaction in the relatively small dressing room. Though lighting direction is important as a single dimension, it may have a very small affect on emotion or work in tandem with other cues in a holistic way. Comments also indicate no emotional reaction to lighting except for preference. Other lighting dimensions may have a more significant effect on emotion, like brightness. Furthermore, while other studies used observational techniques to investigate lighting intensity and color (Areni & Kim, 1994; Summers & Hebert, 2001; Park & Farr, 2007), this study used self-reporting methods.

Personal evaluations showed a more significant relationship to lighting direction. Though the majority of personal dimensions did not exhibit a relationship to lighting direction, including skin perception, there was a significant difference in the amount of facial shadowing reported by participants between the two conditions ($p=0.003$). People in the overhead condition experienced significantly harsher shadows than did the frontal lighting group. This was supported by comments that indicated shadowing in the overhead condition was distracting. Comments also indicated that frontal lighting did improve people's perceptions of personal appearance along other dimensions including: skin perception, the appearance of cellulite, and overall appearance. This supports the IESNA recommendations that frontal lighting is superior for the elimination of facial shadowing.

Finally, dressing room evaluations also showed a relationship to lighting direction along a key dimension. Though the appearance of the dressing room did not differ between the two conditions along perceptions of cleanliness, size, convenience, quality,

or maintenance, there was a strong relationship between lighting direction and the perception of how spacious the dressing room felt ($p=0.002$). This supports Flynn's (1977) findings that differences in lighting composition affects the perception of a room's spaciousness.

Conclusions

The effects of lighting direction are specific and may affect how designers choose to illuminate dressing rooms. Though overhead lighting has been a standard for many years, designers should consider frontal lighting. Frontal lighting has the ability to decrease facial shadowing, which can increase evaluations of self. Frontal lighting also affects perception of room spaciousness, but not size, which may improve the perception of the dressing room when designers are working with limited space. Overhead lighting may still have its place and when installed careful consideration should be given to limiting shadowing while controlling glare. Further research is needed to determine the effects other environmental cues or lighting dimensions on the dressing room user, but it is clear that frontal lighting has some key advantages.

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Building Information Modeling in the Top 100 Architecture Firms

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ABSTRACT

Purpose

The use of Building Information Modeling (BIM) continues to increase among architects and interior designers, along with engineers and construction managers (Goldberg, 2007; Khemlani, 2007). As two-dimensional computer-aided design (CAD) is less efficient for complex design and construction projects, professionals are turning to three-dimensional modeling that incorporates a project database, building system analyses, and many other useful features. More than just a technology tool, BIM allows a diverse team of experts to assemble a space or building digitally before construction begins. The team shares the same digital model and common database of building information. They are able to work out problems through simulation, allowing an analysis of potential conflicts and clashes between building systems. This minimizes errors and oversights, improves project synchronization, reduces delays, and ultimately saves a potential 15% to 40% in the cost of construction alone (Holness, 2006). Unfortunately, these benefits come with a price tag. In order to do business with BIM, expensive software licenses and robust hardware must be purchased, along with the time and expense to train personnel to design in a new way. The decision to adopt BIM

is a weighty one. A firm's Chief Information Officer (CIO) is a member of senior management and frequently the person who leads the charge to adopt a new initiative. In a study of CIOs by META Group, CIOs identified themselves as key players in seamlessly integrating new technology with the people and the existing work processes in their firms ("Leading CIOs", 2005). The purpose of this study is to investigate the CIO's role in adopting BIM in the architecture and design industry.

Methodology/Process

The data collection stage of this research has recently begun at top architecture firms. Topics addressed by senior management concerning date of BIM adoption, percentage of projects being done with BIM, the extent to which BIM has impacted the design process, the employee's learning curve, perceived obstacles to adopt BIM, and continuing challenges will all be discussed. The implications of this research are two-fold, 1) to determine the extent of BIM usage in the largest architectural firms, and 2) to determine how the decision is impacting the firm's people and processes. Changes in the professions of architecture and interior design inevitably put pressure on higher education. After presenting a synopsis of the research findings, educational topics for discussion will include the impact of BIM on integrated practice, its' role in interior design education, and the best fit for BIM in an already overloaded interior design curriculum.

NARRATIVE

Introduction

Building Information Modeling (BIM) is a process of virtually representing a building's physical attributes with three-dimensional (3D) graphics and project information that is shared among the various stakeholders involved building design. Models made with BIM technology have parametric integrity, where all geometric objects have an awareness of their relationship to other objects. This is unlike Computer-Aided Design (CAD) drawings with its two-dimensional (2D) deliverables. If a part of the building changes, this change is automatically reflected in all other parts of the building. For interior designers, this can save time and effort to coordinate various aspects of the interior. For example, if a wall is deleted, the wall sconce is also deleted in all drawings, schedules, and specifications.

One of the major changes to professional practice encouraged by BIM is a shift in time spent in project phases (see Figure 1). Fifty-seven percent of architects see BIM having a positive effect on early visualization, allowing them to spend additional time designing and a smaller amount of time drafting and documenting (McGraw Hill Construction, 2008). A complete BIM model requires all products be specified early in the process rather than later. Another major change involves increased collaboration and communication; both internally within a firm and externally with consultants (see Figure 2). BIM models are a common source for team decision making. BIM is believed to have a significant impact on "traditional boundaries between roles and

responsibilities, methodologies, and even technologies that have been in place for hundreds of years" (Smith, 2008, p. 9).

The benefits of BIM are being touted as significant reasons for its adoption (McGraw Hill Construction, 2008). These include earlier visualization, automatic changes to parametric objects, ability to generate 2D drawings at any time, earlier multiple discipline collaboration, opportunity for cost savings, improved design due to performance analyses, and the early discovery of errors. There are also obstacles to adoption. These include the cost of technology, interoperability of software, cost of training, acceptance by upper management, legal and business ramifications, and changes to professional practice.

Considered one of the hottest design and construction trends (Cramer, 2007), approximately half of the large architecture firms surveyed in 2006 have acquired BIM software (AIA Market Research, 2007). The absence of widespread adoption by design and construction firms and the lack of empirical data warrant further investigation on this topic. This study assesses the perceptions of individuals in leadership roles in large architecture firms about their experiences with adopting and implementing BIM.

Methodology

This study ascertained the adoption and implementation of building information modeling in the top 100 Architecture, Engineering, and Construction (AEC) firms (Linn, 2008). These results translate directly to interior design, as 39 of these architecture firms are also included in the top 100 Interior Design Giants list (Davidsen, Leung & Girmscheid, 2009). Voluntary and confidential participation was requested via email

from one member of each of the 100 firms' senior management. Data collection occurred during February 2009. Forty-eight firms were represented in this study. Representatives from three firms stated they were not using BIM. Representatives from the remaining 45 firms completed an online survey of ten open-ended questions about BIM adoption. Verbatim comments are italicized.

Key Findings

The findings from this study support, contradict, and add to prior knowledge on BIM adoption and implementation. With the exception of three firms, 94% of firms represented in this study are using BIM. Senior management made the decision to adopt BIM at 56% of the firms. Group decision making was prominent at 46.7% of firms. Most firms adopted BIM in 2006 and its average use across this sample is three and a half years. Forty-one percent of a firm's projects (mostly medium size) involve BIM. Forty-one percent of their staffs are trained to use this technology. Forty-nine percent of this sample recognizes BIM's impact on the design process due to the need for earlier visualization and decision making, and BIM's ability to improve internal and external collaboration. A majority (84%) of firms experienced resistance from their personnel in making this transition, especially from Project Managers and "seasoned" professionals. Successful strategies for overcoming this resistance included extensive training and support by senior management. The majority of firms used a progressive BIM training program that moved from formal external, to formal internal, to informal internal training. Seventy-one firms utilized multiple methods of instruction. Forty-five percent of firms perceived personnel resistance as the major obstacle to initial BIM adoption, followed

by software/technical problems, cost, and absence of external collaborators. Personnel resistance remains a continuing challenge, as does articulating BIM's return on investment and determining which type and size of projects best utilize BIM's strengths.

Implications for Interior Design Educators

Results from this study clearly show the rapid adoption of BIM technology within the last year (Reed Construction Data, 2008). Changes in the architecture and design professions inevitably put demands on higher education. Industry is already clamoring and stating there is a strong need for recent graduates to have this type of training and experience (Eastman, Teicholz, Sacks, & Liston, 2008). Firms are hiring savvy young designers who have technical skill but little to no practical knowledge (Zyskowski, 2009). Thirty-one percent of owners currently outsource BIM work and expect this amount to increase (McGraw Hill Construction, 2008). There simply are not enough trained designers available to meet the demand in-house.

With its many benefits and industry's demand for graduates with this skill, it is realistic to consider integrating BIM into interior design education. Two issues to consider when deciding to integrate BIM into a degree program are what role should it play and where would it be best incorporated into the curriculum (Cheng, 2006). Interior designers will likely only use a portion of BIM tools because they are not accountable for the structure of the building. Yet they will be one of the stakeholders involved in this collaborative process. Scheer (2006) presents five challenges to integrating BIM into design education:

1. BIM makes cross-disciplinary collaboration essential.

2. BIM creates more information in the earlier stages of design.
3. BIM tools are more complex than CAD and should be taught to students.
4. BIM is rapidly changing and does not have uniform standards.
5. BIM can simulate the entire building life cycle, rather than just the design phase.

Most BIM advocates suggest one of two approaches to integrating BIM into higher education: either add another course to an already overloaded curriculum or rethink the existing design studio. Logical locations for BIM in the curriculum would be both a building construction class and a computing technology course. Yet academia is currently caught in a three to five year transition period where students will need to know both CAD and BIM. Adding a course can be problematic with a limited number of available credit hours. With an ever-increasing body of knowledge, what topic is removed in order to add BIM?

The other option for BIM integration is to alter an existing studio. This means more than requiring students to use Revit or ArchiCAD to do their projects. It is difficult to address BIM without integrated practice, or the act of collaboration with all stakeholders involved in the building process. An integrated team is necessary to design and construct a building today and students should be able to thrive in this environment. An integrated practice studio is where students can collaborate with peers across disciplines and be educated in the skills of negotiation and compromise. Reconstructing a previous studio project, one in which both the faculty and students are familiar, is a logical starting point. The only new dimensions of learning would be BIM and the interdisciplinary nature of the project. However, this presents some challenges in higher education. Individual activity has been favored over interdisciplinary

collaboration for several reasons, such as easier assessment of student knowledge and skill, faculty and classroom scheduling problems, finding other majors (both design-related and those in business) willing to participate, and so on. These challenges must be overcome for this endeavor to be successful. The most advantageous solution may be to add BIM content to existing courses (both lecture and studio) with an integrated practice studio as an elective available to many design related majors (see Table 1).

Summary

There are no shortcuts to the adoption and implementation of BIM into the education and practice of interior design. It is a misconception that business will go on as usual; that change is unnecessary and retooling is avoidable. CAD was a necessary intermediary between drafting and BIM. As one respondent in this study commented, "*It has taken the industry 25 years to get to this point. During that time, we settled for what CAD could offer*." As pressure increases for faster delivery times and more competitive fees, external pressure from clients will drive more firms to use BIM. The overall consensus of firm representatives participating in this study is summarized by one firm's CIO, who stated, "*We are very happy with the decision to move to BIM and we think it is the way of the future for the AEC industry*." Another study participant stated, "…*this is the way our industry is heading – so get on board, because the ship has sailed*."

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Table 1: Adding BIM Content to Existing Courses

	Taxonomy	*Level*	*Course*	*Skill to be ADDED*
1	Knowledge & Comprehension	Freshman	Computing/CAD	Introduction to BIM; Learn the tool (Beginner level)
2	Application	Sophomore	Drafting/Adv CAD	Learn the tool (Intermediate level)
3	Analysis & Synthesis	Junior	Construction	Knowledge of materials and construction methods; Use the tool for specs and schedules
4	Understanding	Senior	Professional Practice	Impact on liability and contracts
5	Evaluation	Senior/Graduate	Integrated Practice Studio	Critical thinking; Finesse the art of negotiation and facilitation in teams

Figure 1: BIM's Impact on the Design Process

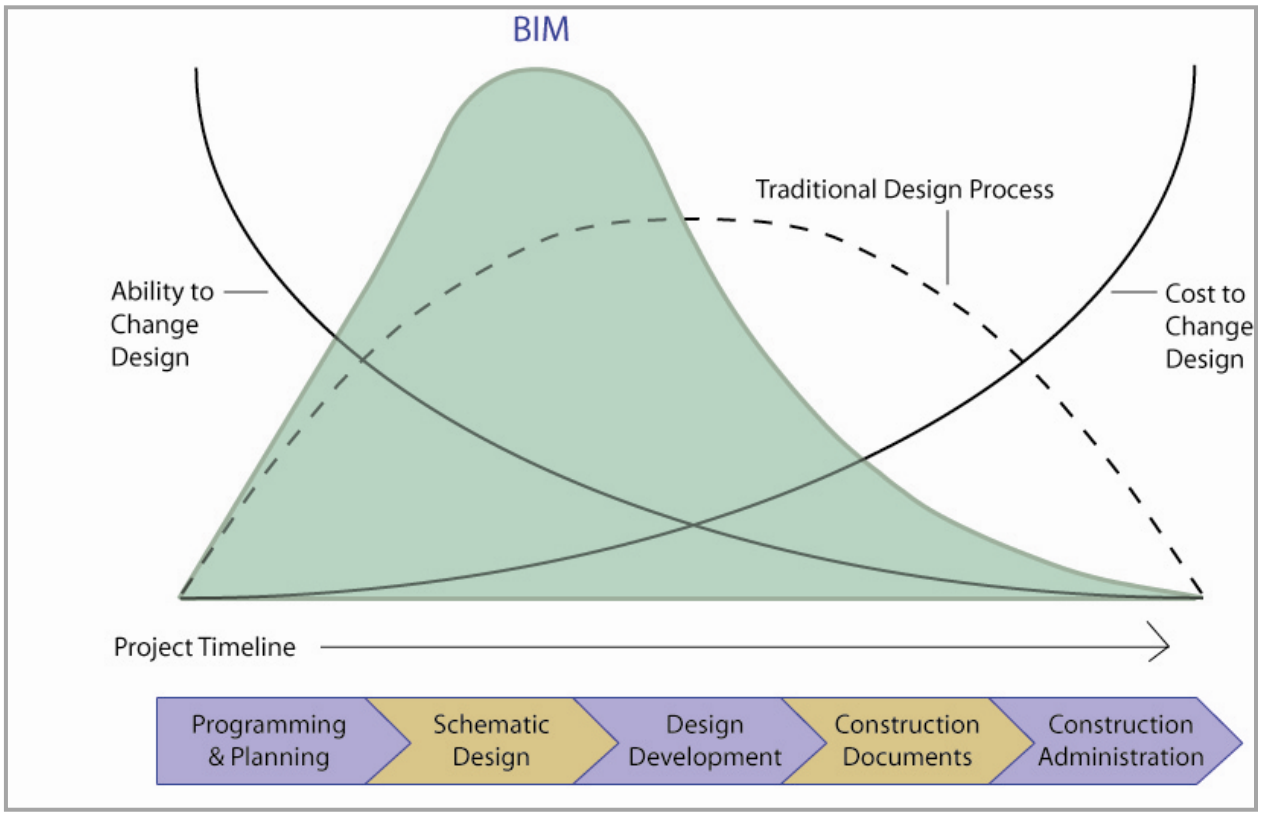
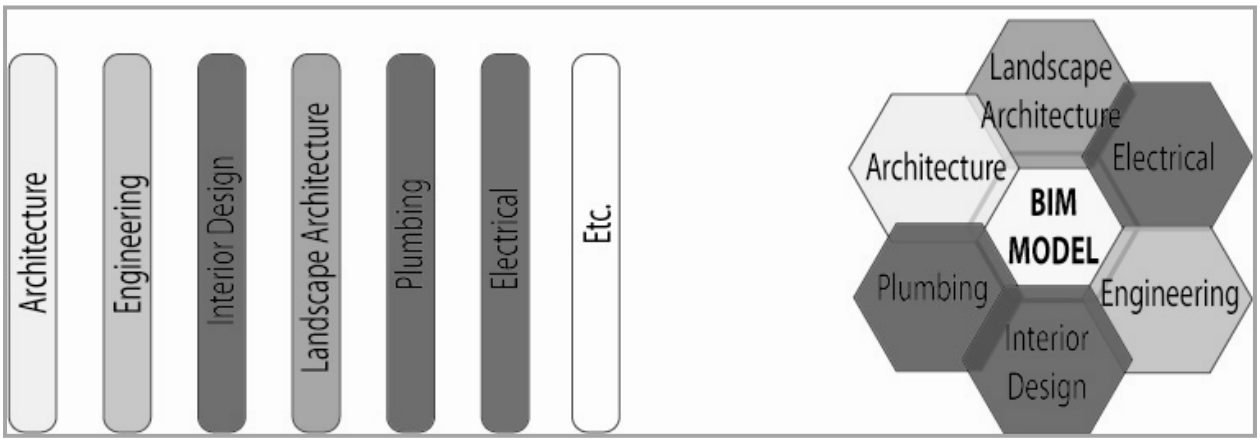


Figure 2: BIM's Impact on Design Collaboration



Community Collaboration: Design Students Teach Elementary Students

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ABSTRACT

A unique learning exchange occurred during May 2008 between rising seniors at a CIDA design program and a local elementary school for high achievers. Children selected a design enrichment cluster offered in a six-week timeframe for 90 minutes on Friday afternoons. The 16 students (grades third through sixth) worked with design faculty and volunteer students to create a museum environment using SketchUp® (Google. 2007).

During the first session, the faculty coordinator presented an overview of the area for the museum space. In order to relate the scale of the project, a hypothetical project using a local landmark and surrounding green space close to the elementary was selected. The City Planning Department provided plotted plans of the site (Scale 1” = 200’) showing an aerial photo view and a zoning plan. Children scaled the school grounds on the plan and the site to compare them (Photo 1).

A footprint of the site was created in AutoCAD and simple CAD operations were demonstrated for the children during the second session. To provide them with another scale relationship, photos of a regional fast food chain that uses concrete block as a principle building tool were shared. Children then measured the concrete blocks in their classrooms to understand scale.

During the third session, six design students shared studio projects completed during the Spring semester using SketchUp®. During the subsequent sessions, they worked with small groups of children (Photo 2). The children learned simple layout and the possibilities of computer design work. Throughout the process, children were encouraged to measure and scale their buildings to the site and their ideas as children in a museum space. Since most of the children had school provided laptops, they worked independently on projects at home.

Each child produced a SketchUp® design of a museum (Photos 3 – 5). Although there were a variety of solutions, the children learned the basics of the program. Many of them downloaded it at home and shared that they used it over the summer break.

Senior design students reported that they learned how to work with children and that the program had more possibilities than they had considered. There are discussions for a more advanced project where children will generate their ideas for a school design to include children’s programs on needed features.

NARRATIVE

Today's children are the designers of tomorrow. A Middle Tennessee State University interior design faculty and advanced students provided children at a local elementary school with the opportunity to explore design and learn the basics of the SketchUp® computer program.

Overview

The nearly 400 students at the Discovery School of Murfreesboro, TN are either high achieving or gifted children in grades kindergarten through sixth. One afternoon per week, they receive additional educational opportunities in the Enrichment Cluster program. The school year is divided into four nine week sessions and an enrichment cluster theme is established for each period. To start each session, an assembly introduces children to each cluster. Each child selects three choices and final placements are made by faculty.

The theme for the fourth cluster in 2008 (April and May) was social studies. The design professor presented an interactive program about how major buildings through history provide users with a sense of place and connect people to a location. Murfreesboro is the geographic center of Tennessee and the city hosts sporting and academic events on a regular basis. The Enrichment cluster project was introduced as an opportunity to learn a computer program to plan a museum to expose visiting children to the region .

The 16 Design cluster children included one sixth grade male, two third grade males, and a mix of fourth and fifth graders including five females and eight males. All students in grades fourth through sixth receive Mac laptops for school and home use during the year. SketchUp® was loaded onto the school server and students downloaded it.

Six interior design students volunteered for three Friday afternoons after completing a dedicated SketchUp® and Photoshop studio Spring semester loaded on a windows platform. The opportunity was introduced in their Business Practices class as a way to promote the interior design program in the community and gain experience for their resumes.

Process

During the first 90 minute session, the faculty member met with the 16 students and introduced the location for the hypothetical museum near the school. The property marks the geographic center of Tennessee and includes an obelisk, a large pond, and road access. A presentation on the neighborhood between the school and property included a photo gallery illustrating the main road to the site.

The Murfreesboro planning department provided an aerial photo of the area and a zoning plan in 200’ = 1” scale. The two drawings were explained. Comparisons between the property lines of the proposed property and their school grounds were discussed. Children measured the plans to develop their plot plans. They calculated the square footage, acreage, and square miles from their measurements.

At the second meeting, AutoCAD was demonstrated using the plot to show children how designers work with the boundary lines and basic calculations. An East Tennessee fast food chain with a distinctive design was used to illustrate the design process and standards. Details were shared about how the owner, designers, and architect collaborated to build a highly efficient space (first restaurant to win the Malcolm Baldridge award). The building is constructed based upon the standard concrete block. Since two walls of the classroom were painted block, the association with the scale was a natural illustration. Cloth tape measures were donated to the class to use to measure items and each other to investigate their sizes and the classroom size. Standards for kitchens, bathrooms, doorways, and rooms were discussed.

At the beginning of the third week, the interior design students shared their SketchUp® projects. One of the children excitedly asked if one could really have a job working with SketchUp® all day. At this point, the project took on a new meaning for the children and the design students. As they started to work together, both groups became immersed in design and shared learning. When the first joint session ended, the design students were amazed at the children's aptitude and eagerness.

During the next two sessions, design students continued to introduce children to different tools and helping the majority to work with a specific plan. A group of the fifth grade males incorporated the pond into their designs and accurately designed their spaces to the lot dimensions. Two of the fifth grade females designed spaces with a

restaurant and features such as a climbing wall. Children reported that they worked on the projects outside of the cluster time. At the end of the fifth session, files were copied to print the designs on tabloid sized paper. At week six, children received their printouts and added additional items to their designs that they shared with each other.

Outcomes

Outcomes for the interior design students included validation of their own skills in design and SketchUp®, the opportunity to use the program across platforms, and an experience in teaching interior design concepts to a new audience. As the children were learning about the program, the design students had to teach and manipulate on a different platform. Since the children did not start with a series of exercises, their questions and drawings tested the design students' knowledge and communication skills. Two of the design students commented that the experience helped them to visualize new ways to use the program. These types of opportunities are important to the current college student (Weiler, 2004).The opportunity was gave them an idea about teaching design since the age contrasts reflect potential future differences. Finally, IIDA has stated that professionals should engage in design opportunities with children. This experience gave this group of future professionals a quality experience for their resumes (Durst, 2009).

Learning objectives for the children included an introduction to interior design and architecture, scale relationships in the near environment, designing a space for peers to communicate about their area, and SketchUp®. Children when presented with the

opportunity to learn design and architecture often excel (Robertson & Howells, 2008; Wagenberg, Krasner, & Krasner, 1981). By using SketchUp® for the modeling portion of learning, children were given increased opportunities to learn and apply knowledge.

Research supports that current children have techno-literacy practices (Marsh, 2004) and learn about computer operations starting in the toddler years (Ellis & Blashki, 2004). Early childhood classroom research supports the use of developmentally appropriate computer interactions accelerates learning (Ellis & Blashki, 2004). The key with young children is that the teacher has a high comfort level with teaching and using the program (Chen & Chang, 2006). Therefore, the interior design student is an excellent instructor for elementary aged children since both parties benefit from the exchange.

Photos

Photo 1: Child works with ruler to scale map.

Photo 2: Design student shows children SketchUp program basics.

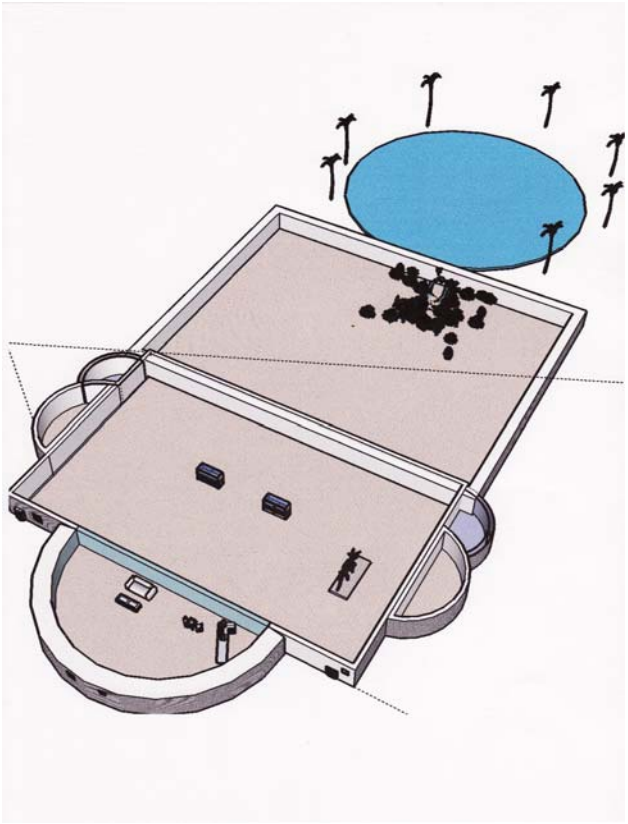

Photo 3: SketchUp® by Fourth Grade Female

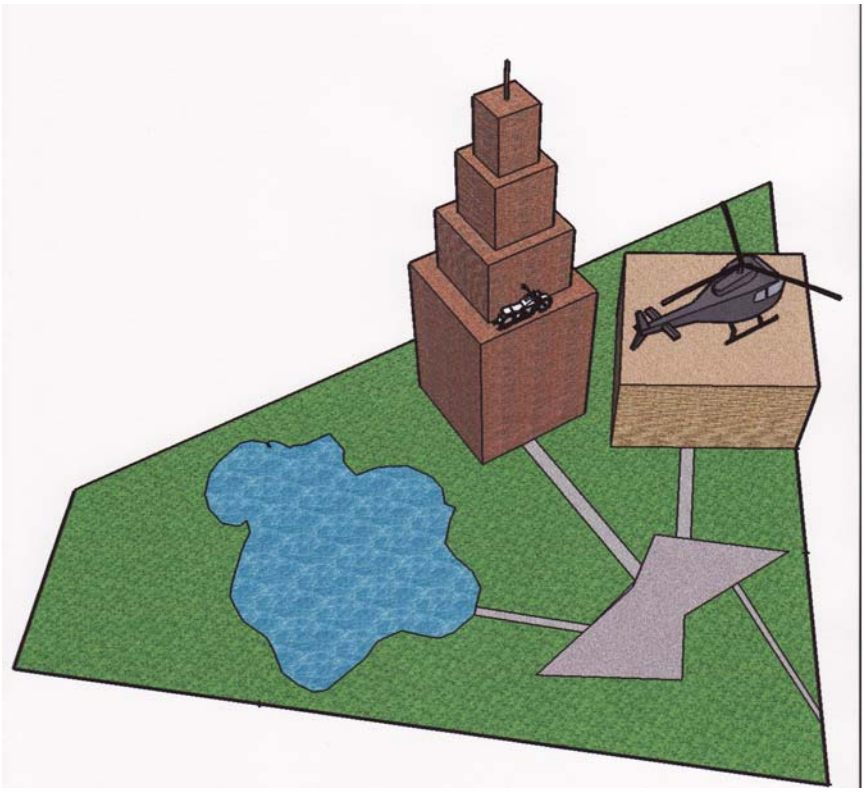

Photo 4: SketchUp® by Fifth Grade Male

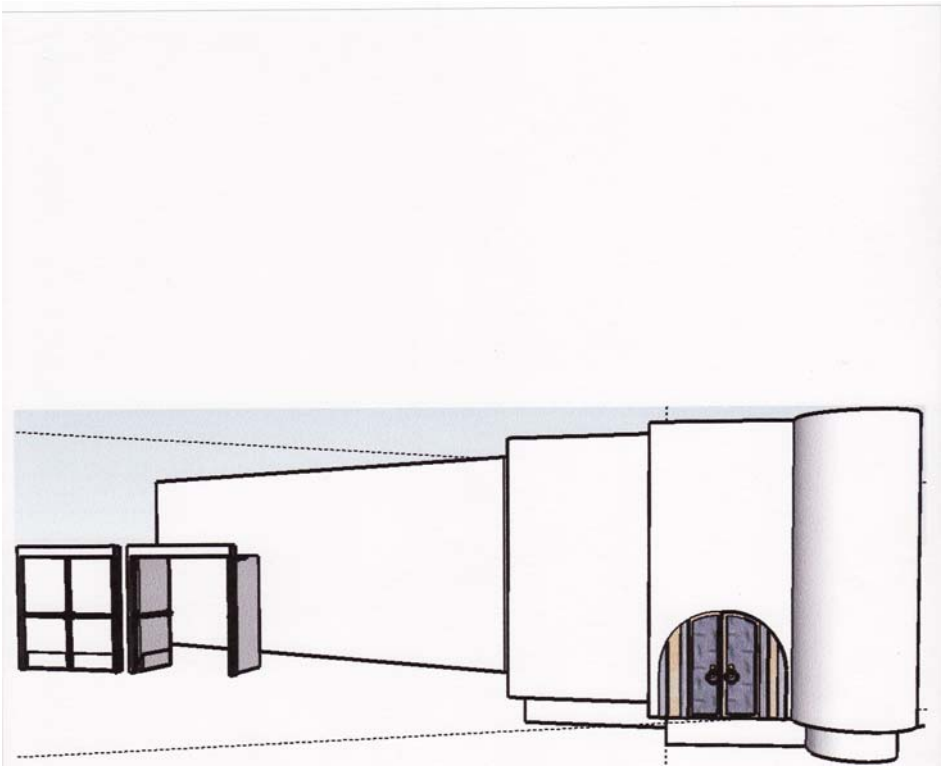

Photo 5: SketchUp® by Fourth Grade Female

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Anthropometric Implications of 18th-Century Women's Fashion on Interior Spaces and Furniture

Darrin S. Brooks, MFA, Nancy E. Hills MFA

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ABSTRACT

This paper explores how women's fashion in the 18th century, impacted interior space and furniture design. It examines how fashion and hairstyles affect the measurement of the human appearance. The changes in the proportions of a woman's clothing were dramatic, and as a result women's fashion dictated how spaces were organized. Consequently, new types of furniture were needed. This paper examines the anthropometric implications on interior design created by women's fashion.

Summary of Womens Fashions in the 18th Century

Structural changes in women's fashion that took place during the 18th century began in 1717 when weighty underskirts were replaced with a hoop-shaped dome that may have been inspired by St. Paul's Cathedral. Starting in the mid-1720s, the dome shape began to be replaced with an oval shape. During the 1740s through the 1760s the oval shape expanded with narrow side profiles and the widest part of the oval silhouette protruding from the woman's side.

These spacious gowns and their corresponding superstructure provided interesting challenges to a lady's ability to negotiate chairs, coaches and staircases. "We sit in a chair hid up to our ears on either side, like a swan with her head between her lifted wings. The whole side of a coach is hardly capacious enough for one of us; we

go up a pair of stairs as if we were pushing some great burden before us, and with our lifted hoops in our hands expose such a hollow in coming down as surprises all below us" (Cunnington, 1964). This prompted furniture designers to build small railings around the top edges of furniture to prevent teacups and other items from being knocked off by unwieldy clothing.

During the1740s the single hoop frame was divided into two side sections enabling maneuverability. These were known as "pocket hoops". Sizes of these undergarments ranged from 3 ½ to 9 yards in circumference providing a myriad of challenges to the wearer. A humorous description was found in *The Enormous Abomination of the Hoop-petticoat* (1745): "Suppose the fine lady coming into a room first enters wriggling and sideling and edging by degrees two yards and a half of hoop; for as yet you see nothing else. Sometime after appears the inhabitant of the garment herself, not with a full face but in profile; next follows two yards and a half of hoop more" (Cunnington).

Process

18th-century dresses were then examined and measured to show basic proportions created by the silhouette. Period furniture and architecture were also measured. The data collected led to drawings that show anthropometric information and relationships. Traditional research through literature and paintings corroborated the data.

Outcomes

This research enlightens understanding of interiors and furniture in the 18th century. The data illustrate, for instance, how fashion influenced the evolution of the

sofa. This paper demonstrates that when fashion changed in the 18th century, furniture also changed to accommodate the voluminous gowns worn by women.

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NARRATIVE

This paper explores how women's fashion in the 18th century, impacted interior space and furniture design. It examines how fashion and hairstyles affect the measurement of the human appearance. The changes in the proportions of a woman's clothing were dramatic, and as a result women's fashion dictated how spaces were organized. Consequently, new types of furniture were needed. Florence De Dampierre wrote in her book, *Chairs: A History*, "the hem or width of a skirt has from time to time led to the creation of an armrest, or to its removal" (De Dampierre, 2006). This paper addresses the anthropometric implications on interior design created by women's fashion.

Summary of Women's Fashions in the 18th Century

The style lines of women's clothing in the early 18th century were laid down in the final 20 years of the previous decades. The 17th century was ushered out with women wearing a tight fitting bodice with a petticoat (underskirt) and an overskirt (gown) draped up over a bustle pad called a "false rump". The bodice was worn over a pair of stays (corset), covered by a stomacher (decorative triangle over the gap between the bodice front closing) and ¾ length sleeves.

The bodice and sleeves remained much the same as the earlier period with the major change occurring with the lower part of the gown. Structural changes in women's fashion took place during the 18th century began in 1717 when weighty underskirts were replaced with a hoop-shaped dome that may have been inspired by St. Paul's Cathedral. Starting in the mid-1720s, the dome shape began to be replaced with an oval shape. During the 1740s through the 1760s the oval shape expanded with narrow side profiles and the widest part of the oval silhouette protruding from the woman's side (see figure 1).

These spacious gowns and their corresponding superstructure provided interesting challenges to a lady's ability to negotiate chairs, coaches and staircases. "We sit in a chair hid up to our ears on either side, like a swan with her head between her lifted wings. The whole side of a coach is hardly capacious enough for one of us; we go up a pair of stairs as if we were pushing some great burden before us, and with our lifted hoops in our hands expose such a hollow in coming down as surprises all below us" (Cunnington, 1964). This prompted furniture designers to build small railings around the top edges of furniture to prevent teacups and other items from being knocked off by unwieldy clothing.

During the1740s the single hoop frame was divided into two side sections enabling maneuverability. These were known as "pocket hoops". Sizes of these undergarments ranged from 3 ½ to 9 yards in circumference providing a myriad of challenges to the wearer. A humorous description was found in *The Enormous Abomination of the Hoop-petticoat* (1745): "Suppose the fine lady coming into a room first enters wriggling and sideling and edging by degrees two yards and a half of hoop;

for as yet you see nothing else. Sometime after appears the inhabitant of the garment herself, not with a full face but in profile; next follows two yards and a half of hoop more" (Cunnington). Certainly the lady could never have been ignored and the grand size of her gown magnified her importance.

The enormous hoops at mid-century were reserved for "full dress" or court dress in both England and France. This immense structure disappeared with the French Revolution and in England in 1820 when the rest of fashionable women were wearing simple, high waist, neoclassical gowns.

During the early and mid-18th century women's hairstyles remained fairly simple. Hair was waved loosely around the face and twisted into a small roll or bun worn at the top of the head. Women wore circular caps trimmed with lace indoors and out-of-doors a small straw or silk hat with a narrow brim. By 1750 hairstyles began to change dramatically. Hair began to be piled high on the head or worn in close, tight curls called a tet-en-mouton (sheep's head). By 1770 maximum size was reached, which included a towering structure supplemented with feathers, jewels, ribbons, a scene from a popular play, or a full-rigged sailing ship (see figure 3). When the "big wigs" were at their height, a small hat might be perched at the top of the wig. By 1780, the height of wigs diminished and the full, fuzzy "hedgehog" style became popular. Architectural elements could not be adapted to these changes and thus complicated the daily routine of women. For example, getting in and out of a carriage could be extremely cumbersome. Due to height of hairstyles of the period women were forced to sit on the floor of the carriage. It was impossible to make structural adaptations to architecture for the sake of changing hairstyles.

Impacts of Women's Fashion in the 18th Century on Interior Spaces

This is not the first time fashion has influenced furniture. Prior to the 18th century, furniture was designed to accommodate women's fashion. The farthingale chair, an English chair, appears during the period of Elizabeth and James I (1558-1625). The armless chair was designed in order to permit the wide dresses called "farthingales", introduced in the 16th century to spread in all directions (Aronson, 1965). "Farthingale" when referring to furniture was a 19th-century term, which as previously stated, suggested the form developed to accommodate the voluminous gowns. These were commonly called a "back stool" during the period because of its resemblance to a stool with a back (Harwood, May, & Sherman, 2002). Due to extreme fashion during the 18th century as the female silhouette expanded, new types of furniture evolved.

During the Rococo period in France,rooms become smaller and more intimate. As a result chairs were fitted to feminine contours rather than to majesty. Other smaller, movable chairs, including the armless chair, were designed to accommodate the voluminous skirts (De Dampierre, 2006). In the book, *Dangerous Liaisons,* it states:

> Contributing significantly to the scene's sense of intimacy are the design and position of the chairs. With their low, wide seats, tilted backs, and generously stuffed upholstery, they seem to invite hours of relaxed comfort. Their arrangement in a tight cluster brings the elegantly dressed bodies close together, the women's skirts overlapping in sumptuous heaps of fabrics. These chairs exemplify the specialization that characterized eighteenth-century French furniture(Koda & Bolton, 2006).

Published in Frankfurt in 1754-55, F. Karl von Mauser noted in his book *Court Law*:

> Nowadays several kinds of chairs and seats exist at Court. First,

> the canapé, which can be used for more than one person. Second the armchair or fauteuil. Third, the chair without arms or *chase a´ bras.* Fourth, the simple side chair or a *chaise a dos*. Fifth, the tabouret, or the small stool without back. The more important the rooms is, the more important the chairs have to be. In the entrance you will only find a simple side chair or a *chaise a dos*, never a fauteuil, and the canapé is the most important of all. When ladies and gentlemen come together, the ladies are the only ones supposed to sit on the canapé .

Mauser further explained in Court Law, “canapés were for ladies to sit on, since the shapes of the seats allowed sitters to strike graceful poses” (De Dampierre). A canapé is known as a sofa or settee.

In Britain, a suite of furniture designed by Robert Adam and made by Thomas Chippendale in 1765 for a great room is located at 19 Arlington Street, in London. It consisted of eight armchairs and four sofas (Wilk, 1996). Rooms were designed and planned to showcase women.

In contrast at Thomas Jefferson’s Virginia home, Monticello, the upper octogonal-domed, entertaining room featured an oculus and signiture round windows. The room was never used because the stairway leading to the room did not allow enough space to accommodate large gowns of the period thus excluding women from entering the room. The room was designed to be a parlor for ladies but ended up as a storage room (Vila, 1996).

Outcomes

To illustrate this history 18th century dresses were examined and measured to show basic proportions created by the silhouette. The data collected led to drawings showing anthropometric information and relationships (see figure 2). Traditional

research through literature and paintings corroborated the data. This research enlightens understanding of interiors and furniture in the 18th century. The data illustrate, for instance, how fashion influenced the evolution of the sofa. This paper demonstrates that when fashion changed in the 18th century, furniture also changed to accommodate the voluminous gowns worn by women.

Figure 1: Female Figure and Sofa Compared

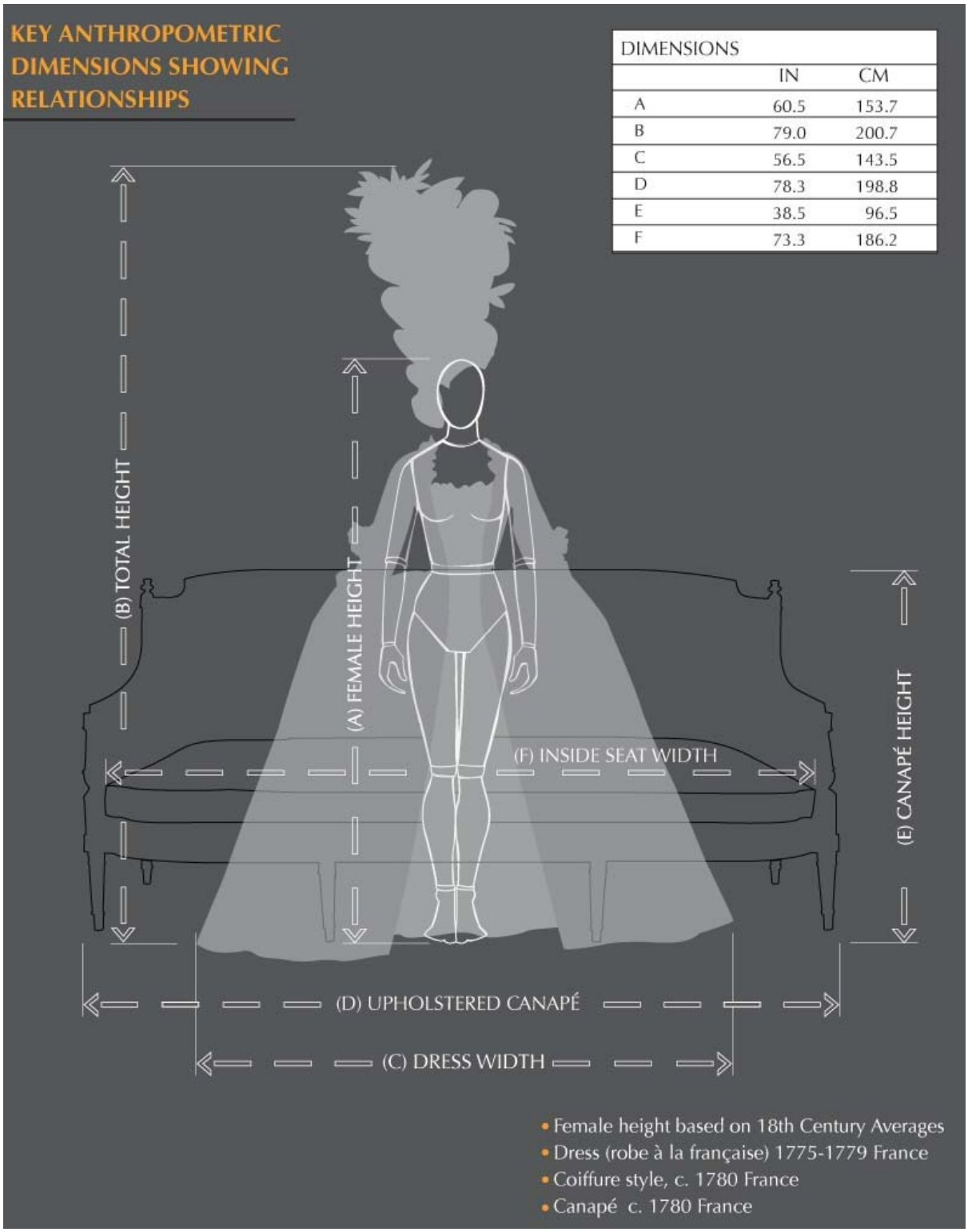


Figure 2: Social Setting Showing Women Playing Cards

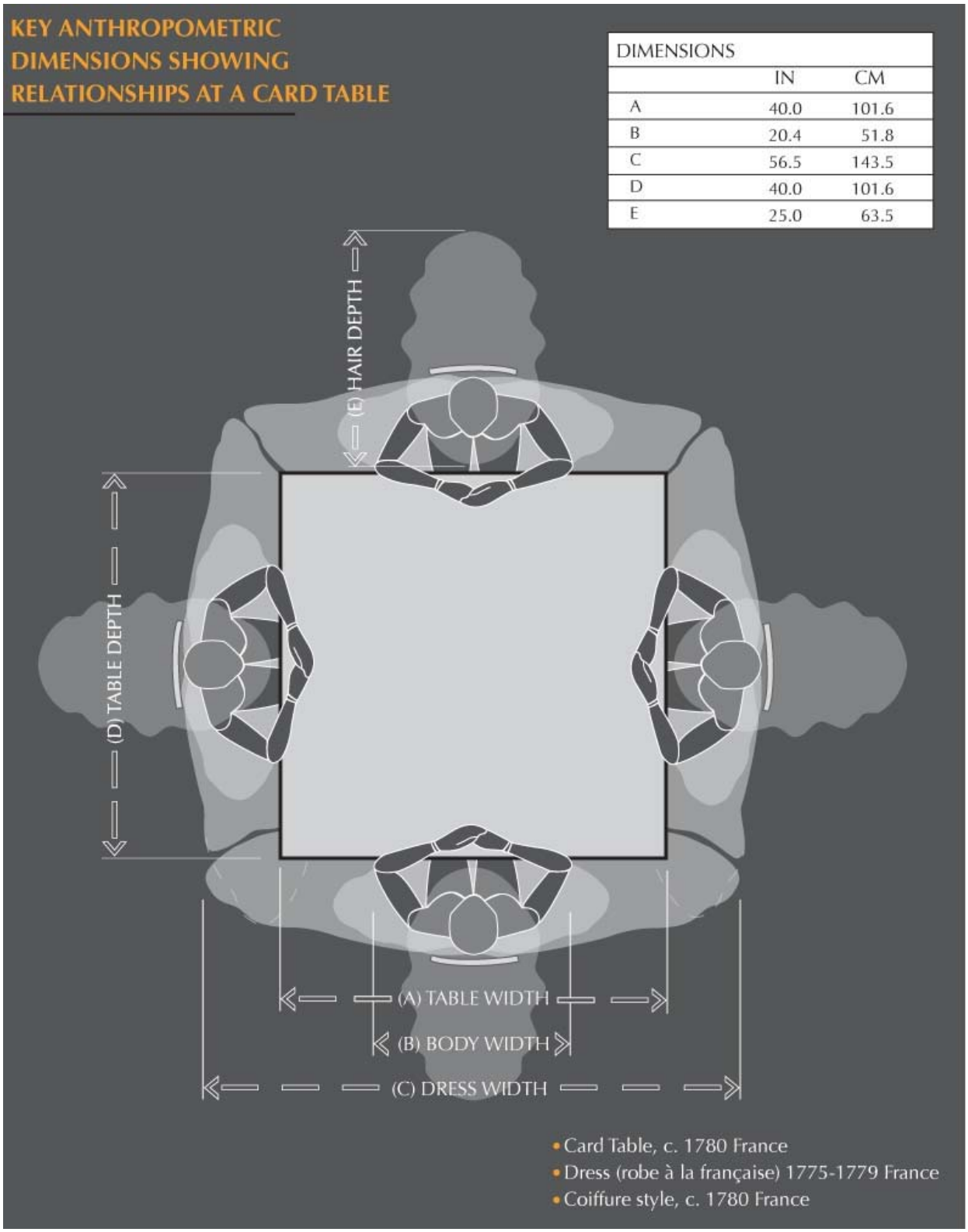
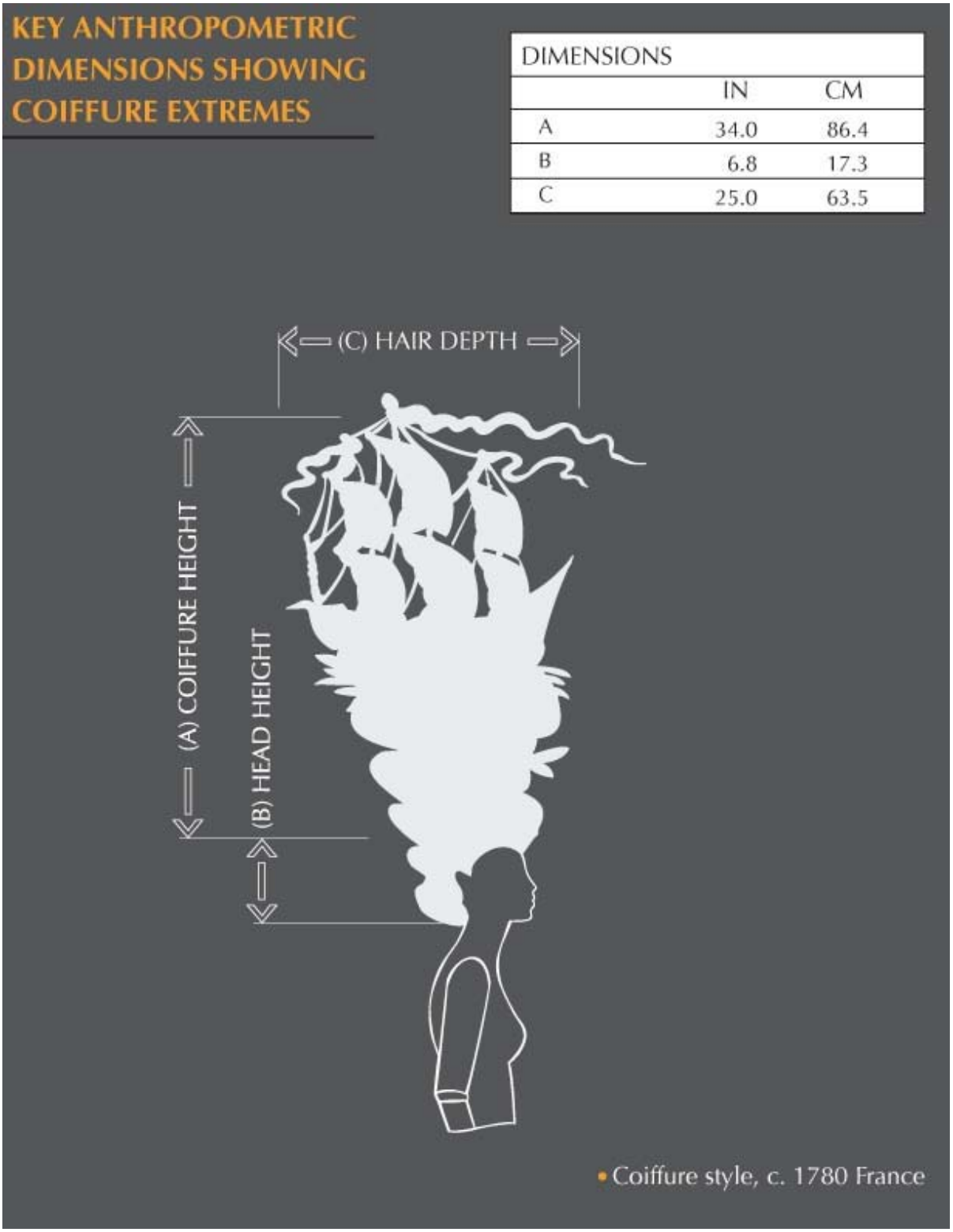


Figure 3: An example of an extravagant 18th-century hairstyle



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Undergraduate interior design program admissions: What is the best predictor of future “success?”

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ABSTRACT

Purpose

The purpose of this paper is to present initial findings of a quasi-experimental study that analyzes what selection criteria provide the best measures of predicting future “success” in an undergraduate interior design program. Success in this study utilizes a performance assessment of a capstone interior design project.

Methodology

An undergraduate interior design program at a large Midwestern university was the focus of this study. The professional interior design undergraduate program begins in a student’s sophomore year. Prior to this, students are required to complete a series of general education and design foundation courses, which comprise of the College of Design’s Core Program. The interior design program selection process is conducted after the students’ freshmen year, using data from their freshmen year.

A total of 35 students participated in the study. There were 33 females and two males in this group, and all participants were 19-20 years old at the time of the study. The selection process formula consists of: 1) Core Program GPA (40%), 2) portfolio assessment (40%), and 3) essay (20%). However, more student data was collected for all freshmen college of design students than what is used in the selection process such as high school GPA and rank, as well as ACT composite and subscores. Path analysis

was chosen to examine the data. It is a statistical technique used to examine causal relationships between two or more variables. It is based on a linear equation system and it produces a clear and explicit result of the strength of the mathematical relationships contained within the model.

Importance of Topic

Determining a student's potential is a serious endeavor in higher education. In these high stakes decision-making, most programs utilize a combination of assessment measures to obtain a full picture of the candidate student. In programs where only a limited number of slots are available, this selection process becomes particularly important. This process is based on the underlying assumption that academic units want to select the students who will be the most "successful" or who will succeed, given their conception of success.

Relevance to Interior Design

There is minimal current research on assessment of interior design program admission criteria and best predictors of success. Are there more appropriate tools for predicting successful design students in college than the traditional predictors like high school GPA, rank, and achievement tests that align with a program's mission and learning outcomes? As faculty and administrators in interior design programs, it is crucial to first define what we mean by a "success" in an interior design program, and then be in a position to utilize the best predictors in the selection criteria for admission into a program.

NARRATIVE

Introduction

The purpose of this paper is to present initial findings of a quasi-experimental study that analyzes what selection criteria provide the best measures of predicting future "success" in an undergraduate interior design program. Success in this study utilizes a performance assessment of a capstone interior design project. Path analysis techniques were used to investigate three main research questions.

1. How well did the existing admissions criteria predict future college success? These variables were the portfolio, the essay, and the Core GPA scores and are collected after the student's freshmen year.
2. How well did alternative measures that encompassed such attributes as motivation, persistence, and will of a student, predict success?
3. How well did a student's high school data predict future college success? Some of the high school data included high school GPA, high school rank, and ACT composite and subscores.

Literature Review

Camara (2005b) contends that there are many factors associated with college success and performance that extend beyond academic success and achievement. Academic performance is not the only dimension of college success, and grades are not the only criterion measure (Willingham, 1985). Camara (2005b) argues for broadening the criteria and model for college success, and discusses five predictor domains in college admissions including: 1) Cognitive Measures such as standardized tests and

GPA, 2) Noncognitive Scales such as personality tests, self-reports, and qualities of a student such as motivation, 3) Personal Qualities that would be found in letters of recommendation, portfolios, essays, interviews, and biographical and experience shown in special projects or research, extracurricular activities and leadership activities, 4) Applicant Characteristics such as race/ethnicity, gender, ability to pay, and veteran/military service, and 5) Other, such as high school characteristics (number of AP courses, location of high school), contextual factors such as institutional priorities, competitiveness of applicant pool, and legacy/alumni recommendation.

One cannot evaluate new predictors of college success until one first defines college success and the multidimensional nature of this. A criterion refers to the dependent variable or outcome measure. It is a measure of the desired outcome and is what is used to evaluate the validity and utility of the predictors (Camara, 2005a).

In a study by Whiteside-Dickson and Rothgeb (1989), the researchers found that 47% of the interior design programs they surveyed used portfolio reviews as a quality control measure for entrance or continuation in their program. In general the portfolio reviews were used as a means of assessing design aptitude (talent and ability), and as enrollment management (quantity of students admitted). These researchers noted that the top five frequently reviewed skills in portfolio reviews included: 1) creativity, 2) drawing, 3) drafting, 4) design elements and principles, 4) design concepts (tie with design elements and principles), and 5) rendering.

Kolar and Gorman (1987) investigated the significance of standardized tests, which were administered to *entering* interior design majors. The purpose of this study was to statistically analyze the results of test scores collected over a four year period to

determine if they could serve as predictors of those individuals who successfully entered the interior design program. The researchers looked at four standardized tests, but only one of these tests, the Meier's Art Judgment Test designed by Norman Charles Meier (1942) was shown to have predictive significance in addition to a student's GPA. The purpose of the Art Judgment Test is to evaluate how well a student can judge art in terms of its composition and aesthetic appeal.

Methodology

An undergraduate interior design program at a large Midwestern university was the focus of this study. A total of 35 students participated in the study, however 33 students remained at the end of the analysis given missing data from student class dropout. There were 32 females and one male in this group, and all participants were 19-20 years old at the time of the study. The selection process formula consists of: 1) Core Program GPA (40%), 2) portfolio assessment (40%), and 3) essay (20%). However, more student data was collected for all freshmen college of design students than what is used in the selection process such as high school GPA and rank, as well as ACT composite and subscores. In this study there were three waves of data that was analyzed: high school, freshmen year, and sophomore year. A diagram of the data and the model in its abstract form is depicted in Appendix A. The list of predictor variables used in this study are shown in Appendix B and the criterion measure is a performance assessment of the student's final design project in a studio class.

Path analysis was chosen to examine the data. It is a statistical technique used to examine causal relationships between two or more variables. It is based on a linear equation system and it produces a clear and explicit result of the strength of the

mathematical relationships contained within the model. Five initial path analysis models were run and the final, reduced model is shown in Appendix C. This includes all three waves of data and parses out the ACT scores into the significant subscores of math, elementary algebra, and geometry/trigonometry.

Results

The results of the final path analysis model indicate several important observations. First, the ACT subscores of ACT_EALG (elementary algebra), ACT_GEOM_TRIG, and ACT_MATH show a significant direct relationship to sCAP. The GEOM_TRIG and MATH show a positive relationship to sCAP, while the EALG has a negative relationship to sCAP. Second, the GPAs also indicate a significant relationship to sCAP. There are indirect relationships between HSGPA and CoreGPA through the FGPA. Third, none of the sophomore year data, with the exception of FGPA, have any significant relationships to sCAP. And lastly, the IDRANK, which includes all of the interior design program admission variables (essay, portfolio, and CoreGPA), does not show any significant relationship to the sCAP.

Discussion

The results of the path analyses models revealed three important themes from the data. First, based on one year of data for the given predictor variables analyzed, the existing selection criteria variables were not significant. In all of the path analysis models, the portfolio, essay scores, and CoreGPA showed no significance in predicting success, nor did they have any relationship to other variables in the models. Given this poor showing of the existing selection criteria variables, further policy discussion on the role, nature, construction, and weight of these variables is needed. There is ample

research on the value of portfolio review for certain fields or disciplines, especially in the arts and performing arts. However, there must be a clear connection between the actual portfolio content and the values and mission statement of the program, as well as the learning outcomes within the curriculum. There must also be a clear and transparent protocol for training the portfolio reviewers.

Second, GPAs were strong predictors as shown in the HSGPA, CoreGPA, and the FGPA. Model F indicated a strong predictive association between high school GPA, and final GPA for the capstone project. Surprisingly, the CoreGPA shows a strong negative direct relationship to the capstone project in Model B, which does not make intuitive sense. One conclusion is that the Core Program course content does not have any significant relationship to the capstone interior design project.Thus, further study into the Core Program may be warranted. Again, when better path models were developed, the CoreGPA variable proved to be insignificant to the capstone project.

Third, the ACT_GEOM_TRIG and ACT_MATH were a significant positive relationship to the capstone project, while ACT_EALG was a significant negative relationship to sCAP. One conclusion from these results could be that interior design requires students to think and draw in both two- and three-dimensions. A good design student would also be able to use geometry and trigonometry concepts more successfully than lesser talented design students. In contrast, the concepts inherent in elementary algebra may be less applicable to the discipline of interior design at this point in a student's program of study or the nature of the capstone design problem.

Concluding Remarks

The strong relationships of the three ACT subscores, in addition to the insignificance of the existing admission criteria variables warrant further study into the current admission criteria and equation. At this point it is too early to give a precise recommendation of weights for an ideal admission equation, but the way to get this information would be to run a regression analysis and then normalize the standardized regression coefficients based on their sum.

However, the question still remains: is there a variable that could be introduced that would encompass more design related student knowledge and skills? One option is to investigate other standardized measures such as the Art Judgment Index. Another option is a modification of the existing portfolio contents and protocol review, so there is more alignment with the interior design vision and curriculum outcomes. In addition, what about other admissions criteria that cover the motivation, leadership, and other qualities of the candidate student? More data points are needed to have a clearer understanding and role of this measure in predicting success.

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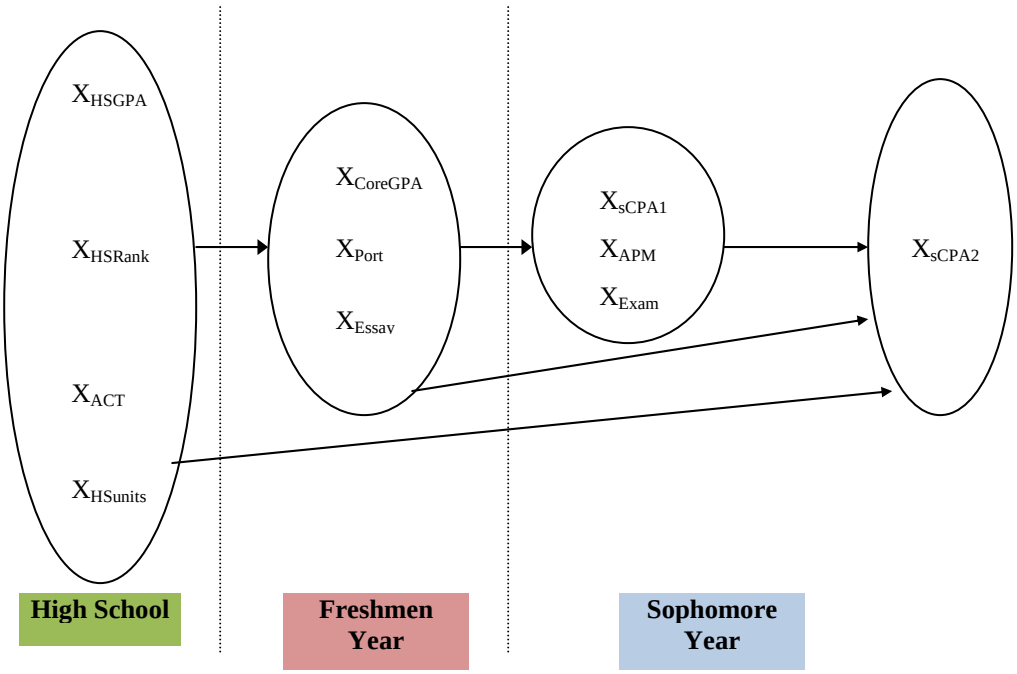
APPENDIX A


X_{HSGPA}
X_{HSRank}
X_{ACT}
$X_{HSunits}$
$X_{CoreGPA}$
X_{Port}
X_{Essav}
X_{sCPA1}
X_{APM}
X_{Exam}
X_{sCPA2}
High School
Freshmen Year
Sophomore Year

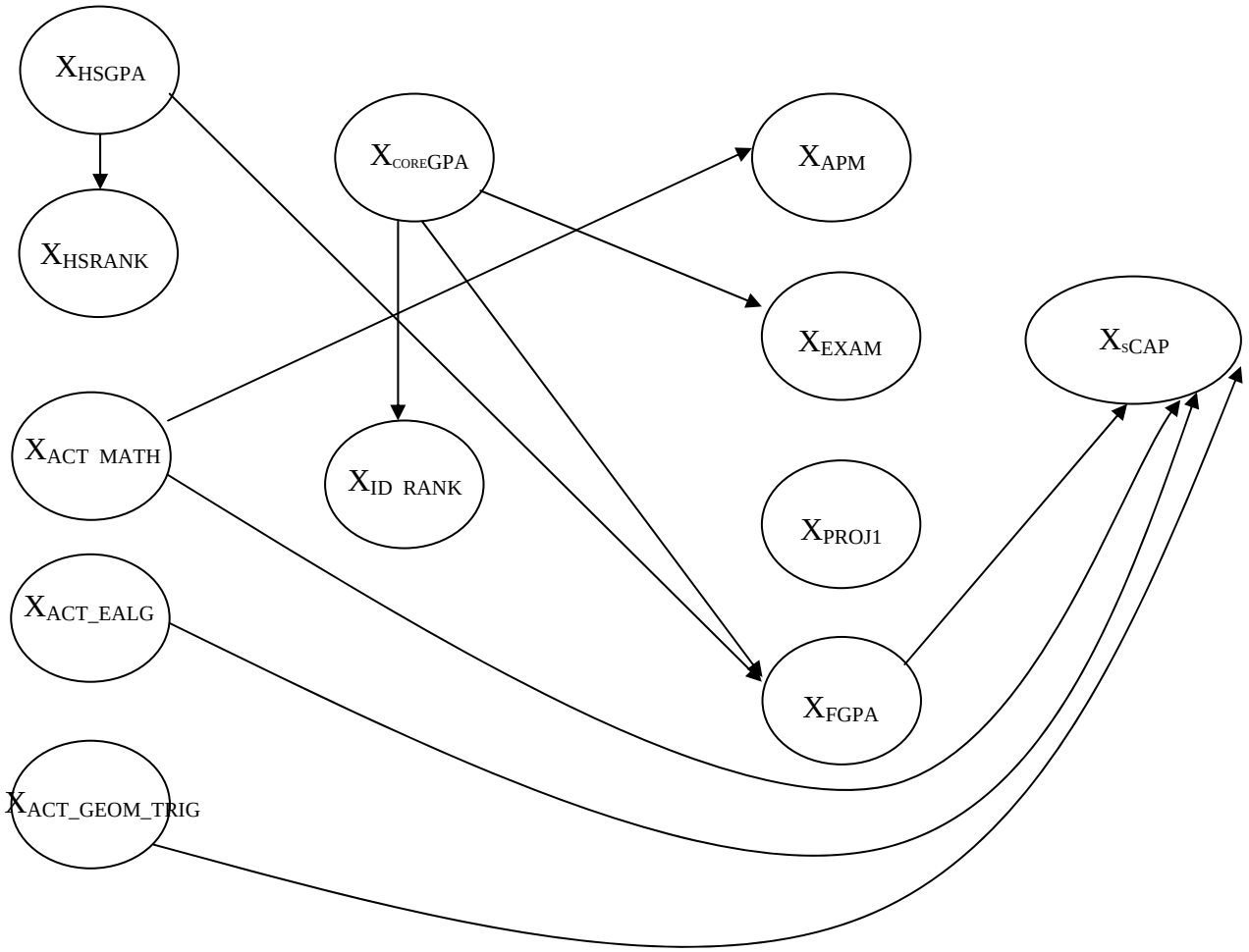
APPENDIX B

High School	HS_RANK	High school percentile rank
	HS_GPA	High school cumulative GPA
High School *[ACT Scores]*	ACT_CMPST	ACT Composite Score
	ACT_ENGL	ACT English Score
	ACT_MATH	ACT Math Score
	ACT_READ	ACT Reading Score
	ACT_SCNCE	ACT Science Score
	ACT_USE_MECH	
	ACT_RHET	ACT Rhetoric
	ACT_ELMTRY_ALGBR	ACT Elementary Algebra
	ACT_ALGBR_GEOM	ACT Algebra Geometry
	ACT_GEOM_TRIG	ACT Geometry Trigonometry
	ACT_SCL_SCNCE	ACT Social Science
	ACT_ART_LIT	ACT Art Literature
High School *[HS Units]*	HS_ART_UNITS	High School Art Units
	HS_SCL_SCNCE_UNITS	High School Social Science Units
	HS_FRNCH_UNITS	High School French Units
	HS_GRMN_UNITS	High School German Units
	HS_RSSN_UNITS	High School Russian Units
	HS_LATIN_UNITS	High School Latin Units
	HS_OTH_LANG_UNITS	High School Other Units
	HS_ALGBR_UNITS	High School Algebra Units
	HS_GEOM_UNITS	High School Geometry Units
	HS_TRIG_UNITS	High School Trigonometry Units
	HS_CALC_UNITS	High School Calculus Units
	HS_CHEM_UNITS	High School Chemistry Units
	HS_PHYS_UNITS	High School Physics Units
	HS_BIO_UNITS	High School Biology Units
	HS_ENGL_UNITS	High School English Units
Freshmen Year	CoreGPA	GPA of Design Core Curriculum[1]
	PORT	Avg Portfolio Assessment

		Score
	ESSAY	Avg Essay Assessment Score
	Total_ID_Criteria	CoreGPA, Portfolio, & Essay
Sophomore Year	Proj_1	Design Project One, performance assessment
	APM	The Advanced Progressive Matrices (APM) from the series of Raven Progressive Matrices (RPM) to measure eductive ability, motivation, persistence, will.
	EXAM	Cumulative final exam at end of sophomore year to measure content knowledge

APPENDIX C

The adjusted R^2 for the path leading to the sCAP equals .627, which indicates nearly 63% of the variance of the dependant variable is explained along the path. The standard error of the estimate is 6.108, and the F-ratio is 11.927 with a significance level greater than 99.9%. A significant F-ratio indicates that the estimated coefficients of the variables are significantly different than zero. So the model as a whole is a good fit.



'Dialectical notebook': A writing strategy adapted and used in the interior design classroom

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ABSTRACT

The 'dialectical notebook' (Berthoff, 1987) is a writing assignment I use as an in-class activity in the design classroom that expands students' observational, analytical, and critical thinking skills. It is used in conjunction with viewing visual imagery. Imagery can be shown as still images on a screen, a design-related video, or by experiencing 'real-world' design applications. I have utilized the 'dialectical notebook' strategy in large lecture classes and in a small seminar.

The assignment requires little preparation and is self-directed. Prior to viewing the image or experiencing the 'real-world' space simple guidelines are reviewed regarding how to set-up the notebook and what is required for each step of the assignment. The assignment, as I use it, is multi-dimensional, but I will only outline the first two steps here.

The first step is to view the visual imagery being presented then, in writing, describe what is seen using 'scientific' observations, such as: "The object is dark navy blue. The object appears to have been made by hand, as random chisel marks are visible on the surface. The surface is dull, not shiny. The object has four equally-spaced vertical projections." The second step requires students to write responses to their observations. This step acts as the 'dialectical' component of the assignment. The

responsive writing stage functions as a means for the student to 'talk back', or respond and reflect on their initial observations. As they write more about their observations students begin to develop rationale regarding their observations and dig deeper into psychological and metaphorical reasoning. They are encouraged to answer questions, such as: Why did you notice that particular aspect of the design? Why did the color of this object catch your attention? Is there something about this design that reminds you of something you've seen before? Where did you see it? Who creates work that is similar? How do you feel when you look at this image/design?

Students have found this assignment to be useful because it gives them the opportunity to observe and write about what they find personally interesting rather than being directed to respond to specified aspects of the imagery. Students appreciate having the freedom to answer questions of their own devising and/or to answer only the questions that they find relevant. Comparing notebooks after the assignment allows students to recognize similarities and differences in observational skills, opinions and rationales.

Use of the 'dialectical notebook,' initially developed as a strategy for teaching writing and composition, has multiple implications for the interior design educator. It can be easily adapted according to interest, need and time constraints. The technique uses materials students have readily at hand; binder paper and a pencil. All that is required of the instructor is to find compelling images, videos and/or designed spaces for students to experience and reflect on.

During this teaching forum I will briefly work through the steps of the assignment so that participants can experience the process. Variations to the basic assignment will also be discussed.

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NARRATIVE

As interior design educators we wish to instill in our students a sense of the power of good design and the impact it has on peoples' lives. We also want them to develop excellent observational, analytical, and critical thinking skills. Using visual imagery in the interior design classroom can be a powerful means of helping to develop those skills while illustrating practical applications that use good design. Interior designers are visually-oriented and as educators we try to appeal to that quality in our students by peppering our lectures and studio sessions with visual imagery of all sorts in an effort to spark their creative spirits. We show our students photographs of design work, videos of designers and their design processes, images taken from books and the Internet, material samples, and even take them on field trips in order to increase their visual vocabularies.

I discovered that finding stimulating visual imagery to present to my students was not the difficult part. What challenged me was finding ways of encouraging students to analyze and critically consider the images they were viewing. I wasn't satisfied with the 'typical' question and answer style in-class activity where I would develop a list of questions that students would answer in response to viewing a particular set of images. On the surface it seemed to work; students wrote answers that clearly illustrated to me that they were getting the 'gist' of the imagery and could also verbalize their observations in large-group discussions. However, after this pattern was repeated with each subsequent class I began to think there might be a way to improve the learning experience. I knew that having students record and verbally discuss their observations was a step in the right direction but I also knew there must be ways to guide students

towards the more analytical and critical thinking stages of the learning process. I felt as though some of the visual imagery I was showing the students was far too compelling to ‘settle’ for pat answers; the imagery seemed to beg for analysis and a deeper-level of consideration from the students. If for no other reason than I was hearing the same observations over and over again each term, I sensed that it was time to seek out a new teaching and learning tool.

For advice I turned to an acquaintance; a dynamic writing instructor who leads creative writing and poetry workshops. I described the types of imagery the students were being exposed to in my classroom and my desire to offer them a means of developing and expressing their analytical and critical thinking skills in their writing and subsequent discussions regarding the imagery. With a knowing look she began to unfold for me a writing strategy called the ‘dialectical notebook’ which she uses, in a modified format, in her writing workshops. Soon after our discussion I began using the writing strategy in my classroom. It should be noted here that I have used the strategy with large lecture classes and a small first-year interior design student seminar group. The large classes used the notebook while observing design-based videos, while the seminar group used it as they physically experienced a designed space.

The ‘dialectical notebook’ is a writing strategy developed by Ann Berthoff, an English professor, as a way of journal-keeping that allows the writer to respond to their own written observations. The journal, as Berthoff outlines it, is simply two journal pages facing each other with “observations, sketches, noted impressions, passages copied out, jottings on readings or other responses” on one page and “on the facing page are notes on these notes, responses to these responses. . .” (1987, p. 12). In this way the

writer is literally ‘talking back’ to themselves about their own observations—hence the use of the term ‘dialectical.’ Berthoff defines ‘dialectic’ as “an audit of meaning—a continuing effort to review the meanings we are making in order to see further what they mean” (p. 12).

The form of the notebook that I have utilized in the classroom has been modified from the original in two ways. First, it has been modified to take visual imagery into account as the stimulus rather than the written word. Second, it has been expanded with the addition of two columns—making it a four-column notebook.

When I use this assignment I direct students to open their notebooks to two blank pages that face each other and draw a line down the center of each page, making four total columns. It is important that the four columns are drawn on two sheets of paper that face each other in order to facilitate a free-flow of ideas back and forth between the columns; both physically and psychologically. The students are then shown an example of a dialectical notebook and we walk through the steps involved with the assignment.

In Column 1, on the far left side, the students are instructed to write down their observations; scientific-based information that answer questions such as “What is this?” “What is this made out of?” “What colors do you see?” and so forth. In Column 2, students are told to respond to their initial observations. For example, if they noticed a particular color they should analyze that observation and discuss what the color reminds them of, where they’ve seen it before, why it attracted their attention, and so on. Column 3 requires the students to exercise their creativity by creating a drawing that represents, in some way, the visual imagery they’ve just experienced. They are encouraged to convey the essence of the imagery through abstraction or expressive means. In Column

4 students are to return to the first two columns to review and re-evaluate their observations and responses, to think metaphorically and critically; taking more time to ‘talk back’ and reflect. They are told that they may change their minds about previous observations or re-direct their thoughts entirely in this column.

After the basic outline of the assignment has been given I present the visual imagery that I’ve chosen to the students. The amount of time given to the assignment often dictates what type of imagery I show. Obviously showing a lengthy video involves a greater allotment of time than the analysis of a single photograph. In any case time for writing, reflecting and discussing is factored in so that the assignment isn’t rushed. If time permits, another step in the dialectical notebook assignment is added. In this step notebooks are exchanged between students in the classroom. If this step is used students are asked to write comments in their classmate’s journal margins noting items of interest, and noting shared and/or divergent observations and responses.

After students have had time to write in their notebooks, and perhaps share their notebook with a classmate, time is allotted to general discussion. Although the dialectic, or ‘talking back’, component is the key element in this assignment allowing time for verbal interchange at the end of the assignment has revealed some rich dialogue. Students seem to enjoy the act of sharing their personal perceptions, observations, and responses. It is during this interchange that they begin to see similarities and divergences of observational and critical thinking skills emerge across the classroom. In some cases as they listen to each other talk about what they’ve noticed and why they are also validating their own thought processes—“That must be an important element of the imagery if so-and-so noticed it also.” Group discussion offers students insight into

new and different ways of seeing and thinking, and helps underscore the notion that despite having all witnessed the same visual stimulus peoples' perceptions can vary a great deal.

As stated, it is the 'dialectical' aspect of this assignment that is the central learning tool here. It is in the 'talking back', in the act of retrospection, that the analytical and critical thinking processes begin to be stimulated. Students have found this assignment useful because it gives them the opportunity to observe and write about what they find personally interesting rather than being directed to respond to specified aspects of the imagery. Students seem to also appreciate having the freedom to answer questions of their own devising and/or to answer only the questions that they find relevant to their experience. As interior design educators we want our students to see the value in taking the time and thought needed to analyze, question, and reflect on the designed world around them.

According to Berthoff, "the chief academic value of the dialectical notebook is that it helps a student to become a good reader, thereby learning to be a good writer" (pp. 15-16). With that thought in mind I would say that an exercise such as the dialectical notebook in the interior design classroom helps a design student become a keen observer, thereby learning to be a critically aware designer.

References

(APA Style)

Berthoff A. E. (1987). Dialectical notebooks and the audit of meaning. In T. Fulwiler (Ed.), *The Journal Book* (pp.11-18). Portsmouth, NH: Boynton/Cook Publishers.

Divans behind the “Gates of Steel”: American Missionaries in Turkey

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ABSTRACT

This article examines the impact on American furniture and clothing styles by women missionaries traveling to Turkey in the Victorian era. Although there has been much discussion of the impact of western missionaries on Turkey and other parts of Asia, the reciprocal impact on American culture has not been adequately assessed. Missionary work, which started in the 1820s in a modest manner, turned into a systematic and large-scale activity throughout the 1840s and reached its climax during the last quarter of the nineteenth century. Unlike western diplomats, whose visits took place in the palaces of Istanbul, far from the realities of everyday life, missionary women had informal contact with ordinary Turkish women. Ottoman Turkish domestic space was highly gendered, so only these missionary women would have been able to experience authentic Ottoman Turkish interiors as *social spaces*. Typically, these women would serve abroad for a specific time and then return to the US to recruit and raise money for their missions by traveling from community to community. In their presentations, they would talk about the important work that they were accomplishing abroad; but at the same time they would also tell exotic stories and present examples of

material culture to create interest in these far-off places. The furniture style and the unique concept of comfort that they observed in Turkey presented an alternative point of view of home life and its organization. Diaries, travelogues and other contemporary material will be put in the context of American culture of the Victorian era in order to chart the unusual way in which American and Turkish women interacted with each other at this historical moment.

NARRATIVE

Although there are many accounts of the impact of western missionaries in the former European colonies and the importance of women in these enterprises, the impact they had on American culture as a result of their activity in parts of the old Ottoman empire has not been fully appreciated, particularly their impact on American style in clothing and interior design. Because of the gendered character of domestic spaces in places like Anatolia, women had access to Ottoman-Turkish interiors unavailable to their male counterparts; and women missionaries in particular were able to experience these interiors as social spaces. These women played a key role in the circulation and interpretation of Turkish material culture in Victorian America, a time when missionary activities in Turkey intensified and when eclecticism and interest in exotic influences dominated the American scene.

19th century European travelers frequently commented on the social separation of men and women in Ottoman Turkish houses and the inaccessibility of the harem for male travelers to the East.[1] This often led to an exaggerated world of “orientalist”

fantasy about what these spaces looked like and what happened there. For example, American James E. P. Boulden wrote the following account:

> The windows of the harem are closely latticed to prevent its inmates from being observed by outsiders. No male infidel vision ever penetrates into those sacred recesses where, reclining luxuriously upon rich, gold embroidered, cloth divans, the air glowing with Arabia's sweetest perfumes, surrounded by their female attendants, who hearken to their every sigh, and hurriedly obey their every wish, now refreshing them with snow-cooled sherbet, and anon lulling their senses with soft voluptuous music, these *houris* [angels] while away the time in blissful indolence (Boulden, 1855).

This eroticized picture of the harem, where beautiful women are kept imprisoned, waiting idly for their men to pay attention to them, surrounded by instruments of pleasure and indolence, is itself a figure of the desire for exotic pleasures that lured men such as Boulden to the orient. It is typical of the kind of orientalist fantasy that is based on books and the accounts of others rather than actual observation. He mingles together fact and fiction without regard for historical specificity, essentializing the "oriental" woman into a figment of western imagination.[2]

Artistic representations of oriental women inspired by accounts of male travelers provide parallels.[3] Images of women reclining seductively on soft divans in orientalist paintings created an association between the idea of bodily comfort and the East. The modest clothing of oriental women was interpreted as an expression of sensuality and contributed to their construction as sexual objects. Intentionally or not, these images

often created a correlation of the freedom of bodily posture and the relaxation of sexual taboos.

There were also secular women travelers to the Orient who were able to gain access to domestic interiors in the Ottoman Empire. Although the writings of female travelers often deployed orientalist stereotypes when describing Turkish customs and spaces, they sometimes indicated that they were able to become participants in the social sphere of the harem.[4] However, women travelers, still remain curious outsiders seeking the thrill of encountering the exotic other, in part because of its inaccessibility to their male counterparts. At the same time, secular travelers, both men and women, tended to interact only with the most affluent class of Ottomans. As we shall see, American missionaries were typically able to encounter a broader range of people in Anatolia and were able to do so more intensively and for a longer time.

The enormous importance of western missionaries during the period of colonial expansion has long been recognized, as well as its intanglement, intended or not, in the imperial projects of the West.[5] Parts of the Ottoman Empire were subjected to intense missionary activity, particularly from the United States. Beginning in the early 19th century, the American effort turned into a systematic and large-scale activity throughout the 1840s and reached its climax during the last quarter of the nineteenth century. Unlike Africa or the Far East, the eastern Mediterranean was already a part of Western religious culture and was thus a more congenial destination (Melman, 1995). The missionary agenda necessarily presumed an effort to engage these people on their own turf and in their own terms. “The first duty of the missionary,” wrote Dr. Judson Smith, Foreign Secretary of ABCFM, “on arrival in the field, is to acquaint himself with the

people, their language, their customs, their inherited faith, and their institutions.… The leading duty of the missionary, after having established personal relations with the people and won their confidence, is to instruct them in the knowledge and faith of Jesus Christ" (Smith, 1896). Although western missionaries may seem like an unlikely vanguard for cultural understanding between east and west, their goals required a much more intense engagement with local peoples of all classes.

Victorian ideas about domesticity and the place of women in the social order impacted the goals and strategies of these western missionaries in many ways. For example, there was a link between the dignity of women and spiritual and moral progress, so that women became a key target for the missionary movement. But this goal put male missionaries at a distinct disadvantage in Anatolia. American Pastor Arthur Tappan Pierson compared getting access to the harems of Turkey with "forcing gates of steel in walls of adamant" (Pierson, 1886). According to Pierson it was only women missionaries who were able to take down the barriers and unlock these gates of steel in Turkey. Initially, the only missionary women who traveled to Turkey were trailing spouses who accompanied and supported their husbands; but in time, the missionary societies started sending single woman as missionaries, and eventually they outnumbered men in the field. These women penetrated the lives and homes of Turkish women to a degree impossible for secular travelers, male or female. Whereas for travelers the harem was a spot on the tourist trail, missionaries stayed abroad for much longer, often remaining in the very same area for decades, entwining themselves in the fabric of everyday life through their medical and educational expertise. Unlike curious tourists, missionaries were more likely to grasp Turkish culture as a lived experience,

and this is reflected in the detailed descriptions of Turkish interiors to be found in missionary writings, as well as the generally better grasp of the meaning of material culture.

Part of what makes missionary women's observations distinctive is the manner in which they circulated back home. American missionary women would typically serve abroad for a specific time and then return to the US to recruit and raise money for their missions by traveling from community to community. In their presentations, they would talk about the important work that they were accomplishing abroad; but at the same time they would also tell exotic stories and present examples of material culture to create interest in these far-off places. In addition, missionary letters were published and circulated widely in journals like *Life and Light*. The sheer number of missionaries and the extensive networks for disseminating the vigorous accounts of their experiences abroad dwarfs the impact of the accounts of secular travelers. Significantly, in the late 19th century, when missionary activity to Turkey was at its peak, Turkish clothing and furniture became increasingly prevalent in style magazines and etiquette books in the US.[6] These representations often indicate an intimate knowledge of Turkish interiors and female fashions, and they make up a distinctively American reception of Turkish style.

Missionary documents from the period give a variety of advice for arousing interest in things Turkish as a means to promote contributions and support; and these often focus on activities that foreground social interactions. These include activities like a "curio social," where souvenirs of various kinds are set out on tables where "may preside a young woman dressed in the costume of the country, and ready to explain

whatever is on her table," followed by a plea for the missions (Wells, 1899). A turn of the century Missionary Manual lists a number of similar means of exploiting the enormous interest in foreign lands to draw attention to the religious activities there, with specific instructions on using scrap-books, curio meetings, impersonation meetings, missionary museums, missionary "tours," exploration meetings, etc.[7] What is striking about these various activities is the way they focus on personal interactions as a way of bringing to life dramatically the social significance of material culture. In addition there is a consistent emphasis on the letters of missionaries and the personal and often intimate observations that they made in their lengthy stays abroad. In general these accounts regularly express sympathy for the position of oriental women, one that is grounded in a firm belief in the dignity of all women and enlivened by a sense of women's growing opportunities in the west. Equally important, these letters reveal detailed knowledge about Turkish costumes and more openness to the advantages they bring to those who wear them.[8] Indeed, in the United States, avant-garde groups, like the Aesthetic Dress Movement and The Rational Dress Society[9] were suggesting the eminently more comfortable clothing of the Ottoman Turks as an alternative to the dresses worn by American ladies. The impact that women missionaries had on middle-class tastes cannot be measured precisely, but their impact coincided with a number of other developments in American furniture selection and taste that prepared the way for their impact to be as great as possible. American eclecticism and practicality prepared the way for a broad and varied reception of comfortable clothes and furniture from places like the Ottoman Empire, and American missionaries played a substantial role in disseminating positive views of that material culture.

Alongside the elite tradition of furniture in America, a new middle class sensibility was simultaneously emerging with enormous force, driven by many changes in social and material conditions, a sensibility which invited women to exercise greater autonomy in the decoration of their homes as one manifestation of the greater autonomy they were seeking in other realms of life. The complex relationship between American missionary women and their heathen sisters in Anatolia was a key factor in the evolution of domestic interiors in Victorian America, a factor that is legible in the extensive penetration of Turkish culture into a distinctively American style.

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[1] European travelers who wrote about gender separation in Ottoman Turkish houses include François Charles Hugues Laurent Pouqueville, *Travels in Greece and Turkey* (1820); Robert Bowyer, *Turkey in Europe* (1819); Thomas Thornton in his *The Present State of Turkey* (1807); Pierre Blanchard in his *Le Voyageur de la Jeunesse dans les Quatre Parties du Monde* (1806); Gullaume-Antoine Olivier in his Voyage *dans l'Empire Othman, l'Egypte et la Perse* (1801).

[2] The key discussion is Edward Said, *Orientalism* (New York: 1978). See also Billie Melman, *Women's Orients: English Women and the Middle East*, 1718-1918 (Ann Arbor: University of Michigan Press, 1992), especially, p.73.

[3] Mary Roberts, Intimate Outsiders: The Harem in Ottoman and Orientalist Art and Travel Literature (Durham: Duke University Press, 2007); Jill Beaulieu, Mary Roberts Orientalism's Interlocutors: Painting, Architecture, Photography (Durham: Duke University Press, 2002); Lynne Thornton, Women as Portrayed in Orientalist Painting (Coubevoie: ACR Edition, 1994); Lynne Thornton, Eastern Encounters: Orientalist Painters of the Nineteenth Century (London: Fine Arts Society, 1978); Marianne Roland Michel, "Exoticism and Genre Painting in Eighteenth-Century France" in Colin B. Bailey, Philip Conisbee, Thomas W. Gaehtgens (eds.) *The Age of Watteau, Chardin, and Fragonard* (Yale University Press).

[4] On women travelers see Barbara Hodgson, *Dreaming of East: Western Women and the Exotic Allure of the Orient* (Berkeley: Greystone Books, 2005); Barbara Hodgson, *No Place for a Lady: Tales of Adventurous Women Travelers*, (Berkeley: Ten Speed Press, 2002); Mary Roberts, *Intimate Outsiders: The Harem in Ottoman and Orientalist Art and Travel Literature* (Durham: Duke University Press, 2007).

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[6] For example, Harriet Prescott Spofford, *Art Decoration Applied to Furniture* (New York: Harper & Brothers, Publishers, 1878), 84; Elizabeth Rose Cleveland, *Social Mirror: A Complete Treatise on the Laws, Rules and Usages that Govern Our Most Refined Homes and Social Circles* (St. Louis: L. W. Dickerson, 1888), 347; Mary Gay Humphreys, Mary Cadwalader, Constance Cary Harrison, *The Woman's Book* (New York: Charles Scribner's Sons, 1894), 345; Alice l. James. *Housekeeping for Two: A Practical Guide for Beginners* (New York: G. P. Putnam's Sons, 1909), 82; Richard A. Wells and Willard E. Waterbury, *Manners, Culture and Dress of the Best American Society* (Springfield, Mass., Cincinnati, Dallas, Sacramento, King, Richardson, 1894), 468.

[7] Missionary Manual, see especially pages 13, 25-26, 29, 34-35. Also see: Belle M. Brain, Fifty Missionary Programmes (Boston: United Society of Christian Endeavour, 1901); Belle M. Brain, Fuel for Missionary Fires: Some Programmes and Plans for Use in Young People's Societies (Boston: United Christian Endeavour, 1898); Lilly Ryder

Gracey, ed. *Gist: A Handbook of Missionary Information, Pre-eminently for Use in Young Women's Circles* (Cincinnati: Cranston & Curts, 1893).

[8] For example, Miss Lovell sent her mother a letter along with two dolls dressed as an Armenian bride and a Turkish female, for which she gave a long description of the clothing: "…the yashmak is one of the nicetiest of Turkish dress; they spend a great deal of time before the glass in arranging the folds of the veil… The full trousers (sometimes made of bright calico, or in summer thin muslin) are called *shalvar*…. You would find it hard to believe that any person should every rig out in so many different pieces of finery as do the females of this land." Mary Gladding Wheeler Benjamin, ed. *The Missionary Sisters* (Boston: Geo. C. Rand & Avery, 1860), 154.

[9] *The Rational Dress Society's Gazette* 1888 No. 1 (April), 1.

Implementing the Design Process

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ABSTRACT

Salama and Wilkinson (2007) identify four pedagogical approaches-- academic, craft, technological, and sociological—for various fields of design. Each one of these approaches emphasizes different aspects of the design process. While design education is still dominated by Beaux Arts traditions and the influence of the Bauhaus--placing much emphasis on studio experience--there is a significant role for seminar based design education. This paper provides strategies for teaching design in seminar courses with a component of making. It will be argued that design strategies can be meaningfully explored in a seminar by weaving such a component into the process. The resulting dialogue between making and design more fully represents the role of designers in the real world.

The example explored here, a furniture design and construction course, involves all four of the pedagogical approaches identified by Salama and Wilkinson by fully integrating the abstract process of design with actual construction. In a traditional studio, process is usually dominated by expected outcomes: a library, a salon, an office, a table; in this course the outcome is an organic part of the design process. Outcomes

are not predetermined. Students finally decide what to build halfway through the semester as a consequence of rich design exploration.

Pursuing furniture design only in a general sense, students begin with three or more divergent ideas. They make use of diverse modeling materials with different characteristics of planarity, plasticity, and flexibility. They build a minimum of three preliminary models with both a monochromatic and consistent palette. At first these abstract models of form are unrecognizable as furniture objects. We discuss as a class how these forms express design ideas such as continuity, subtraction, peeling, carving, bending, folding, repetition, etc., and explore how form might suggest or transform ideas about furniture. Through this discussion students often discover some kind of personal element or source for their abstract design. Perhaps the student designs from a narrative element, a reminiscence, a loved one, or a favorite space or material. By deferring the decision about the purpose of the outcome to this middle point, and focusing our attention through discussion on it, the design process has a more substantial impact on the final product.

In the traditional studio setting, students often design by only simulating and representing appropriate material and scale. However, in my course, because students make life-size pieces of furniture, using actual materials, they face issues of design that flow from the making process itself. Designing has to continue as they confront resistance from the scale and materials deployed for the making of the object. The students learn that the design process is only finished when the object is finished, when the object is actually built. This is a lesson of singular importance for young designers:

when we implement the design process, it has actual, physical, significant consequences.

NARRATIVE

Targeted learning outcomes for this course can be identified as: Acquisition of knowledge on furniture design, materials and responsible practices related to making furniture (such as sustainable forestry, minimal use of resources, etc.), appreciation of the design process, improvement of intellectual and communicative skills, gaining practical skills in the woodshop, and competency of creative problem solving skills. Although this course is required for interior design students non-major students are also allowed to register. Non-major students do not make up any more than 10% of the class population, but they bring in an unbiased non-designer view to the learning environment.

Studio is considered to be the backbone of design education. In many programs however, seminar courses remain missed opportunities to teach design in an effective manner. These seminar courses are invaluable mediums for bridging the creative (theory) and technical (tectonics) aspects of design. I use the term 'technical' to express the methods of assembling parts and pieces to make furniture, spaces or buildings.

Bryan Lawson suggests that "academically based design education lacks contact with the makers of things" (Lawson, 2006). But it should be an essential part of any student's design education to also become a "maker of things." By actually crafting the designed object themselves my students become closer to the designed entity than a

designer who never makes the object s/he designs. They are also forced to understand users and their needs as they design and construct; strangely enough this is a key component which is often forgotten in the studio. Integrating a component of making introduces real issues that are parallel with the professional world, such as budget and time constraints.

Elie G. Haddad argues that *Tekne*, is "a process of 'making' which reveals certain truths about the 'thing' and its perceptual manifestations. This understanding of *Tekne* is related to a 'symbolic' process of conceptualizing that does not reduce the 'concept' to an abstract and static notion, but on the contrary transforms it into an on-going process of interpretation" (Haddad, 2006). The Oxford English Dictionary explains tectonics as the science and art of assembling, the constructive arts in general. Tectonics provides theoretical and practical limits on what can and cannot be built with what materials. As they design and build, students realize that a detail is not merely a smaller part of a larger entity, but rather is the very foundation of the designed object. It is a point where two worlds come together; wood and steel, opposing grains of wood, wood and glass, dark and light, etc.

In the studio, students try out their design ideas through scaled physical and computer generated models, or at best partial full scale models. In my furniture course however, they are required to build their designed objects life-sized and make sure they are usable for the function for which they were intended. As makers of things these young designers become part of *present* instead of an "imagined future" (Jones, 1992).

After the students get acclimated to the woodshop through a small scale project, the second assignment entails the design and building of iterative models which will

present a basis for a furniture piece to be constructed at full scale. From conception of an abstract model to the construction of furniture pieces the students have about 10 weeks. In a studio-based learning environment the excessive obsession with the end product may compromise learning from the design process. I attempt to divert students' attention towards the design process through a cumulative design method. Reflection and interpretation are encouraged as the students transform their abstract models into real furniture pieces.

The students start with three divergent design ideas and continue to build on one or more of their initial concepts on a convergent path. Initially, they are advised to think of form as a sculptural and non-functional object. Diversity of modeling materials is a requirement since it yields diversity in design ideas. This diversity is not about the texture or the color of the materials but rather the physical capabilities of modeling materials. Planar, solid, flexible, plastic, stick or profile-like materials result in a variety of forms and structures. The students build a minimum of three preliminary models with monochromatic and/or consistent palette. These first models are unrecognizable as furniture pieces; rather they look like abstract sculptures. Design by definition is the art and science of association of forms into new meanings (Grillo, 1975). The abstract models allow for the students' interpretation and improvisation, hence a less predictable outcome. For this kind of design process students seek to find materials that belong to the forms that they created. Sometimes students reverse this process and seek the form that belongs with a specific material.

We talk about these models as a group and all students contribute to the discussions. The models express a simple yet rich design idea, which is then used for

iterative inquiries of form. We come up with ideas about how that form or design idea could be transformed into a real piece of furniture. I ask students to think about a place, a space, a person, encouraging them to design for a specific reason. Does that space require a piece of furniture, a function (not always physical, maybe psychological) that cannot be fulfilled any other way? What will the piece do? Will it be heavy and stay in the same spot forever or be light and have freedom of movement? Who will interact with it and how? I also remind them that the piece they design does not have to conform to the standards established by our culture and the furniture industry; that they have the freedom to design a piece that is not a coffee table, not a chair as we know it. During the following week the students work on a minimum of three advanced models, again with monochromatic and/or consistent palette, that take one or more of the preliminary models as their basis. At this point the models start to resemble something more than an abstract sculpture. Another week is spent to design three final models. The students are able to identify the furniture piece and start to think about issues such as materiality, scale, and proportion. They are asked to build a full-size mock-up model of their designs which enable us to discuss the details and proportional qualities of the piece. The next five weeks are spent on constructing the piece in the shop. The students present their pieces and their shop drawings to a jury of designers and industry professionals, where the design process is emphasized as a significant component.

Lawson identifies two methods of design: self-conscious and unselfconscious. The self-conscious approach involves a sophisticated mental process capable of manipulating many kinds of information. It will bring about much analysis, discussion and decision making. The unselfconscious approach, however, is based on what he

call a kind of “collective consciousness” and does not require a theoretical background. Unpredictable and unprompted results can only be achieved through the self-conscious approach. We have to distance ourselves from archetypes to be creative. The design process is not linear and it is not mechanical. It travels between specificity and vagueness. We should start with activities and experiences and design a piece of furniture to sit on rather than design a chair. In order to be able to get rid of the typical image of a wooden chair with four legs we should refrain from uttering the word “chair.” Instead we should think about the body and its weight, about a comfortable space to occupy that will invite and accept our bodies.

This method of teaching can be applied to almost any seminar course. Seminar courses allow our students to gain competency in technical and professional subjects. Often design is exclusively within the walls of studio. Our students would have less to learn after they graduate and more to appreciate when they are still design students if we incorporate design and making in our seminar courses. This incorporation will ensure that our students will always think like designers.

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Design as the *Conductor* for Social Advocacy

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The comparison between the lead designer [feel free—or not—to insert the utterance architect] of a project and the conductor of an orchestra has by now lost much of its luster. This, in large part, is due to the increasing technical complexities associated with current built environment artifacts. A paradigmatic displacement that replaces the architect [feel free—or not—to insert interior designer] described by Philibert de l'Orme, in his *Premier Tome de l'Architecture,*[i] with the imagery of a techno-savvy conglomerate.

Advances in life-safety, material sciences and an increased awareness towards the natural environment have "hyper-technified" the métier of one who intervenes on the built environment. On the other hand, the social aspect of design—which is intimately intertwined with *interiors*—has changed very little from Vitruvius' description in Book II, Chapter I: *The Origin of the Dwelling House*.[ii] Vitruvius is speaking here of shelter/dwelling in the Heideggerian sense;[iii] ergo, of *community* and *communication* as it should be understood in the contemporary sense.

The *interiors* program we are affiliated with is housed in a School of Human Environmental Sciences, not in a College/School of Allied Arts or of Architecture. Although this situation is not particularly rare, our program distinguishes itself by sitting

proudly on the fence between the pursuit of aesthetic theory and of the social sciences. At any given time, multiple community oriented and service-learning projects unfold at our program.

Much is said and written about the value of a hands-on approach where the apprenticeship of design is concerned.[iv] Especially when the making part works in synchronicity with the predominant graphic, or representation, part of a curriculum. Far less evident is the level of social impact held by academically driven, community oriented efforts.

For this paper presentation, our interest lies in social advocacy leadership during the apprenticeship of design—mainly *interiors*. As a baseline we are researching the condition of making [beyond single high-stakes design-build experiences] in the teaching environment as well as the impact of haptic experiences on the design profession. With making as a vehicle, we are studying the reach of academically supported, community oriented design projects.

As a case study, we are looking towards Urban Studio: a studio-based experience that has forged many partnerships with built environment participants [in both the professional and academic sectors] and whose main affiliates operate within the social sciences [also within and without academia]. The work highlighted has brought together social work professionals and scholars, early childhood development, as well as nutrition researchers, etc. Projects spearheaded by Urban Studio have also encouraged

collaboration between HUD, United Way, the YWCA and state and municipal agencies. Design-build efforts by Urban Studio have spawned research opportunities in quality affordable design, teen parent housing, literacy and nutrition, etc. The simple wager is that design—mainly interior design—is the ideal vehicle for *conducting* social advocacy.

NARRATIVE

This narrative makes the case for design as a powerful agent of social change. The perception of our métier as an increasingly complex techno-centric activity has overshadowed some of the fundamentals linking design and human ritual. However, by promoting a grassroots approach, using education as the forum, design-led social advocacy becomes possible if:

1. hands on design apprenticeship is part of the curriculum
2. design is consciously displaced from it's orthodoxical role

It would be very difficult to ignore the contextual and historically contiguous body of design knowledge found in the lineage of architectural treatises. With the *Ten Books on Architecture* as the root of this lineage, renaissance as well as modern adepts, have formulated a myriad of subsequent adaptations. If Alberti's *De re aedificatoria* and Claude Perrault's *Les dix livres d'architecture de Vitruve* are two examples that immediately come to mind, what should we make of the *Athena ProStreet* motorcycle by *Big Bear Choppers*? An advertisement for the bike in *American Iron magazine* reads as follows:

> "It's a cultural symbol of what we believe in as individuals, and society together. The emotional design of our Athena ProStreet is the perfect architectural design

of durability, utility and beauty. Let our motorcycle represent who you are as a dignitary, and as a member of the family." [v]

A myriad of contemporary interpretations have been formulated around Vitruvius' design trinity of, *firmitas*, *commoditas* and *venustas* found in *De Architectura libri decem*.[vi] Durability, utility and beauty or, structure, function and aesthetics, from *The Ten Books on Architecture* have gotten much press beyond the Morris Hickey Morgan and Frank Granger[vii] translations. Because of its timeless and ubiquitous nature, the Vitruvian trinity is extremely challenging to teach or grasp. Hence, without loosing sight of its value, we will keep an eye on the *firmitas*, *commoditas* and *venustas* conglomerate while turning to Book II, Chapter I, *The Origin of the Dwelling House*.[viii]

Vitruvius writes here of the dwelling house as a place for social gathering and not as a mere domestic structure. In the first three paragraphs of Book II, Chapter I, he proceeds to describe a violent storm that undoubtedly hints at Promethean mythology. During the cataclysm, which produced wicked fires, "the bewildered inhabitants" gathered around the fire for warmth and to construct shelters, by "[…]observing the shelters of others […] they constructed better and better kinds of huts".[ix] Out of the fury of fire, coupled to the building of dwelling houses, emerges social ritual (community) and language (communication).

In this regard, we turned to Martin Heidegger's essay *Building Dwelling Thinking*.[x] Specifically, the close reading of Heidegger by Alberto Pérez-Gómez in *Dwelling on Heidegger: Architecture as mimetic techno-poiesis*. Here, Alberto Pérez-Gómez writes:

> "In the Western tradition, before the Enlightenment and even, precariously, during the 18th century, architecture had preserved its capacity to convey knowledge, in the sense of framing and supporting (ritual) actions that allowed for a radical orientation of human becoming to a suprasensory Being." [xi]

The purpose of this preface was not to promote a nostalgic or aft look at design but to reground its purpose in the social realm. Urban Studio, the subject of this narrative, is The University of North Carolina at Greensboro's community oriented design-build effort. The *modus operandi* of this effort proudly promotes the UNCG campus and the UNC system mission and goals through UNC-Tomorrow (UNCT), an ongoing initiative aimed at "producing a more proactively responsive University focused on meeting the challenges of the state over the next 20 years".[xii] Via UNCT each of the 16 campuses, within the UNC system, is charged with addressing the needs of the state.[xiii] For example campuses are encouraged to be "more actively engaged in enhancing the economic transformation and community development", "to lead in improving health and wellness", "to assume a leadership role in addressing the state's energy and environmental challenges" and " become more directly engaged with and connected to the people of North Carolina".[xiv]

With respect to making in design education, we believe that little effort is required to make the case for haptic apprenticeship across the disciplines associated with built environments. We are proposing instead a look at “tolerances” when it comes to teaching design that deals with intimate environments—a.k.a. *interiors*. When operating in their respective site of reception, architecture (large scale structures), landscape design and urbanism have “elbow room” measured in feet, yards or miles. In the first instance the designer may be preoccupied with situating walls, in the second, with tracing paths and the third, with the coordinates of a subdivision. In the case of *interiors*, the metric is inevitably qualitative and quantitative at once. A construction or physical site reacts to interventions rather than submitting passively. Conversely, the “digital” realm purges indiscriminately the weight, fragrance, echo and tactility of materials – not to mention gravitational force or contextual unpredictability.[xv] Only in situ design can be both qualitative and quantitative.

Urban Studio, beyond service-learning, views itself as an open source laboratory for developing viable quality affordable housing. Urban studio participants pursue responsible design rather than submitting to conventionalized sustainable or green requirements. Even if our current project, *My Sisters’ House*, is registered for LEED (Leadership in Environmental and Energy Design) certification, we take a critical and holistic approach to design-build. We are not interested in blindly gathering *points*. Design, especially design-build, means a responsible mediation between *being* generated programmatic needs, available resources and a project’s site of reception.

In terms of leadership, Urban Studio projects aim to challenge the accepted position of design as one of consultant in the built environment food chain. Like most projects, architects, civil/structural/PME/geotechnical/environmental engineers, contractors, licensed trades, etc. are part of a complex web of community partners. Unlike most projects, the designer's position, in Urban Studio, is shifted from one of consultant to one of leader—or conductor.

In Urban Studio's current project, *My Sisters' House*, this paradigm shift unfolds at many levels. *My Sisters' House*, a partnership with *Youth Focus* (a United Way Agency) currently under construction, will be a home for teenage mothers and their children. The project's $500,000 funding and site were secured by Urban Studio, the "grand gesture" for the structure was by designed by the author (a designer), the LEED APs (Accredited Professionals) are two undergraduate students in our program, all of the design-build development takes place within upper-level studios, project management is handled by a supervised undergraduate research assistant and independent study students. Moreover, a graduate student in the product design concentration directs the Urban Studio Prefabrication Atelier, housed in one of the University's research parks.

Urban Studio also offers plug-in opportunities. A cutting edge program is currently being developed for the home by several departments at UNCG's School of Human Environmental Sciences. At the curricular level, students can join Urban Studio by enrolling in independent studies, professional internships and even make it their undergraduate capstone experience (in lieu of an undergraduate thesis). The innovative

nature of the building has attracted design professionals and construction industry partakers to enlist as partners or sponsors.

It is the community-oriented zeitgeist of Urban Studio that is both the raison-d'être and engine behind our design-build effort. We conduct our projects as concerted efforts to integrate hands on apprenticeship with design opportunities that are meaningful to the Greensboro community. Social advocacy comes in many forms, in the case of design, the tangible outcome makes it an ideal vehicle for meaningful change.

Notes
(Chicago Manual of Style)

[i] Phillibert de L'orme, *Premier Tome de l'Architecture* (Paris, 1567).
[ii] Morris Hicky Morgan, Trans., *Vitruvius' The ten Books on Architecture* (New York: Dover Publications, Inc., 1960), 38.
[iii] Martin Heidegger, "*Building Dwelling Thinking,"* in *Poetry, Language, Thought* (New York: Harper and Row, 1972).
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Internationalizing the Construction Course for Interior Design

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ABSTRACT

Purpose

New 2009 CIDA Standards modified Standard 2 for a more "Global Context for Design" (www.accredit-id.org/profstandards.php, p.11). The revised standard focuses on critical thinking from a global perspective in student design decisions. This teaching forum addresses the standard through a revitalizing shift in the construction course for Interior Design.

Interior Design faculty recognizes the influence of global design and has integrated it into research and instruction. Clemons (2005) connected AutoCAD instruction to student rug designs using motifs from countries in their family history. Lee and Park (2008) presented research on Korean family adjustments and changes to housing while renting in the United States. The Consortium for Design Education, CODE project, offers student exchange between six institutions including Canada and Mexico using online education for international charettes (Kucko, Prestwood, & Beacham, 2005).

Armpriest (2007) felt interdisciplinary professional collaboration was needed for creative design in the built environment and that education fosters local and international information exchange to develop sustainable solutions. Researching fifteen countries for innovation in construction, Seaden and Manseau (2001)

concluded a link was needed between R&D in education to local specialized construction firms emphasizing performance, safety, and long-term value over initial cost. As students enter industry, the concept of sustainability as it pertains to global construction methods may better contribute to building innovations.

Method

Curriculum revision used classroom methods which also support 2009 Standard 5 “Collaboration” (www.accredit-id.org/profstandards.php, p.14). The learning experience was conducted as teamwork with groups planning resorts in different continents. Rubrics for drawings and a scale model required students to integrate global building methods and cultural design features (see Appendix A).

Day (2003) offers techniques for consensus design which can assist educators with teamwork. His community process guides input away from competitive ideas with individual criticism to socially inclusive feelings for the place and agreed upon aims for activity areas. Similar to the interior design process, orientation works with the site and spatial arrangements given a usability walk-through and reality-check regarding construction cost.

PowerPoint presentations shared student research of different global building methods and cultural design. Public safety concerns addressed construction to protect against natural disasters and sustainability advocated use of geographic materials. Students compared construction methods found in different parts of the world and analyzed if appropriate for their project.

Results

Students met learning expectations by proposing an international resort, supported with CAD drawings and construction model, for a culturally-enriched sustainable resort experience (see Appendix B). The Japanese resort, submitted to the NEWH Sustainable Hospitality Design Competition, placed in the top five finalists featured at the 2008 HDExpo in Las Vegas.

Besides global research shaping critical thinking and collaborative decisions, the modified construction course maintains Standard 13 criteria for interior construction and building systems. Student projects demonstrated structural, mechanical, and vertical circulation systems.

New media was found to enhance the international construction concept. Student PowerPoint's offered visuals and diagrams which proved useful in projects. These broadened student knowledge of global conditions and practices. Awareness of alternative construction methods advanced to synthesis in new applications. This approach is complex, with multiple levels of new learning, but promotes a spirit of student exploration through global perspectives that helps weigh design decisions within ecological and cultural contexts.

NARRATIVE

Purpose

The redevelopment of curriculum to include international content in the construction course of interior design programs addresses 2009 CIDA Standard 2 which seeks a more "Global Context for Design" (www.accredit-id.org/profstandards.php, p. 11) while providing students with a view of building systems, ethnic and cultural variations, local and regional site analyses, and greater sense of place as found through synthesis of these concepts. It offers a means of addressing global traditions while strengthening the student perspective and understanding of design through various channels. Students are provided with a broadened range of knowledge from which to assess attributes of building components and through which to delve deeper into assessing aspects of systems design connected to theories of sustainability. The student is able to formulate design ideas and assimilate concepts into application projects which capture a wider range of researched ideas and a greater understanding of global perspectives.

Review of Literature

Day (2003) offers techniques for consensus design, used when planning community facilities, which can assist educators with student teamwork. His process guides communication away from competitive ideas with individual criticism to a socially inclusive definition of the "spirit of the place" (Day, p.40). Structures may be material, but how and why we use them creates feelings that impart meaning to the place. Input then relies more on the values and actions of

the people who will use the space. The goal is to rise above personal agendas to serve the interests of and create a communal vision for all involved. Another principle behind Day's process is creating something new from what is there, or balancing the function of science with art. In order to match new needs with existing places, it is recommended to work with the site and its resources. These principles also support sustainable design. The method is to focus on particular activities and have team members identify the needs and qualities associated with each. Together they are to agree upon aims for activity areas oriented with the desired location.

Armpriest (2007) expressed that though global problems seem overwhelming, more opportunities now exist to take action toward innovation and change in the built environment. Becoming educated and working together through organizations to exchange information was perceived as the key to making a difference (Armpriest, 2007; Sneaden & Manseau, 2001). Sneaden and Manseau (2001) researched fifteen countries for innovation in construction. They concluded that a link was needed between research and development in education to local and specialized construction firms to promote performance, safety, and long-term value over initial cost. Like-minded designers, committed to improving the environment, were encouraged to network and join organizations at different levels to seek and help execute new solutions. These solutions included saving or reusing water resources, reducing dependency on the automobile to fight pollution and the greenhouse effect, and improve energy

performance of buildings through site orientation, material enclosures, and lighting.

Method

The construction course redevelopment process consisted of a preliminary examination of resources as they relate to international building methods. The intent was to enhance the original course curriculum covering conventional framing, building systems, and construction processes through construction documents and model building while integrating international methods. Two upper level students conducted research in an effort to derive a series of information to be used by both faculty and students. To include key geographic locations, students specified which continents each would research. Meetings were held with the faculty who engaged in the findings and provided direction. The culmination of the process included multiple sources of information acquired through connections made with architects, and through internet and library study. The research served as the foundation for the creation of a reference list which included websites, books, and DVD's for the use of faculty and future students in the construction course. Two of the books, Edwards (2001) and Davidson (1998), provide examples of sustainable buildings based on traditional cultures in Africa, India, the Far East, and design achievements in the Muslim world. Theories of interconnectedness and impermanence show students how communal life and a reverence for resources contribute to building with a social conscience.

The course syllabus was then rewritten to include international learning outcomes and objectives. In addition to the traditional construction objectives the

following was added: “To develop an understanding of the cultural, regional, and efficiency means of addressing structural design and finishes”. The following outcomes were added: (1) “The ability to recognize and interpret building components and systems from a global perspective,” (2) “The ability to assess efficiency and sustainability of global building systems.”

The references found frequently discussed a development, community concept, or multifamily facility in addition to the single family home. Examples included orientation, communal use, and improved efficiency through shared resources. As such, these concepts provided the direction for the culminating project; a green international resort. This also provided students with an expanded repertoire which reaches into the areas of hospitality design and sustainability. Design teams selected countries on different continents for their resort location and immersed themselves into the geography, climate, local design, and materials of the region.

A component of the revised course content included a PowerPoint presentation based on research of global construction methods as well as cultural and regional aspects related to design. Instructor lectures addressed building systems, from the ground up, connecting with the student research topics. The required scaled framing model project, normally of a residential dwelling which offers students hands-on experience in the construction process, became the green built resort. Rubrics were developed for student learning experiences (see Appendix A).

Approach and Findings

The first revised section of the construction course offered the opportunity to pilot the internationalization process. Students were still expected to learn the basic building systems and building codes associated with interior and light frame construction. This content satisfies 2009 CIDA Standard 13, “Interior Construction and Building Systems” and Standard 14, “Regulations” (www.accredit-id.org/profstandards.php, p.19 & 20). Building methods and cultural design from other countries offered options to integrate into construction document drawings and the model project.

Students formed teams of three or four to plan and prepare their resort. This meets 2009 CIDA Standard 5, “Collaboration” engaging consensus building from multiple perspectives (www.accredit-id.org/profstandards.php, p.14). Supporting the teamwork principles of Day (2003), students understood how places have different moods and that a participatory process helps consider different uses and ways to create the aura they wanted associated with their resort. Conducted as a charette, they developed the design concept, site plan, and floorplan (see presentation rubric in Appendix A).

Student PowerPoint topics covered each of the building systems. Research groups were comprised of students from each design team in an effort to ensure that students working on design and construction had members with global perspective in all systems which need to work in tandem. Presentations were spaced out according to work on construction documents and system levels of the models.

Scale models from the pilot course were built of resort units for five different areas; the rainforest of Costa Rica, an ocean inlet in Tahiti, a mountain retreat in Japan, the Canadian forest by the Columbia River, and French Chateaux condominiums. Results included a combination of broadening green building practices and cultural features applied to interior design. Notation on CAD drawn construction documents and labels on the models demonstrated learned terminology, the specification of local materials, and use of systems options. Student presentations, twice during the design process and with the completed model, explained decision making related to construction of the building envelope and energy system improvements. This variety of communication techniques and technologies used for graphic and oral presentations meet CIDA 2009 Standard 6, “Communication” (www.accredit-id.org/profstandards.php, p.14).

Based on findings and observations of the initial pilot, certain changes were initiated. The research PowerPoint assignment was subsequently done by the same design team members and selected by continent, as this made it easier for students to find building information. Each group covered all the building system levels and interior cultural design features for their continent (see PowerPoint Research Rubric in Appendix A). Previous reporting of construction alternatives by system, however, coordinated better with the desired lab sequence for model building. An interior longitudinal or transverse section drawing requirement was added to floorplan and elevation construction documents as it best illustrated student integration of interior architectural

elements and cultural interior design features. Models from the following course section (see Appendix B) were designed and built for Italy and Iran with seaside resorts in Morocco, Tasmania, and Aruba.

Conclusion

Student design solutions creatively combined western and global methods and materials. Their research on other countries and communication with exchange students also improved awareness and understanding between different cultures. Students found similar lifestyle needs and concerns globally for the environment.

Internationalization of course content in the construction course for interior design adds a dimension which may not typically be found in design courses which examine building systems employed in the design of dwellings. In addition to addressing four of the new 2009 CIDA standards, this level of breadth offers students a knowledge base as well as an opportunity to research and develop broader, more global perspectives of structural design. Additionally, it offers international students the opportunity for input regarding systems in design which offer meaningful comparisons. Internationalizing course structure also encourages student capacity to consider the ecological and socio-economic forces noted in the learning expectations for CIDA Standard 2, (www.accredit-id.org/profstandards.php (p. 11), thereby bringing about structured and viable alternatives to traditional means of construction and design.

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Appendix A

Construction Methods of other Continents

Explain materials used, how constructed, and purpose or advantages for the following building systems below:

Incorporate visual illustrations showing where and how each is used.

5 Points for Each of 10 Areas –Student name, lower right, for each slide created

Foundation Methods

Exterior Building Methods and Materials

Heating & Cooling systems

Plumbing and Water Control systems

Electrical Systems & Daylighting use

Roof systems and Insulation types

Natural Disaster Prevention

Interior Finishes & Cultural Design features

Research Citations

Variety of Sources, on individual slides, proper format

Coordinated Slide Show format & Verbal Presentation (Must present for points)

Use of visuals, bullet format, same background & slight animation

Prepared, not read slides, & use of notes w/ additional content,

Eye contact, volume, tone variation, and show interest

Possible Total – 50 Points

Score = /50 Percentage = Grade =

ID 440 Global Resort Project

Type of Resort: _____ Location: _____

Design Team: _____ _____

_____ _____

Rubric: Design Concept Planning (25 pts.) and Unit Floor Plans w/ presentation (75 pts.)

/10 pts Site Plan
- Appropriate Location w/ Planned Access and route to Units
- Land and Water features with Year Round Recreation
- Directions including Sun Path and Wind Arrows
- Orientation or use of resources for Sustainable Units
- Public & Private facilities for Resort Operations

/5 pts Bubble Plan
- Room areas needed and labeled
- Circles or Ovals sized in relationship to spaces for different areas
- Importance of Adjacencies vary with 1-3 connecting lines
- Unit areas satisfy visitor & recreational needs for overnight rental

/10 pts Block Plan
- Defined room shapes with thick wall line
- Doorway, Stairway, & Closet locations; Hallways not dead-end
- Symbols indicate main plumbing fixtures, cabinet outline, fireplace
- Second block plan option for different guest or budget needs

/40 pts Floor Plan(s) Drafted and Dimensioning
- Drafting quality and correct symbols use in finalized floor plans
- Double lines for 4" interior walls and 6" plumbing & exterior walls
- Three exterior dimension strings on all 4 sides of unit
- Vertical & horizontal interior dimension strings for other wall locations
- Fixture template or symbols library used and upper wall cabinet line
- Closets w/ double line doors, shelf & hidden line rod. 4" Door jambs

/25 pts Floor Plan Furniture Groupings and Arrangement
- Furniture grouped by activity areas, not wasted space.
- Proper furniture sizes and clearances between pieces & walls
- Seating shown outside eating or work surfaces
- Use of furniture templates or design library, noted if not obvious
- Notes for cultural inspirations or sustainable materials

/10 pts Group Presentation
- Identify client or market and how attracting or meeting needs
- Planned presentations with use of visuals
- Global influence identified for site planning, facilities, or unit plan.
- Professional speaking; clear, tone variation, & good explanations

Total Pts: /100 Percentage: _____ Grade: _____

ID 440 International Green-House Model

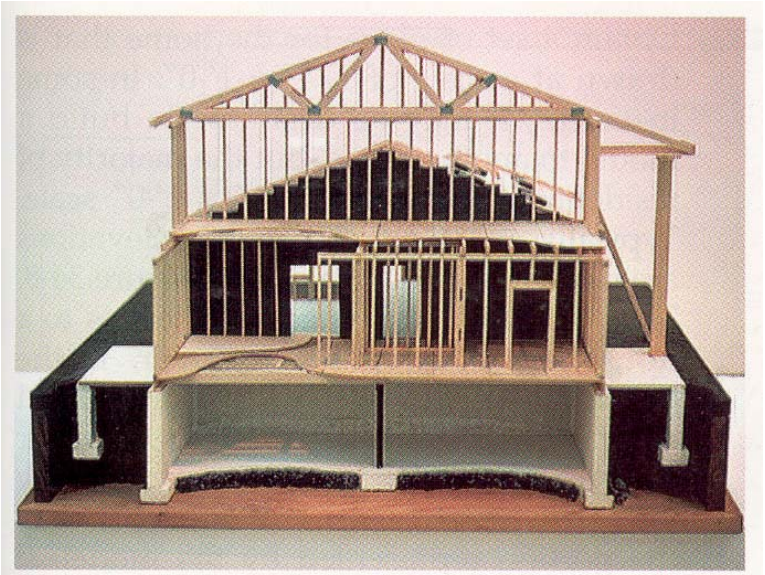


Figure 34-4. This structural model shows the framing of the building.

Design teams to construct 3-D model of home from construction documents drawn. Model has three sides and a partial roof, with labels or a legend to identify parts. Combination of one side showing exterior materials with the frame structure inside.

Purpose is to show knowledge of parts and assembly in residential construction with design influence from other parts of the world. International influence should be used to improve sustainable design and operation of the construction systems. Other cultural features may be used to enhance the design or function of interior spaces.

Models to be in scale with plan sheets and structural members cut to ¼" scale. Elevation parts may be erected above printed floorplan or foundation portions. Exterior materials can be created from a variety of supplies, rendered and scored to represent their color and textures.

Attach printouts used to document your assembly methods and labeled parts. Emphasis is on the proper connection of systems from the foundation to the roof. Modifications will demonstrate exploration of global systems for new possibilities.

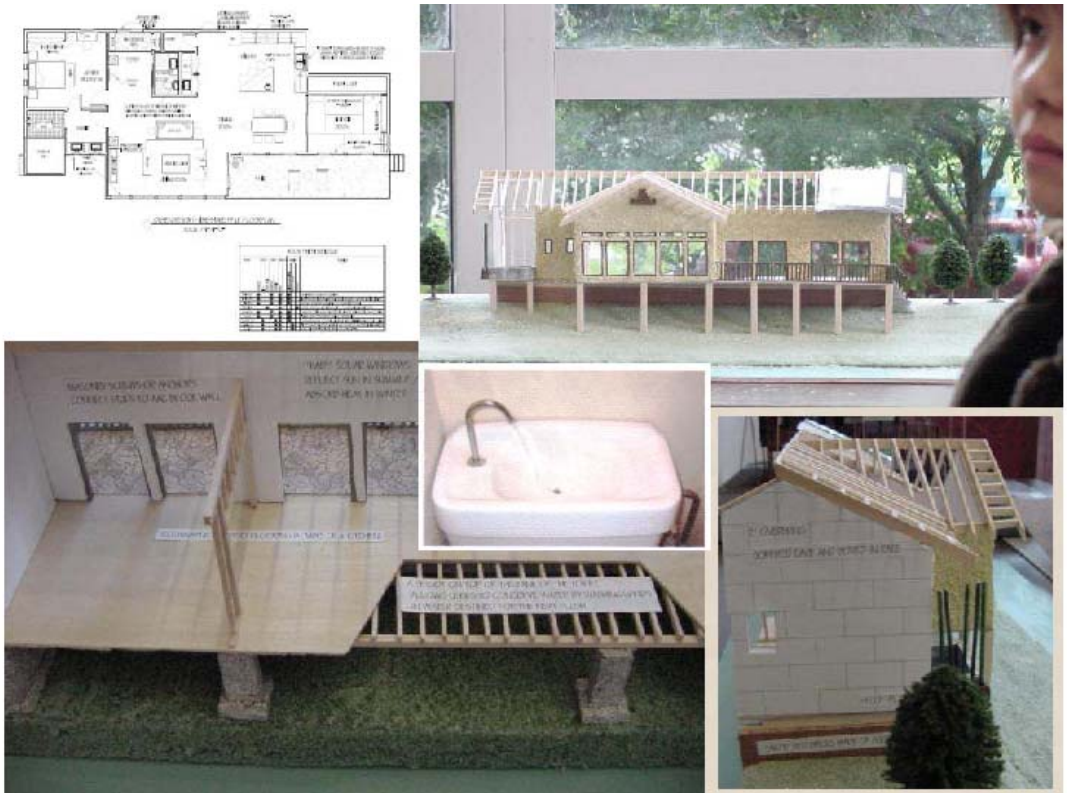
Models Rubric - 100 pts.

Research & Documentation	Book copies or online printouts used for materials, measurements, & placement.	Comments:	/10pts
Dimensions & Scale	Match sources used and in proportion to each other. Measures to labeled scale.		/20
Materials & Durability	Good selections to depict materials used. Model stands alone, moveable, & sturdy.		/20
Accuracy & Neatness	Correct construction including joining of parts. Clean cuts, arrangement, & gluing		/20
Labeling & Use of Time	Notes attached to match documentation indicating materials and plan features.		/20
Presentation & Teamwork	Explanation of systems represented in the model in terms of international influence, materials & construction methods used.		/10

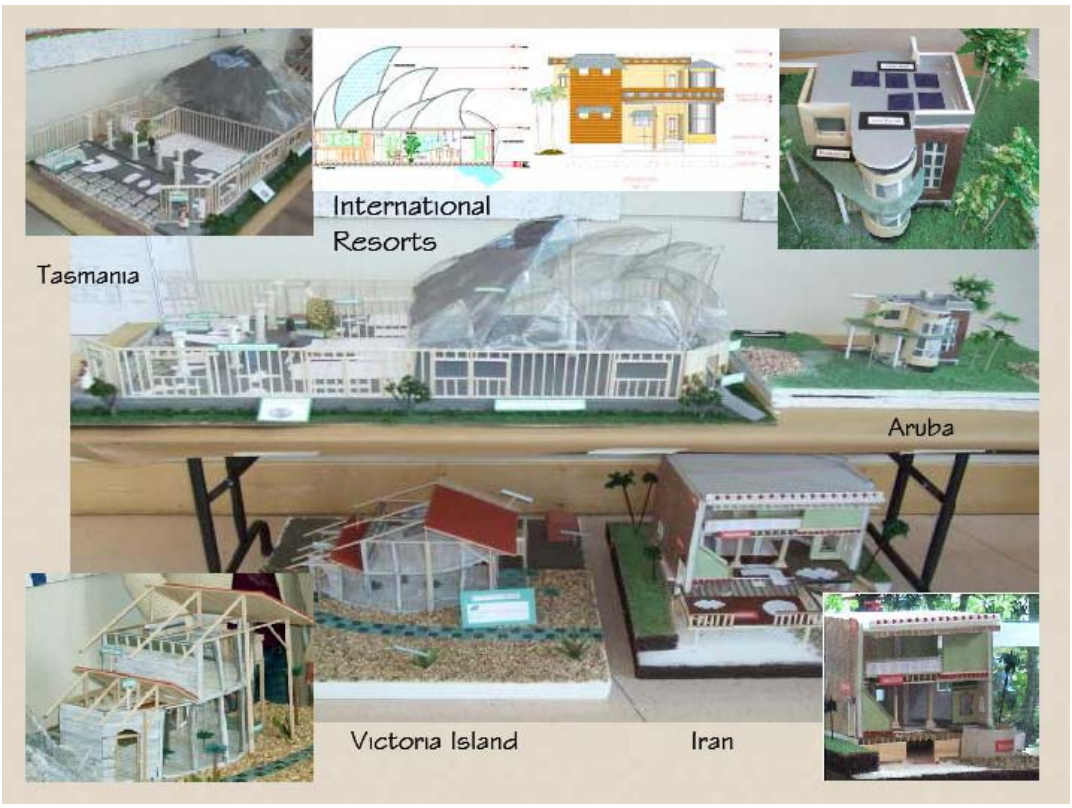
Total: Grade:

Appendix B

Culminating Project for Pilot Section



Japanese resort; NEWH Sustainable Hospitality Design Competition



Culminating Projects from Course Revision

Culminating Projects from Course Revision

No Portfolio Review! "Design Scenario" as a Selective Advancement Process into the Interior Design Major

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ABSTRACT

Purpose

This presentation will discuss an innovative process that was developed to assess student knowledge/skills prior to advancement into the interior design major. Rather than a portfolio review after the freshmen level, a half day of "design scenario" exercises was facilitated to assess student learning and control quality/number of majors entering the sophomore level.

Process

Since 2000, interior design programs have evidenced a significant increase in students entering the major (Waxman & Clemons, 2007). Although these numbers are dropping, the demand has not changed significantly. Many programs limit the number of students into their upper division courses as a means of quality control (Whiteside-Dickson & Rothgeb, 1989). When last surveyed, roughly 50% of the interior design programs (n = 93) used a portfolio review to assess student skills resulting in selective advancement into the major. However, it has been argued that a portfolio review is a process of "re-

grading” and that students should spend time developing skills rather than presentation techniques (e.g., matting). Research on selective enrollment procedures is inconclusive (Freeman & Huff, 1994). The concept of the Design Scenario was to bring students together at the same time to administer timed “scenario” exercises that would assess their knowledge/skills in a non-threatening environment.

Due to limited faculty/student ratio (incoming freshmen = 175; majors = 40), it was determined that the Design Scenario would take place at the end of the freshmen level. Student skills developed by then include: problem solving, quick sketching, creativity, concept development, elements and principles of design, career information, and basic writing (see Figures 1 & 2). Information was provided via website, two informational meetings and a “mock” scenario to remove the mystery from the process.

Student pre-registration was encouraged. “Experts” were solicited to evaluate completed student work to alleviate bias. Identical sketching vignettes were set up; essay problem solving topics were identified; hypothetical clients were developed for the conceptual framework exercise and “proctor training” was instituted to ensure consistency.

Students arrived on a Saturday morning and were given numbered labels to place on their work. Accommodation was given for those who requested it (e.g., quiet place) (see Figures 3-5). After the Design Scenario was completed a survey was administered to determine student perceptions of preparedness. Experts evaluated student work,

allocated points and offered comments to assist student learning. Faculty admitted students based on performance and GPA.

Relevance to Interior Design

Although limiting enrollment may not be palatable to some administrators, this process has worked extremely well the last six years. The Design Scenario has offered a self-assessment phase for students determining their major and a chance to try again if skills need to be improved. Surveys indicated roughly ninety percent felt prepared and informed. Faculty members enjoy teaching highly committed and talented design students and prefer this process over a portfolio review. Administrators evaluated the process and found it sound. The interior design program has experienced a steady demand for available spaces and has firmly established a reputation for graduating highly recruited professionals (Whiteside & Rothgeb, 1989).

NARRATIVE

Introduction

A crisis is occurring nationally in interior design education. Since 2000, interior design programs have evidenced a significant increase in students entering the major in part due to design-related reality shows on HGTV (Waxman & Clemons, 2007). At the same time, “There is a critical shortage of qualified interior design educators to sustain the future of interior design education (Dohr, et. al, 2008, p. 1).” How can and should institutions and faculty respond to this dilemma?

In years past, one strategy of controlling the number of students in the major, thus reducing the number of faculty needed to teach the courses, has been to institute student portfolio reviews. Historically, this type of selective advancement was used not only to control numbers in the major, but to comply with accreditation standards restricting studios to a faculty student ratio of 1:15-18 (Freeman & Huff, 1994). In addition, student portfolio reviews were used as a method to determine design aptitude (e.g., talent and ability), and limit the number of students into their upper division courses as a means of quality control (Whiteside-Dickson & Rothgeb, 1989).

However, it has been argued that a portfolio review is a process of simply “re-grading” student work and that student time would be better spent refining design and communication skills rather than enhancing presentation techniques (e.g., triple matting). Therefore, faculty at Colorado State University (CSU) developed a new process called the “Design Scenario” to bring students together at one time, in the same place to administer timed “scenario” exercises that would assess their knowledge/skills

in a non-threatening environment. This information may be of interest to faculty, administrators, and practitioners.

Review of Literature

When last surveyed, roughly 50% of the interior design programs (n = 93) used a portfolio review to assess student skills resulting in selective advancement into the major. This survey took place in 1989 and served as a baseline study concerning the use of portfolio reviews to assess design aptitude as well as control enrollment in interior design programs in North America (Whiteside-Dickson & Rothgeb, 1989). Over 300 programs were invited to participate with a 61% response rate (199 schools). Ninety-three schools (47% of the respondents) used a portfolio review with 1) the most frequent review occurring in the second year, and 2) only interior design faculty conducting the individual student assessment. Respondents indicated that a portfolio review had been used in their programs anywhere from one to three years to over a 15 year period. In addition, data indicated that while the Council for Interior Design Accreditation (CIDA) (then FIDER) accredited programs assessed student drawing, rendering, design concept, and code application, programs that were <u>not</u> accredited emphasized technical aspects of interior design (Whiteside-Dickson & Rothgeb, 1989).

Portfolio reviews have not been the only way of limiting enrollment or evaluating the quality of student skills. Faculty at a variety schools have also used a combination of portfolio reviews, examinations, grades, and personal interviews (Freeman & Huff, 1994). Standardized exam results have also been studied to determine whether they could be predictors of those students who could successfully enter the interior design program. For example, Kolar and Gorman (1987) studied whether four standardized

tests administered to entering students at Texas Christian University over a period of four years would significantly relate to success in their portfolio review process. Their findings indicated that only one test, the Meier Art Judgment Test, was significantly related to student success.

Little recent literature was available concerning selective advancement procedures including the method of evaluating portfolios. Therefore, a new process, the Design Scenario, was developed that conceptually involved bringing students together at the same time on the same day to administer timed “scenario” exercises that would assess their knowledge/skills in a non-threatening environment.

Process

Timing of Scenario

Due to limited faculty/student ratio (incoming freshmen = 175; number of majors limited to 40) at CSU, it was determined that the Design Scenario would take place at the end of the freshmen level. This timing was selected deliberately to 1) allow students to locate the interior design major in at the university, 2) offer students two semesters to acquire design communication skills and career related knowledge prior to being assessed, 3) prevent students from investing two or more years in a program from which they may not graduate, and 4) assist transfer students in locating an early path to enter the program.

Student skills assessed in the Design Scenario include: problem solving, quick sketch abilities, creativity, concept development, elements and principles of design, career information, and basic writing skills (see Figures 1 & 2). These skills were taught in two freshmen level design courses as well as general education courses.

Design Scenario Advertisement

The faculty had clear goals to assist students to be successful taking the Design Scenario. They wanted to remove any mystery and, if possible, student stress by making the process transparent. Therefore, multiple avenues were identified to notify students of this process. These included 1) summer session freshmen information, 2) departmental website, 3) three informational meetings (one given by upperclassmen) delivered during the year, 4) handouts, 5) high school interior design teachers, 6) department advising coordinator, 7) university academic counseling center, and 8) a “mock” scenario event offered by a student group. In addition, depending on the year, student groups would offer peer mentoring concerning the Scenario.

Participants

The Design Scenario was used as the selective advancement “gate” for all new and transfer students to enhance quality and consistency. Even if a transfer student had completed three years of design coursework, they were required to participate in the Design Scenario and then be placed appropriately in upperclassmen courses. There was no limit to the number of times a student could participate in the Design Scenario.

Of the 175-200 incoming freshmen, approximately 85-120 students participate in the Scenario. This range of numbers is related to the GPA requirement, commitment of the student to the major, and knowledge of the career acquired during the first year of coursework.

Pre-registration & Preparation

Faculty learned that it was important for students to pre-register to participate in the Design Scenario. Preregistration consisted of checking student identification,

verifying course prerequisites and minimum grade requirements (2.5 gpa), determining special accommodations (e.g., extra time for writing), and responding to any transfer student questions. Students who preregistered were guaranteed a seat in the process.

The Design Scenario coordinator organized several activities. These were: proctor training (to ensure consistency of instructions and timing), vignette development, selection of expert evaluators, and identification of essay/problem solving statements as well as concept client description. Five studio-like, similar spaces were prepared for the students.

Design Scenario and Post Scenario

Design Scenario was divided into three parts: essay to assess problem solving and writing skills, quick sketch vignette, and a client conceptual ideation exercise (See Figure 3).The time allotted for each exercise was selected to ensure students had adequate time for completing exercises, but not too much time that stress would increase. At the conclusion of each scenario exercise, students put their number on their work and proctors collected it as they rotated to another room (See Figures 4 & 5). At the end of the Design Scenario, surveys were administered to determine perceptions of preparedness and gather comments that guided changes for the following year.

Rather than faculty, design “experts” evaluated completed student work to alleviate bias from the process. These experts allocated points and offered comments to assist in student learning for those who passed or did not pass. After faculty met to verify the process, all students were notified by mail of the results and then advised depending on their decision to re-apply or not.

Discussion and Conclusion

Despite frequent use, research on selective enrollment procedures is inconclusive (Freeman & Huff, 1994). Although limiting enrollment may not be palatable to some administrators, the Design Scenario process has worked well for five years. Student surveys indicated roughly 90% felt prepared, informed, and that the amount of time was fair. Faculty members enjoyed teaching highly committed and talented design students and preferred this process over the “re-grading” of a portfolio review. Administrators evaluated the process and found it sound. The interior design program has experienced a steady demand for available spaces and has firmly established a reputation for graduating highly recruited entry level designers.

The critical lack of educators is not going to be solved in a short period of time. Therefore, in the meantime, state schools who do not have the wherewithal to hire additional faculty need to develop strategies for limiting course enrollment. This process not only controlled the number of students continuing in the interior design program, but it created an early recognition of professional potential and produced high caliber graduates, thereby providing an enhanced reputation among design professionals (Whiteside, Rothgeb, & Congleton, 1986).

Acknowledgment: The authors would like to thank all those faculty and graduate students who have helped with this process over the years. A special thanks to: Craig Birdsong.

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Figure 1: Design scenario description.

What is the Design Scenario?

The Design Scenario is a selective advancement evaluation conducted by the faculty of the Interior Design program in April for all students who are seeking to advance to the second year of the Interior Design Program. Demonstrated skills assist the faculty in impartially determining a cohort of students, generally up to 40, who demonstrate the necessary basic skills required for successful study in the major. The skills that will be evaluated include writing, sketching/drawing, problem-solving and conceptual ideation. Your GPA is also calculated into your final score. Beginning in 2006, upon advancement to the second year, classroom space will be reserved for each student who passes the Scenario. If you advance and choose not to enroll in the second year following your advancement, a place will be provided for you only as space becomes available. Space is not guaranteed if you elect to defer your advancement.

Why can't anyone who wants to be in the program continue to the second year of studies?
The program is limited in terms of studio space and faculty. Therefore, we can only accept the number that would equal two studio sections of 18 students each.

Who can or should participate in the Design Scenario?
Any individual who has completed Introduction to Interior Design and Visual Communication/Sketching or their approved equivalent is eligible to participate in the Scenario. One additional course, in the first year of the major, is also required to be completed within one semester after advancement into the program. This is: Construction Materials and Methods.
New policy: Effective Fall 2006, students MUST have a cumulative GPA of 2.5 to participate in the Design Scenario

What are the faculty looking for in the work I produce during the Design Scenario? (See attached evaluation sheet)

- Mastery of basic skills
- Evidence of critical thinking applied to interior design
- Potential and aptitude for study in the major
- Level of skill

How will I be notified?

Results of the Design Scenario will be placed in the mail within 5-6 working days following the Scenario. Those students advancing to the second year of study in the Program will register for required second year coursework. Students not advancing are invited to talk with their advisor about participating in the following year's Design Scenario, about options in areas related to interior design (e.g. landscape architecture, theatre design, product merchandising, construction management, textiles, art, business) as well as explore other areas of strength. The Interior Design Program advisors are available and prepared to discuss outcomes, future directions and provide guidance regarding successful career directions.

Figure 2: Design scenario evaluation criteria.

Items will be judged on:	Points	Total Points	Timeline
Transcript[1] and Photo ID copy (Item 1) • Cumulative GPA for all course work to date GPA Values: 10 Points = 3.5 or above 5 Points = 3.0-3.49 0 Points = 2.5 to 2.99 *Note: Effective Fall 2006, students MUST have a cumulative GPA of 2.5 to participate in the Design Scenario*	10		7:45-8:30am
Essay (Item 2) 60 minutes ▪ Readable (2) ▪ Syntax and spelling (3) ▪ Clarity (3) ▪ Content and thoughtful address of the topic (3) ▪ Conclusion or summary (3) ▪ Creativity and imagination (3) ▪ Problem Solving/Feasibility (4) ▪ Evidence of alternative exploration (4)	25		8:35-9:35am
Communication Sketching (Item 3) 90 minutes ▪ Line quality, variety in line weight (8) ▪ Proportion, balance, perspective, scale (5) ▪ Drawing composition (5) ▪ Contrast/shadow (5) ▪ Attention to detail (3) ▪ Media application (3) ▪ Overall presentation (6) ▪ Composition and analysis of components (5)	40		9:55-11:25am
Conceptual Ideas (Item 4) 45 minutes ▪ Concept (drawing or source) (7) ▪ Analysis/Interpretation of concept (7) ▪ Application to client need (5) ▪ Creativity (6)	25		11:35-12:15pm
Survey Completion			12:15-12:30pm Conclusion
Total Points	100		

Figure 3: Sample student sketches from Design Scenario.

Figure 4: Sample student conceptual frameworks.

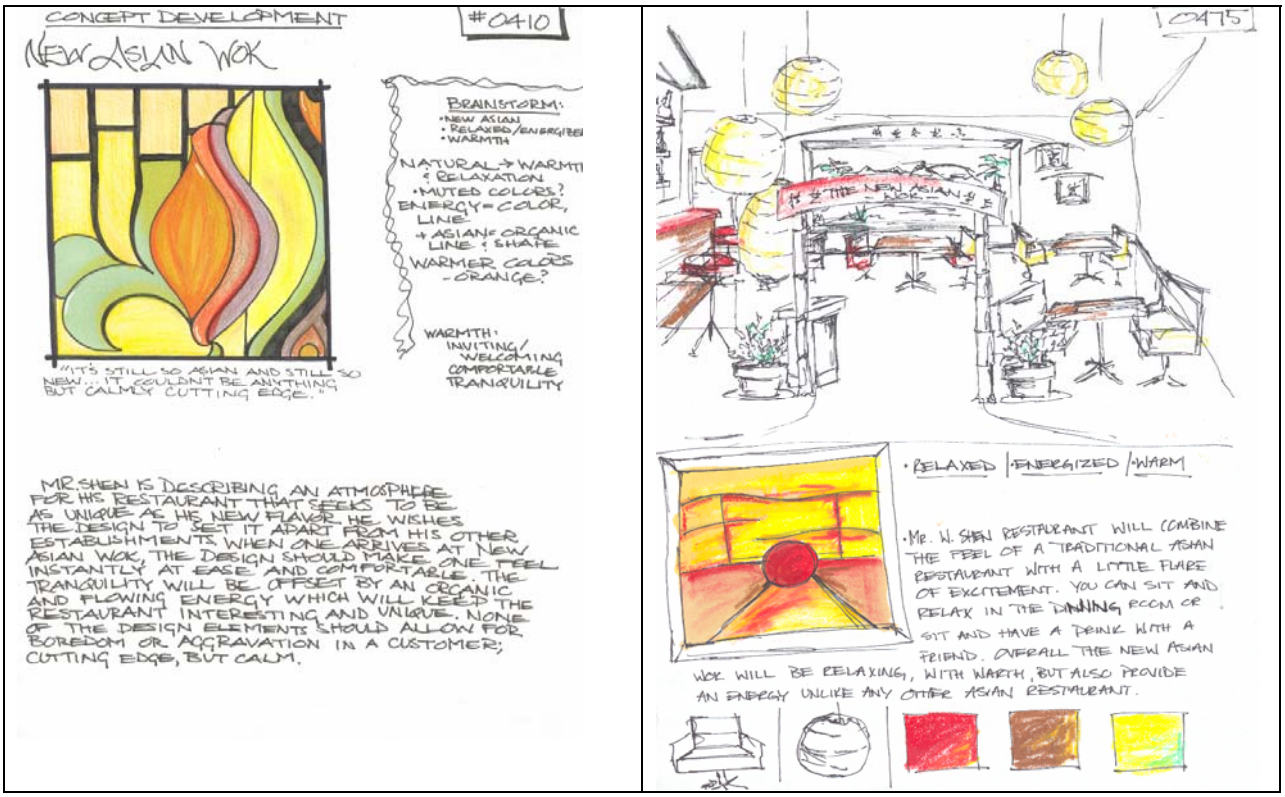

Figure 5: Sample scenes of students registering and participating in Design Scenario.

Sustainable Design as Second Nature: Incorporating Sustainability into the Interior Design Curriculum

Tommy Crane, MFA, Ohio University

Lisa K. Waxman, Ph.D., Florida State University

ABSTRACT

Purpose

The purpose of this study was to gather research addressing how interior design programs have incorporated sustainability into their curricula, to seek the advice of experts in sustainability education, and to develop a curriculum framework for sustainable interior design.

Background

The planet is facing multiple challenges due to the impact of humans and their consumption practices (McDonough & Braungart, 2002). This impact is being felt worldwide with issues such as global warming, climate change, deforestation, depletion of non-renewable resources, pollution, among many others issues (Orr,1992, 2002 & 2004). Sustainable design principles minimize environmental impact by using methods, products and processes that are respectful to the earth's life cycles, reflect a collaborative interaction between people and the earth, and conserve natural resources for current and future generations (Van Der Ryn & Cowan, 1996).

According to the U.S. Green Building Council, buildings consume between 30 to 40 percent of all energy and 30 percent of the earth's raw materials (Bonda, 2007). As awareness of the consumption of natural resources grows, individuals are demanding

more knowledge regarding the design of the built environment that respects the natural environment. Interior design education has great potential in providing future designers with the knowledge to practice sustainable design.

Procedure

In February of 2008, a survey was distributed to 568 IDEC members via email using the Survey Monkey survey engine. The survey gathered data addressing the training and education of educators, the educators' attitudes about sustainability, and their effective teaching methods. One hundred and thirty-one educators responded to the survey. In addition to the survey, to acquire information on the "best practices" in sustainability education, 11 in-depth interviews were conducted with leaders in sustainable interior design education (identified by the IDEC Sustainability Task Force).

Findings

The survey revealed that a majority of interior design programs currently teach sustainability within their curriculum. Courses were delivered in a variety of formats, and a majority of programs covered sustainability within their materials and methods course. Instructors covered such topics as indoor air quality, life-cycle analyses of products, sustainable finishes, greenwashing, LEED, the USGBC, and many other environmental design issues.

Some instructors felt that stand-alone courses addressing sustainability offered concentrated coverage of the material and could help prepare students for LEED-AP examination. However, other instructors felt that a stand-alone course only compartmentalized the material rather than showing it as an integral part of the design process.

The survey respondents revealed that there were a few obstacles in teaching sustainability within their programs. These obstacles included lack of interest by others, lack of examples or hands-on applications, time and cost constrains within the curriculum, and a lack of appropriate textbooks. These suggestions, along with the recommendations of the 11 leaders in sustainability education were compiled and a sustainability curriculum developed. An abbreviated outline can be found in Table 1.

Conclusion

The educators felt that today's interior design students not only have to be ethically, socially and personally responsible designers, but they have to be environmentally and culturally responsible as well.

NARRATIVE

Purpose

The purpose of this study was to gather research addressing how interior design programs have incorporated sustainability into their curricula, to seek the advice of experts in sustainability education, and to develop a curriculum framework for sustainable interior design.

Background

The planet is facing multiple challenges due to the impact of humans and their consumption practices (McDonough & Braungart, 2002). This impact is being felt worldwide with issues such as global warming, climate change, deforestation, depletion of non-renewable resources, pollution, among many others issues (Orr,1992, 2002 & 2004). Sustainable design principles minimize environmental impact by using methods, products and processes that are respectful to the earth's life cycles, reflect a collaborative interaction between people and the earth, and conserve natural resources for current and future generations (Van Der Ryn & Cowan, 1996).

According to the U.S. Green Building Council, buildings consume between 30 to 40 percent of all energy and 30 percent of the earth's raw materials (Bonda, 2007). As awareness of the consumption of natural resources grows, individuals are demanding more knowledge regarding the design of the built environment that respects the natural environment. Interior design education has great potential in providing future designers with the knowledge to practice sustainable design.

Sustainability, sustainable design, ecological design, green design, eco-design, environmental design, etc. are all terms used when discussing designing with concern

for the environment. With all these terms, it can be confusing for designers to know where to look for information. The Forestry Service (2007) claimed that a specific definition of sustainability that is universally accepted is difficult because it varies among groups with different values and over time. Van Der Ryn and Cowan (1996) stated, “sustainability is not a single movement or approach. It is as varied as the communities and interests currently grappling with the issues it raises” (p. 4).

When defining sustainability, individuals have taken two different approaches based on possible solutions to environmental problems. One approach stressed technology as a way to improve the environment. David W. Orr (1992, 2002 & 2004), an environmental educator, defined the term technological sustainability as a situation where every problem has either a technological answer or market solution. Chermayeff (1982) used the term “technozoic” in describing individuals putting their faith in the “infinite ability of technology to get us out of crisis without any need for us to change.” The other approach is ecological, where natural cycles and methods of thinking will sustain the environment. Ecological sustainability limits the use of technology, lessens material wants, and eases the stress placed on the biosphere (Van Der Ryn & Cowan, 1996; Orr 1992, 2002 & 2004). Chermayeff (1982) described what was termed “ecozoic” as forging new relationships with nature by understanding the interdependence people have with the planet and curbing the destructive impact man has on the environment. This understanding can be gained through sustainable design education.

Sustainable design education has been addressed within various organizations, including the U.S. Green Building Council (USGBC) and the Interior Design Educators

Council (IDEC). These organizations have actively pushed for education in sustainability. Many interior design students, educators, and practitioners eagerly seek the research, product information, specifications, and other vital data required to design sustainable solutions, according to Wheeler and Bijur (2002) and Stieg (2006). According to Wheeler and Bijur (2000), Stieg (2006), and Whitemyer (2007), sustainable design education has proven vital to the interior design profession.

Information on sustainability must be made easily available to design educators, who will in turn pass their knowledge to students. With sustainable design incorporated into interior design curricula, those programs then enrich and empower their students with valuable knowledge. Perhaps the time is coming when sustainable design practices are seamlessly integrated and taught within the interior design classroom just as life safety and fire codes, Americans with Disabilities Act (ADA), and other building standards for interiors. However, educators face numerous issues and unanswered questions as sustainable design transitions into the curriculum of interior design programs. These issues and questions are reviewed within this study.

The researchers approached this study with concern as to what the interior design profession is doing to lower its ecological demands on the environment. Interior designers should understand the causes of the earth's ailments, and how to stop, prevent, heal, and otherwise repair the damage done to the earth. The interior design industry has taken a hard look at its impact on the environment, and has recognized the need to change its own practices, according to Wheeler and Bijur (2000) and Stegall (2006). This change has come in the form of sustainable design practices which are relatively new in the industry. Many practitioners have had to struggle to learn these

alternative practices or are still learning them, according to Stieg (2006). Awareness of sustainability is essential for interior designers, educators, and students so they may become instruments of change in the design process. Many experts have come to feel that sustainable design should be part of the design process and not an added service provided to clients when asked to do so (Wheeler & Bijur 2000; Stegall 2006; Stieg 2006).

Research Questions

Primary Question

What is the current status of sustainability in interior design curricula and what methods of teaching are currently used to effectively teach sustainability?

Secondary Questions

1. How have colleges and universities incorporated sustainability into the interior design curriculum?
2. What are the advantages and disadvantages of incorporating sustainability into the interior design curriculum as a "stand-alone" course?
3. What are the advantages and disadvantages of integrating sustainability throughout the interior design curriculum?
4. What teaching techniques and assignments are being used by faculty teaching sustainability to interior design students?
5. How have educators prepared themselves to teach sustainability to interior design students?
6. Are there obstacles to incorporating sustainability into interior design programs? If so, what are those obstacles?

7. What percentage of IDEC members teach sustainability?

Procedure

In February of 2008, a survey was distributed to 568 IDEC members via email using the Survey Monkey survey engine. The survey gathered data addressing the training and education of educators, the educators' attitudes about sustainability, and their effective teaching methods. One hundred and thirty-one educators responded to the survey. In addition to the survey, to acquire information on the "best practices" in sustainability education, 11 in-depth interviews were conducted with leaders in sustainable interior design education (identified by the IDEC Sustainability Task Force).

Findings

The study has revealed many different ways for sustainability to be incorporated into an interior design program. Courses were delivered in a variety of formats, and a majority of programs covered sustainability within their materials and methods course. Instructors covered such topics as indoor air quality, life-cycle analyses of products, sustainable finishes, greenwashing, LEED, the USGBC, and many other environmental design issues. The study showed that the vast majority of interior design programs did not offer sustainability as a "stand-alone" course. As the data has indicated, sustainability was better taught throughout a curriculum so that multiple aspects of it could be covered by various courses utilizing different educator perspectives on the topic. However, it is recommended that a stand-alone course that covers LEED and its guidelines be taught for students that wish to take the LEED-AP examination.

Some instructors felt that stand-alone courses addressing sustainability offered concentrated coverage of the material and could help prepare students for LEED-AP

examination. However, other instructors felt that a stand-alone course only compartmentalized the material rather than showing it as an integral part of the design process. This compartmentalization could lead students to view sustainable design practices as options and not an integral part of the interior design profession.

The survey respondents revealed that there were a few obstacles in teaching sustainability within their programs. These obstacles included lack of interest by others, lack of examples or hands-on applications, time and cost constrains within the curriculum, and a lack of appropriate textbooks. These suggestions, along with the recommendations of the 11 leaders in sustainability education were compiled and a sustainability curriculum developed.

This curriculum outline is the result of a culmination of data collected from the review of literature, the survey, the interviews, and personal experiences by the researchers. Recommendations on how sustainability could be incorporated into an interior design curriculum made by interviewees were carefully considered in the development of this curriculum. The researchers also utilized information gathered in the review of literature such as the Preliminary Teaching Manual for Sustainable Design Education written and compiled by Julie Stewart-Pollack and Lauren E. Pillote (2006). All collected data was then reviewed and the researchers developed this example curriculum from the findings. An abbreviated outline can be found in Table 1.

Conclusion

The educators felt that today's interior design students not only have to be ethically, socially and personally responsible designers, but they have to be environmentally and culturally responsible as well.

Table 1. **Outline of Sustainable Design Curriculum Framework**	
Freshman Year	1. Introduction to Interior Design ➢ Define sustainability and sustainable design ➢ Introduce the basic principles of reduce, reuse, recycle 2. Fundamentals of Design ➢ Introduce alternative materials and methods for project development. 3. Basic Drafting ➢ Introduce concept of less waste
Sophomore Year	1. Beginning Studio(s) ➢ Introduce basic principles of space planning including efficient space allotment. 2. Basic History ➢ Briefly introduce and discuss the role of historic buildings in sustainability 3. Graphics ➢ Introduce alternative methods of rendering 4. Computer Aided Design ➢ Stress concept of producing limited waste 5. Materials and Methods ➢ Introduce sustainability as it relates to materials and methods. 6. Textiles ➢ Introduce concept of sustainable textiles 7. Issues and Theories within Interior Design ➢ Discuss and compare sustainability as a holistic part of the interior design process ➢ Discuss and compare books on the issue of sustainability
Junior Year	1. Intermediate Studio(s) ➢ Application of sustainable design solutions ▪ LEED check list 2. Building Construction Systems ➢ Introduce sustainable design as it relates to construction systems ➢ Introduce alternative building construction methods 3. Lighting ➢ Lighting Efficacy Daylighting
Senior Year	1. Advanced Studio(s)/Thesis Studio ➢ A completely sustainable studio project with research 2. Design Business Practices ➢ Methods for operating a sustainable business practice 3. Advanced History ➢ Research in Historic Preservation's contributions to sustainability ➢ Research sustainability's influence throughout history by comparing regional and cultural differences among historic cultures. 4. Elective: Sustainability ➢ Complete review of sustainability ➢ Organizations ➢ LEED-AP guidelines

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Crossroad narratives:
A critical juncture in the evolution of the Hull House Settlement

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Margaret Portillo, Ph.D.

University of Florida

ABSTRACT

Purpose

Increasingly, narrative inquiry has been used to capture experience and meaning within interior space. It has been applied to interior design as a theoretical orientation, as a way in which to examine design processes and as a tool for enhancing design education .[1] However, one promising avenue for design research that has not been explored is the use of narrative inquiry as a tool for analyzing historic interiors. To bridge this gap, this study of historic interiors proposes that:

- Narrative inquiry offers a vehicle for capturing critical tension points in the development of historic interiors, namely Chicago's Hull House Settlement from 1961-1967.
- Contrasting narratives illustrate different constituency perspectives that shaped a critical period in the preservation of the Hull House settlement.

Framework

This study examines Chicago's historic Hull House Settlement, originally built in 1856, through narrative inquiry. Evolving out of the Progressive Era, Hull House was a philanthropic outpost that bridged cultural and class divisions between the urban poor and the wealthy middle class. In 1965 the Settlement received National Historic

[1] See: Cathy Ganoe "Design as Narrative: A theory of inhabiting interior space," *Journal of Interior Design;* 25 (1999), Diane Smith "Interior Architecture as a Storied Life: Narrative-Research and the Built Environment," *IDEA* 1 (2001), Margaret Portillo & J. Dohr "Creativity and narrative in Eva Maddox Associates: Design Beyond Space," *Journal of Interior Design* (2001), Shelia Danko, Margaret Portillo & Jason Meenely "Humanizing Design Through Narrative Inquiry," *Journal of Interior Design,* (2006).

Landmark designation, which was marked by the demolition of eleven of its thirteen structures, the restoration of the interior of the remaining Hull House mansion to its 1889 state, and its transformation from a settlement house into a museum.

The preservation narrative began when the City of Chicago offered the Settlement's Harrison-Halsted neighborhood, roughly 130 acres, as the site for the new University of Illinois campus. Members of the local community mobilized against the proposed campus, initiating a protest to save Hull House and the Halsted neighborhood. This battle proved to be a critical juncture in the preservation of the Hull House Settlement peaking with the demolition of the majority of the Settlement's buildings in 1963. This study highlights two principal narratives surrounding this galvanizing event, one capturing the community activists' story and the other capturing the University of Illinois' position. The data for the present study draws on personal accounts, board meeting minutes, newspaper articles, historical images and building blueprints, from on-site visits to Hull House and the University of Illinois archives.

Summary

This study examines the preservation of historic interiors through the exploration of two contrasting narratives capturing a critical point in Hull House's preservation. These narratives provide the context for preservation decisions that have shaped the Settlement's historic interior spaces. Importantly, this study highlights the pressing need to consider historic interiors from multiple perspectives. By uncovering the meanings that interior spaces hold for people, narrative inquiry offers a methodology to advance the understanding of historic interiors.

NARRATIVE

Orientation

In 1967, Jane Addams Hull-House museum opened on the new University of Illinois campus in Chicago. Designed to commemorate Hull House founder Jane Addams, the museum encompassed two structures, a mansion originally built in 1856 and a brick dining hall built in 1906. The interior of the dining hall, where Hull House residents traditionally shared meals and entertained guests, was restored to its 1910-1920s appearance. Large wood tables and bentwood chairs filled the space, whose main purpose in the museum complex was as a conference center. The mansion housed the museum's main exhibition space. The double parlors on the south side of the building were staged to recreate the "feeling of warmth Jane Addams and her associates tried to convey to their neighborhood friends."[2] An octagon shaped room to the south of the parlors stood empty save for a bust of Jane Addams. And, the reception room on the north side of the building served as an exhibition space and contained Addams' childhood melodeon. Upstairs Addams' office had been carefully restored while the remaining rooms on this floor formed the Preston Bradley Library, which contained archival sources related to Addams.

The museum was constructed from the remnants of the historic Hull House Settlement, which six years earlier, in 1961, had spanned an entire city block. At this time the Hull House mansion was the cornerstone of a complex containing twelve other

[2] "Jane Addams' Hull House," University of Illinois Centennial Brochure, University of Illinois at Chicago Special Collections, University Archives, Box 57 (1967).

structures. The dining hall was connected to the mansion through an interior corridor. [3] The mansion's double parlors and reception room were a "hodgepodge" of furniture with no "specific style"; mission style chairs stood next to a Victorian sleigh sofa while Tiffany pendant lamps graced each room.[4] The octagon room was furnished and its walls covered with pictures of Jane Addams and other famous Hull House residents. The reconstitution of the interiors of Hull House into a museum, between 1961 and 1967, was shaped by two competing groups, one formed by the immediate Harrison-Halsted neighborhood and the second by University of Illinois students.

Community Narrative

On April 19th, 1961, the morning after the Chicago City Council approved the demolition of the Harrison-Halsted neighborhood and the Hull House settlement to make way for the new University of Illinois Chicago campus, incensed Halsted community members paid a visit to City Hall. A three-member committee of Harrison-Halsted area residents met with Mayor Daley to request that another site be found for the University while forty more neighborhood residents waited patiently in the lobby of City Hall. The meeting with Daley was a disappointment; he reaffirmed the City and the University's decision to use the Harrison-Halsted site. Faced with Daley's intransigence the community group representatives reported to the gathering in the lobby "There is no use trying to see him again, He just simply isn't going to satisfy us."[5] As the group began to leave City Hall they encountered a crowd of students demonstrating in support

[3] Peter Fish Studies, "Photographs of Hull House Interiors," UIC Special Collections, Hull House Museum Archival Records, Box 8, Preservation of Hull House Folder.
[4] "Conclusions: Uses and Furnishings of Hull House," UIC Special Collections, Hull House Museum Archival Records, Box 8, Preservation of Hull House Folder.
[5] "U. of I. Trustees Stand Pat," *Chicago Sun Times* (April 20, 1961), 24.

of the Mayor's decision. Facing the possibility of losing their homes and relocation, the community group found the students' counter-picketing offensive. When the "mothers" began to object to the signs, some student's "pushed the women around".[6] This angered the neighborhood residents who asked themselves what right this "bunch of dumb kids" had to "fight [for the site] anyway? they [sic] won't even be in the campus! By the time that thing is built – they'll be gone."[7]

University Narrative

Many students were excited about securing a permanent site for the University. Over the past few years "many tempting locations" had been "paraded before" them and "in succession each one" had been "overruled."[8] When City officials finally announced its approval of the Halsted site, a group of students assembled at City Hall to demonstrate their "approval and support."[9] Upon entering City Hall, they encountered a group of "irate citizens" protesting the Halsted location.[10] This group of "screaming, crying, hysterical women converged" on the students.[11] They "pushed and jostled" the students and at one point a "student's sign was ripped out of his hands and torn up."[12] The "mob" yelled "Youse kids ain't educated," exclaiming that they were "selfish for taking their homes from them."[13] Some students' scoffed at the "horde[']s" claims to a neighborhood pointing out that anyone who took a "tour through the Harrison-Halsted neighborhood" could see that it was only a "slum district". The women's calls to save

[6] Florence Scala, interview by Robert H. Young, UIC special collections, Florence Scala Collection, Box 1, Folder 10 (n.d), 24.
[7] Ibid.
[8] Diana Harbinson, "From Navy Pier," *Chicago Sunday Tribune* (April 23, 1961), CB.
[9] Ibid.
[10] Ibid.
[11] Ibid.
[12] "U. of I. Trustees Stand Pat," *Chicago Sun Times* (April 20, 1961).
[13] Harbinson, CB.

Hull House generated a more mixed response. Some students felt that Hull House should be maintained as a "library" or a "shrine" to Jane Addams.[14] Others felt that the calls to save Hull House were "nonsense" and "Addams would have been sorry to hear that the U. of I. site was denied for the umpteenth time just to save her old recreation house."[15] All the students agreed that the university needed a "new site" and needed it "NOW."[16] The scuffle ended when the students were ushered into Mayor Daley's office where they were reassured that Daley "would not deviate in selection of the site and that the university would be built despite differences of opinion."[17] Although none of the students would "benefit from the new University" they felt that their fight for the campus was not for themselves "but for the entire city of Chicago-including the Harrison-Halsted women, whose own children will receive the benefits."[18]

Aftermath

By 1963 the neighborhood was razed and residents relocated. Hull House's services were dispersed around the city and all but two of its buildings demolished. Under mounting public pressure, the University committed to "memorializing Hull House, its work, and the great traditions of Jane Adams it represents" through incorporating the original Hull House mansion and dining hall into the new campus as a museum.[19] The community's response to this proposal was unenthusiastic. Russell Ballard, who was head resident of Hull House from 1943-1962 and actively supported the Halsted community, did not think the preservation went far enough; "the meaning of

[14] Helen Fleming, "UI Selects Halsted Site," *Chicago Daily News* (February 10, 1961), C6.
[15] "Letters to the Editors: The Great Site Fight Goes On – and On," *Chicago Daily News* (March 1961)
[16] "Same Old Story," *Per Illini* (March 27, 1961)
[17] U. of I. Trustees Stand Pat," *Chicago Sun Times* (April 20, 1961).
[18] Harbinson. CB.
[19] Letter from the Physical Plant Department to Senator Gottschalk, March 20, 1961, UIC Special Collections, Hull House Collection, Box 57. Folder 705.

historic Hull House is incorporated not in the Hull-mansion alone, but in the cluster of buildings which symbolize the community of people who helped to establish America's social conscience."[20] Jesse Binford, a resident of the Hull House settlement since 1905 and representative of the Harrison-Halsted community group, stated that she would rather see the entire Hull House "demolished" than turned into a museum and incorporated into the University.[21] She continued in no uncertain terms, *"We'll never get the university trustees to understand what we're fighting for, and we'll never understand the power politics that is trying to take our community away from us."*[22]

Despite community misgivings, the University restored the remaining Hull House structures. The dining hall was placed on a new concrete foundation and resurfaced with brick. And, the mansion was restored to its 1856 Italianate Victorian appearance. Although the University's restoration committee recognized that Addams' first twenty years at Hull House, 1889-1910, were probably the "most significant," they felt it was "unfortunately an ugly period in furnishings" and did not match the restored 1856 appearance of the mansion. Staging the Hull House's period interiors to represent the 1840-60 era, they rationalized, would allow them to showcase Hull House's "good" antiques and "express" Addams' "gracious, cultured hospitality."[23]

Notably, in their efforts to commemorate Jane Addams, those representing the University unwittingly wrote the community out of the interiors of the Hull House structures. The reception room, which had been cluttered full of furniture to accommodate visiting neighbors, had been cleared. The second floor of the Hull House,

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[20] "Visit Hull House Committee Plea to Illini Trustees," *Chicago Sun Times* (June 16th, 1961)
[21] "Miss Binford Raps Hull House Loss," *Chicago American (*July 7, 1961)
[22] Ibid.
[23] "Conclusions: Uses and Furnishings of Hull House," UIC Special Collections, Hull House Museum Archival Records, Box 8, Preservation of Hull House Folder.

where previously neighborhood children had dressed for their drama productions, was now a library.[24] And the octagon room, which had once displayed the pictures of many of Hull House's famous residents, now held only Jane Addams' bust. Ironically, in their efforts to commemorate Addams, the University had also largely written her out of the space with a physical restoration that commemorated an era that predated both Addams and the Halsted neighborhood she served.

Importantly, examining stakeholder narratives, which in this case include the Halsted community and UIC students, brings to life the values, beliefs, and emotionality surrounding a protected site. Narrative takes us beyond chronicling preservation efforts and allows us to examine the deeper understandings and multiple meanings that arise from the built environment, bringing forward stories and experiences of those who shaped historic spaces.

[24] "Hull Mansion – Historic Treasure on Campus," *The Chicagoan* (June, 1967): 3.

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The M.I.D. -- a New Model for the Education of Interior Designers

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ABSTRACT

Beginning in 2004 and implemented in the fall of 2006, the department of Interior Architecture and Product Design at Kansas State University embarked on an ambitious process of transforming its first-professional, CIDA accredited baccalaureate degree program into a first-professional, CIDA accredited master's degree program. In the new master's program, students enter as freshmen, complete the first three years of the undergraduate portion of the program and apply for admission into the graduate portion of the program starting in their fourth year. They are scheduled to graduate after five years + one summer upon completion of a total of 169 required credit hours. The move to an all-graduate program was initiated as a result of a larger decision by the college to transform all of its baccalaureate programs into master's programs. Both faculty and administration embraced this change with great enthusiasm. The transition was viewed as an opportunity to further enhance the program and its curricular offerings.

Support for this type of masters program was called for by an IDEC task force and outlined in their position paper report "Defining Graduate Education in Interior Design." [1] In the paper, the task force identified a number of anticipated positive changes that the new program model would offer. Though our program was finalized prior to the task force's findings there is a remarkable similarity between the two. The new program has resulted in a large number of significant and positive changes for the students, department, academia and the profession.

Benefits for Students

- A strong graduate education grounded in a high-quality design curriculum preparing students for a professional career in interior design.
- Continuance of CIDA and NASAD accreditation.
- Increased access to financial aid available to graduate students.
- Required self-directed research with a thesis experience that promotes the concept of evidence-based design.
- Appropriate preparation and shortened timeline for those students wishing to pursue a Ph.D. and acquire a teaching position at a research-focused program.

Benefits for the Department

- Increased tuition revenue generated through the addition of graduate level coursework.
- Support from the Graduate School for GTA's.
- Bolsters the image of the program on campus.

Benefits for Academia

- Increase the pool of professionals who would be qualified to enter academia for permanent or short-term positions.

Benefits for the Profession

- Moves to satisfy demands of the profession on academia to promote and provide an ever higher level of expertise upon graduation.
- The professional status of interior designers is improved in the eyes of the public with highly-trained design-oriented graduates firmly grounded in

evidence-based design.

- The master's degree places interior designers on the same academic footing as other professionals such as architects, engineers, etc.

Description of Presentation

The benefits for the department after the first year have been substantial and the authors believe that the program's structure may serve as a model for other programs contemplating a similar change. In the presentation the authors will fully describe the evolution of the program, its structure, curriculum, benefits, limitations and present examples of student work.

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[1] "Defining Graduate Education in Interior Design", (Nov. 2006). IDEC.org. Retrieved Oct. 2, 2008, http://www.idec.org/conferences/IDECWhitePaperGradfinal.pdf.

NARRATIVE

Background and Rationale

In 2004 the College of Architecture, Planning and Design at Kansas State University decided through a series of events that all four departments in the college – architecture, interior architecture and product design, landscape architecture, and community and regional planning would transform their five-year baccalaureate programs into 5+ year masters programs. Under the proposed plan students would enroll as freshmen, apply to the graduate school in their fourth year, and graduate after 5 years + one summer with a masters degree in their respective disciplines.

Though IAPD was not required to change its curriculum, the department came to believe that the move to an all-graduate program would have a number of significant and positive results. First, we could take advantage of building on an already nationally recognized program and make it stronger. Second, provide additional learning opportunities. A graduate curriculum with its strong emphasis on research methods and a focused design experience would benefit our students in both the short and long term. Third, a graduate curriculum could serve as a vehicle to expand and extend access to coursework from across campus that is normally unavailable to undergraduates. Four, a first professional masters degree would immediately result in an increased revenue stream from central administration due to the tuition differential between undergraduate and graduate tuition costs. Finally, it would increase access to graduate teaching assistants and student help in general. Before making the final proposal, however, a detailed analysis of student records was conducted to ensure that a sufficient number of

students could ultimately qualify for acceptance into the Graduate School. Upon completion, it was determined that a significant majority of students would meet or exceed the necessary requirements for entrance at the end of their third year. This was no a surprise because the college is fortunate to attract a very strong pool of talent. The typical incoming freshman has an average GPA of 3.75, college credit for one or more courses, and an ACT score of 27 – the highest of any college on the KSU campus. Once the analysis was completed and the student pool was found to be viable, a number of visioning meetings were held from which the proposed master's program started to take shape. The IAPD faculty saw the opportunity for evolutionary change of an already strong and well-respected academic program into something much greater. As the meetings progressed several criteria emerged as being central to a successful transformation. They were:

1. A program grounded in a high-quality design curriculum that would adequately prepare students for a successful professional career.

   The department has a reputation for graduating strong comprehensive designers and the faculty wanted to ensure that tradition would continue under the new program. The rigor and expectations for all studio courses would not be compromised.

2. Retain both CIDA and NASAD accreditation.

   The program has been continually CIDA (formerly FIDER) accredited since 1973. It has not only met but exceeded those standards so maintaining that tradition was viewed as also being critical.

3. A requirement that each student participate in both a study abroad experience, as well as, a professional internship.

In the former baccalaureate program students were forced to choose participation in either an internship or a study abroad option. The faculty felt that this put the students in an untenable situation in the choice between two important experiences. By requiring both, the students could enhance their employability, as well as, participate in an often life-changing study abroad experience.

4. Provide each student with a comprehensive capstone studio experience prior to their thesis project.

The faculty desired to provide the students with an all-inclusive capstone studio experience that would integrate all three areas of our program – interior architecture, furniture design, and product design into a final studio. The students would draw upon the entirety of their coursework to resolve a more complex, comprehensive project statement.

5. Require each student to participate in self-directed research that would result in a thesis experience in the form of a master's report.

This is where the greatest change to the program has occurred. Each student is required to research and develop a solution to a design problem of their choice. The students can choose to develop a project in one of the three areas of the program, namely, interior architecture, furniture design, or product design. In preparation for this studio the students are required to complete a research methods course, as well as, a pre-design/programming class where they fully research the problem and define the parameters of the project. The findings from this pre-design/programming class are then extensively documented in a thesis report that will accompany their design solution. To aid them in their progress each student forms a Supervisory Committee consisting of one major and two minor professors. Their major professor is the faculty

member who will be assigned to their studio in their final semester. Their minor professors are recruited based on their interest in the research topic. In their final semester the students design, present, and defend their solution in accordance with the standards of the KSU Graduate School. The policy of the Graduate School states that the thesis report must be:

"A culminating experience … that should verify the student's competence to synthesize information across the student's program of study, and…"A master's report is generally shorter than a thesis, and it may present the results of a more limited original investigation. Alternatively, it may review the state of a particular scholarly or scientific problem, or especially in the case of professional programs or applied disciplines it may describe a project appropriate to the discipline… and whose results must be presented in a form acceptable to the supervisory committee."

Results

What eventually evolved from this exhaustive process was a 169 semester credit hour program spanning over a time period of five years + one summer. Students enter as freshmen and graduate with a Master of Interior Architecture and Product Design. Of their required 169 credit hours, 31 are graduate level and 104 are either IAPD or department of architecture undergraduate courses. The requirement of this relatively high number of discipline specific credit hours contributes to overall breadth and rigor and strongly contributes to the competency and preparation of the students for graduate work.

Extensive consideration was also given to offering a "backdoor" baccalaureate degree to those few students who ultimately would not qualify for entrance into the graduate program. In the end it was decided that an undesirable two-tier structure would result and detract from departmental unity. So it was decided that the students would either graduate with a master's degree or transfer out of the program.

Conclusion

In 2006 IDEC convened a committee to examine the value of the master's degree in the context of interior design education. In their position paper report *"Defining Graduate Education in Interior Design (idec.org, pp. 1)"*, the committee identified several problems with the existing system of graduate education including: *"the large number of several degree types with different missions, professional content, research content, degree nomenclature, accredited status, credit hour requirements, and curricular focus (idec.org, pp. 1)."* The report maintained that the variety of degree types *"creates a lack of clarity for the consuming public and especially for institutions of higher education that must define minimum requirements for its faculty hires (idec.org, pp. 1)."*

The report went on to outline a new type of master's degree that would be grounded in both design practice and research. The committee proposed that the curriculum of the new degree should place *… the design process at the core of the curriculum and by allowing student-directed research to inform this process, the master's degree is positioned as distinct from the Ph.D. but as providing equivalent value (idec.org, pp. 6)."* The committee also identified the added benefit of *"placing interior design and architectural education on a more equal footing by equating their career tracks. This would counter arguments in the licensing arena that interior design education is not adequately extensive and would positively impact efforts to secure interior design practice acts (idec.org, pp. 7)."*

The authors believe that IAPD's new master's program can greatly contribute to the dialogue concerning the future of interior design education. It offers a new and

exciting educational paradigm. The parallel's between IAPD's master's program and that which was proposed by the IDEC task force are reassuring and in the opinion of the authors contribute to the programs' validation. The authors also believe that the benefits to students, the profession, and academia are significant. For students it guarantees the development of high quality design skills and a strong grounding in research processes. For the profession it guarantees that graduates have received a well-balanced and comprehensive education that prepares them not only for entry level positions but a lifetime career. For academia it offers the resource of young professionals that will be ready to replace an aging faculty. It also facilitates the free movement of qualified temporary faculty who can transition more easily between the profession and academia.

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Evidence-based Design and Empirical Research for the Undergraduate Student

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ABSTRACT

Design in the 21st century has become increasingly complex, and interior designers are challenged with creating environments that involve difficult and multi-faceted solutions. In many instances, design for these situations could be improved through the use of empirical research (Guerin & Thompson, 2004). Yet most freshman interior design students who have been exposed to Home and Garden TV have very little understanding of the profession let alone the contributions that research could have for practicing professionals. To the undergraduate student, research is employed to describe a search on the Internet or frankly any activity that involves information gathering. This comes as no surprise since the term research is often used inaccurately throughout the student's years in secondary education. Elementary, middle school, and high school teachers often use "research" to describe anything from retrieving a book from the library to completing a PowerPoint presentation. Thus, the student enters the university with a misconception of what research is. To academics, critical components of research include patient, systematic study and the scholarship of discovery (Boyer, 1990).

Interestingly enough, the academy has been focused on research through the Master's of Interior Design (MID). To illustrate, one of the 2007 issues of the *Journal of Interior Design* was primarily dedicated to white paper discussions on the MID as the first professional degree. In many of these opinion pieces, the integration of research as

part of the design process was advocated (Guerin, 2007; Kroelinger, 2007). While the dialogue of the position papers addresses graduate education, “these issues are equally important to undergraduate students at an entry level in their academic program” (Kroelinger, 2007, p. 16).

Perhaps the academy will move toward a first professional master’s degree in interior design, but perhaps it won’t. If the latter is the case, it will be critically important for educators to incorporate research experiences into the undergraduate curriculum particularly since evidence-based design has permeated the field of interior design. As defined by Hamilton (2004), evidence-based design involves design solutions that are informed by a variety of sources. For increased rigor in design-decision making, these sources can come from empirical research studies.

The purpose of this teaching forum is to present a two-part course that covers design research at the undergraduate level. A key component of both classes is to ensure that students understand the difference between information gathering (i.e., programming) versus empirical research and the value both contribute to design. Another important aspect of the classes is for students to comprehend that design decisions can be informed along a continuum ranging from less rigorous sources such as product manufacturer searches to the increased rigor found in journal articles (i.e., evidence-based design). A critical assignment is for students to actively participate in the research process through the completion of a small research project that advances the body of knowledge.

NARRATIVE

In 1993, Dickson and White surveyed 96 interior design practitioners who were considered leaders in the field to determine their perceptions toward research. The findings from this investigation revealed that few practitioners understand the true definition of research and think of research as information gathering. Moreover, many of the practitioners surveyed do not utilize research findings when generating design solutions. Rather, practitioners tend to base design decisions on personal preference, past experience, or soft sources of information such as product catalogs, trade magazines, or books (Dickson & White, 1993).

In 2007, we conducted a similar inquiry that also examined attitudes toward research (Dickinson, Marsden, & Read, 2007). In this study we surveyed undergraduate, interior design students from three different research universities (n = 89) to determine their (a) perceived value of research in interior design practice, (b) perceptions of who should conduct research, (c) attitudes toward research in interior design education, and (d) definitions of research. While the students valued research for the profession, they did not have a true understanding of the definition of research, and the majority of students regarded research as the gathering of information rather than the generation of new knowledge (Dickinson et al., 2007).

In order to better understand the lack of knowledge regarding research at the undergraduate and practitioner level, we recently conducted a similar study that surveyed interior design faculty (n = 65) who were members of IDEC. The results from this investigation were related to the findings above. Twenty percent of the faculty members surveyed defined research as information gathering, while 27% stated that

research involved discovery. A number of the respondents did not understand the difference between research and interior design programming. In fact, a few faculty members responded that there was no difference between the two (Marsden, Dickinson, & Anthony, 2007). While the majority of the faculty (80%) believed that research findings provided useful information to practitioners, they were hesitant on whether undergraduate students should be taking research related coursework. For these respondents, research was being taught in a variety of venues ranging from coursework focused on technology, to studio, to history classes (Marsden et al., 2007).

The three of these investigations begin to suggest that there is confusion on the definition of research, the definition of interior design programming, and the difference and similarities between the two. More importantly, if practitioners and students alike are confused about defining research, then we have to wonder if they understand how research findings can benefit design. In the past few years, the term evidence-based design has gained in popularity with the idea that design decisions can be informed by empirical research which allows designers to better justify their solutions (Hamilton, 2004). The question becomes, have interior design educators been remise in educating students (i.e., future practitioners) on the usefulness of research during the design process?

The purpose of this presentation is to discuss a two-part course taught at Radford University that concentrates on research: Design Theory and Research I (part one) and Design Theory and Research II (part two). Design Theory and Research I is taught spring semester of the junior year, and Design Theory and Research II is taught fall semester of the senior year. Both courses are 2-credit, lecture-based classes. In

part one, the main goal is for students to understand: (a) the “real” definition of research, (b) the definition of interior design programming, (c) the differences and similarities between research and programming, and (d) how research benefits the design process and profession.

On the first day of class, I typically divide the students into groups of four and ask each group to discuss the following questions for 10 minutes: (a) How do you define the term research; and (b) How do you feel about research? Be honest in your opinions. Upon completion of the discussion time, each group writes their responses on the board. After teaching this class for a number of years, the answers to the questions have not changed and reflect the findings from the Dickinson et al (2007) investigation. Typical responses include: “Research is information gathered from books and the Internet about a certain topic in which one is interested.” Additionally, most groups will state that research is tedious, boring, and dull.

These answers come as no surprise, due to the fact that the term “research” is overused and is used incorrectly. When students are in elementary, middle school, and high school, teachers will use the term research to describe anything from retrieving a book from the library, to browsing on the Internet, to completing a PowerPoint presentation. So the student comes to the university with a complete misconception of what research truly involves. Essentially, the first task in the part one sequence is to reprogram students to know that research is more than information gathering. Ultimately students should comprehend the following: (a) research is systematic, patient study that involves a series of steps, (b) the goal of research is to advance the field or profession and to contribute to the body of knowledge, and (c) research is systematic discovery.

Next, students are walked through the research process using a case study format that involves: defining the problem, reading the literature, collecting data, analyzing data, interpreting the results, and disseminating the data.

Once research is covered, we discuss interior design programming and examine the definitions. More importantly, we examine how interior design programming is similar and different from research. The best way to describe this to students is that research is systematic discovery, and programming is systematic information gathering or systematic information retrieval. Both research and programming have value to the profession, and a primary goal in the first part of this course is for students to comprehend that design solutions can be informed by a variety of sources. These sources range on a scale of rigor. To illustrate, basing design decisions on intuition, past experience, or hunches might be considered less rigorous versus basing design decisions on empirical research findings. First, it is important for students to know that not every design decision can be based on research. But to think that no decisions are informed by research is wrong. Second, design informed by intuition or past experience is not incorrect; however, it may not have the same rigor as design informed by becoming a consumer of research.

In order to ensure that students fully comprehend the differences and similarities between programming and research, they complete a comprehensive programming document in Design Theory and Research I and complete a small research investigation that takes them through the research process in Design Theory and Research II. Both of these courses feed into senior studio. Senior studio is held spring semester and uses a project archetype that is congruent with the programming

document and research investigations from the Design Theory and Research sequence. This connection is important and illustrates how programming and research inform the design decision making in senior studio.

Despite the fact that discussions related to empirical research and evidence-based design have infused the design professions, there still seems to be confusion on what constitutes research and how research can be utilized by the design fields. At Radford University, we have tried to alleviate some of this confusion by developing a two-part course that ensures students understand the value of research and other forms of information to interior design.

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Developing a Design Concept: Writing to Think – Thinking to Write

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ABSTRACT

This past summer I participated in a five-week writing intensive workshop with the National Writing Project, an outreach for pre-K-University teachers who teach writing and/or wish to improve their own and their students' writing skills. While my primary teaching responsibility is the interior design studio, I struggle to help students conceptualize and write coherent design concept statements for their projects. My workshop study thus focused on the following question: Can the introduction of regular writing exercises help my students develop stronger concepts relative to their design process and help them to design spaces with richer content?

When I ask students to write design concept statements, invariably their tendency is to repeat the problem statement and add a few adjectives like "natural" or "comfortable" (as in, "My design concept is to create a relaxing, comfortable day spa for busy office workers", or "My concept is to create a soothing, natural environment in which busy office workers can relax during their lunch hour.") When questioned as to how either of these statements distinguishes their project from any other project that has the same program, students are unable to answer.

The importance of concept to design development has been well established in design literature by authors such as Allen Tate and C. Ray Smith (1986). They explain the function of concept in the design process:

> Establishing a dominant characteristic ... is necessary for the design of every interior.... There is a danger to be foreseen in the use of the word "theme" as a substitute for concept, since theme is often taken to mean decorative theme only – as in a "garden theme." This thinking usually results in a recitation of clichés, such as garden benches, fabric painted with leaves and flowers, treillage, brick-patterned flooring, and so forth. When such clichés are applied in a room, when the attempt is to re-create a garden rather than to evoke the characteristics that are the idea of a garden, the goal of a spatial concept has been bypassed.
>
> ... Concept is a major element that sets a design direction. That element may be a way of treating the volume of space, a particular element to affect the scale, or a means of improving circulation. (pp. 98-99)

The idea that writing might aid students in the development of design concepts is suggested and supported by the literature of cognitive psychology and learning theory, writing across the curriculum, and the pedagogy of critical thinking (Caplan & Keech, 1980; Capossela, 1993; Young & Fulwiler, 1986). Concepts from current educational theory (Buck Institute for Education, 2003) include:

1. Sequencing (or "scaffolding")
2. Collaborative teaching and learning opportunities
3. Project-based learning (writing related to studio activity)
4. Writing and revising

The studio writing activities I have designed based on these concepts (See Attachments) will be implemented in my studio in the fall. My teaching forum

presentation will engage attendees in similar exercises. In addition, I will present preliminary results from my studio.

NARRATIVE

Introduction

This past summer I participated in a five-week writing intensive workshop with the National Writing Project, an outreach for pre-K-University teachers who teach writing and/or wish to improve their own and their students' writing skills. While my primary teaching responsibility is the interior design studio, I struggle to help students conceptualize and write coherent design concept statements for their projects. My workshop study thus focused on the following question: Can the introduction of regular writing exercises help students develop stronger concepts relative to their design process and help them to design spaces with richer content?

Context

For each of their design projects our students are required to write a "design concept statement". Over the years I have struggled to get students to understand just what a "concept statement" is. When asked to write one, they invariably repeat the design problem statement and add a few adjectives like "natural" or "comfortable" (as in, "My design concept is to create a relaxing, comfortable day spa for busy office workers", or "My concept is to create a soothing, natural environment in which busy office workers can relax during their lunch hour.") When asked how either of these statements distinguishes their project from any other project that has the same program, the students are at a loss to explain.

Many of our students find themselves in design precisely because they are not adept with verbal language. Proficiency with visual language is the focus of their studio-based education, and hence where their primary energy and attention are placed. The

faculty is similarly design-oriented. Although each of us acknowledges the importance of the concept to the success of a project, we each have different ways of articulating and engaging concept in our own work. In practice we have also developed individual ways of working that shortcut any number of steps that we require of our students who are in the process of learning.

In addition, among colleagues there can be a lack of unanimity as to what constitutes a coherent and useful “concept statement.” Some have tried to get students to sum up their concept in a single word. This has resulted in some pretty meaningless concepts – not because a single word couldn’t be a very powerful concept generator, but because our students don’t know how to develop that single word into a conceptually rich written idea for design.

Role and Importance of the Design Concept

According to Allen Tate and C. Ray Smith (1986) “we begin to think conceptually when we translate plan and program into form. These are spatial concepts...” (p. 98). While our students do become adept at the manipulation of 3-D form, both manually and digitally, they continually demonstrate weakness when it comes to their written and verbal conceptualizations of these manipulations. Consequently, a degree of arbitrariness continues to characterize many of their design decisions. They tend to rely on familiar or easily available solutions to their design problems, rather than to exercise a systematic consideration of each element in relation to an overarching design concept. This limits the effectiveness of many of their design choices.

In their elaboration of the role of the design concept in the process of spatial design development, Tate and Smith (1986) warn that the concept may be only superficially understood as a decorative “theme”.

> Establishing a dominant characteristic, or theme, is necessary for the design of every interior.... There is a danger to be foreseen in the use of the word “theme” as a substitute for concept, since theme is often taken to mean decorative theme only – as in a “garden theme.” This thinking usually results in a recitation of clichés, such as garden benches, fabric painted with leaves and flowers, treillage, brick-patterned flooring, and so forth. When such clichés are applied in a room, when the attempt is to re-create a garden rather than to evoke the characteristics that are the idea of a garden, the goal of a spatial concept has been bypassed.
>
> True theme, or concept, is a major element that sets a design direction. That element may be a way of treating the volume of space, a particular element to affect the scale, or a means of improving circulation. Every good interior is built up of one or more lines, shapes, and colors that establish its theme-concept.... Inspiration happen[s] in a moment when pieces of experience and pieces of information come together simultaneously. (pp. 98-99)

The goal then is to help students develop and explore the conceptual underpinnings of their design more deeply so that they move beyond the “decorative theme.” This teaching forum proposes a series of writing strategies that can help students conduct this exploration.

Rationale

The idea that writing might aid students in the development of design concepts is suggested and supported by literature in various disciplines such as cognitive psychology and learning theory, writing across the curriculum, and the pedagogy of critical thinking. Among the resources consulted for this teaching forum, two volumes were especially useful: *Writing Across the Disciplines: Research Into Practice* (Young and Fulwiler, Eds., 1986) and *The Critical Writing Workshop: Designing Writing Assignments to Foster Critical Thinking* (Capossela, Ed., 1993).

In his chapter "The Argument for Writing Across the Curriculum," Toby Fulwiler (1986, pp. 21-32) provides rationales for the use of writing as a vehicle for thinking, learning and knowing in a variety of disciplines outside the English (or other language) curriculum. He maintains that writing is not just a way of communicating, but also a way of learning**.** For Fulwiler "the act of writing ... allows us to manipulate thought in unique ways because writing makes our thoughts visible and concrete and allows us to interact and modify them" (p. 22). His use of words like "manipulate" and "modify" and his idea that thoughts are made "visible" and "concrete" suggest the possibility of a close relationship between writing and the process of design.

In the same volume Richard Jenseth's chapter, "Seeing, Composing, Knowing: Critical Thinking and the Epistemic Approach to Composition*,"* (1986, pp. 129-141) distinguishes between two approaches to the teaching of writing and composition: 1) the critical thinking approach emphasizing the development of a critical stance vis a vis the determination of what is true or real, and 2) the epistemic approach by which "language is seen as a primary means by which worlds and selves are created" (p. 130). This

second approach is particularly significant for the design student. She is in fact attempting to create a world through form. Learning to reinforce this process with language can strengthen the process of both.

Writing Exercises for Developing Design Concept

Several key strategies from current educational theory were integrated into the design of the writing activities that I am implementing into my interior design studio (and lecture) courses. They include:

1. Sequencing (or “scaffolding”) – Writing assignments are structured to build incrementally toward greater complexity of thought (Pytlik, 1993).
2. Collaborative teaching and learning opportunities – Some of the writing exercises require students to work with each other and to evaluate the group activity together (Buck Institute for Education, 2003).
3. Showing, not telling – Exercises help students to move away from literal description toward use of (Caplan & Keech, 1980).
4. Project-based learning – Writing exercises relate directly to the on-going studio activity (Buck Institute for Education, 2003).
5. Writing and revising – Students are encouraged to revise and edit their writing in tandem with their design development so that the complexity of their concept evolves along with the design (Caplan & Keech, 1980).

Conclusion

This teaching forum presents a series of exercises based on the strategies identified above. Handouts outlining the exercises are available for participants in the forum. Forum attendees have the opportunity to engage in these writing and concept

development activities. Following the exercises and a review of outcomes from a second-year interior design studio and a fourth-year portfolio class, participants analyze the effectiveness of the exercises, and suggest ways they might be improved. It is the goal of this presentation and the generated discussion to help studio faculty engage their students in enhanced conceptualization through writing. Ultimately it is hoped that as students improve their articulation of design concepts, they will also expand the complexity of their design project solutions.

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Adaptive Reuse in Residential Studio: The 1st Step in Sustainability From Theory to Practice

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ABSTRACT

Adaptive reuse coupled with sustainability in interior design education is the key to transforming future environments, recognizing that adaptive reuse taxes our natural resources less than new construction. To appreciate this, interior design students must be sensitive to the energy used in the production and assembly of materials needed for new construction, from their origin to their end of life and subsequent reuse (Foster, Stelmack & Hindman, 2007). If all the hidden costs were revealed, the adaptive reuse of architecture would be perceived as the only rational strategy for the management of material resources. Designers sensitive to adaptive reuse sustainable practices have the opportunity to specify green materials, while establishing a recycling program to reduce the amount of solid waste resulting from construction (Foster, et al, 2007).

When a building or a site loses its original function, it is possible to save it from abandonment or demolition by adapting it to a new use. This is a current practice world wide, particularly in the case of remarkable architecture that remains in good condition, as it is the case of many industrial areas. When a building of historic merit is preserved or restored for adaptive reuse, its cultural energy is also "recycled" (Bonda, 2005). History brought back to active duty, and the elements of the built fabric — walls, floors, windows, doors, and roof — once again envelop a space to connect inside with outside to keep out the weather – still preserving the environment.

An innovative residential studio project provided the opportunity to engage interior design students in adaptive re-use design of an 1890's warehouse located in a revitalized downtown, which was translated into residential loft living. Through the research and identification of sustainable design applications and green materials, the students garnered an understanding and appreciation of cultural historic preservation while sustaining the health of the local community.

One of studio focuses was on the environmental benefits of reusing buildings through the retention of the original building's "embodied energy". Dan Kopec (2009) defines *embodied energy* as the energy consumed by all of the processes associated with the production of a building, from the acquisition of natural resources to product delivery, including mining, manufacturing of materials and equipment, transport and administrative functions. By reusing buildings, their embodied energy is retained, making the project much more environmentally sustainable than entirely new construction. New buildings have much higher embodied energy costs than buildings that are adaptively reused (Kopec, 2009).

Students gained understanding that by circumventing the wasteful process of demolition and reconstruction there are environmental benefits of adaptive reuse. Such environmental benefits, combined with energy savings and the social advantage of recycling a valued heritage place make adaptive reuse of historic buildings an essential component of sustainable development. Old buildings preserve the local culture and identity and create a sense of belonging. In a way, we recycle embodied human resource energy along with material energy. We bring alive the past to be a part of the future, creating important connections through time.

NARRATIVE

Adaptive Reuse and Sustainability: Defined

Adaptive reuse coupled with sustainability in interior design education is the key to transforming future environments, recognizing that adaptive reuse taxes our natural resources less than new construction. To appreciate this, interior design students must be sensitive to the energy used in the production and assembly of materials needed for new construction, from their origin to their end of life and subsequent reuse (Foster, Stelmack & Hindman, 2007). If all the hidden costs were revealed, the adaptive reuse of architecture would be perceived as the only rational strategy for the management of material resources.

Sustainability emphasizes energy conservation, healthy indoor environments, and overall structural durability - it consists of meeting the needs of the present without compromising the ability of future generations to meet their needs (Bonda, 2005). The goal of sustainable construction is to 'create and operate a healthy built environment based on resource efficiency and ecological design (Kibert, 2005). Designers sensitive to adaptive reuse sustainable practices have the opportunity to utilize sustainable practices and specify green materials, while establishing a recycling program to reduce the amount of solid waste resulting from construction (Foster, et al, 2007).

What is *adaptive reuse*? It is the process of finding a new use for an older building. It is often defined as the 'process whereby older, structurally sound buildings are developed for economically viable new uses' (Austin, 1998). Industrial buildings are particularly conducive to adaptive reuse, with their large open interior spaces. They are particularly significant as historic architectural relics from the Industrial Age. The

recycling of buildings has long been a method for protecting historic buildings from demolition (Bookout, 1990). The decline of industry in the early to mid-twentieth century has left a legacy of abandoned, idle, under-used dormant sites across the United States (Cantrell, 2005). Most of the buildings becoming available for adaptive re-use are located in urban city centers. The benefits of urban development, bringing individuals back to the city center are wide-ranging and long-term. They include the reduction of long commute times, out-of-town shopping, and a sense of community re-connection.

Why is Adaptive Reuse crucial to Sustainable construction?

"Green buildings" and sustainability are not synonymous, but historic preservation is a significant component of sustainable development. Demolishing historic buildings results in a three-fold impact on scarce resources:

First, demolition throws away embodied energy. Embodied energy being the total expenditure of energy involved in the creation of a building and its constituent materials. Much of the "green building" movement focuses on the annual energy use of a building, Yet the energy embodied in the construction of a building is 15 to 30 times the annual energy use.

Second, demolition replaces existing buildings with materials with much greater consumption of energy. Brick, plaster, concrete and timber are among the least energy consumptive of materials. Plastic, steel, vinyl and aluminum are among the most energy consumptive of materials.

Third, embodied energy savings increase dramatically as a building life stretches over fifty years. It is inaccurate to say a development plan is sustainable when historic buildings and their components are being demolished. Thus, sustainable construction

involves adaptive reuse of existing buildings.

Importance of Adaptive Re-use: Industrial Buildings

Preserving the industrial icons is important to maintaining the historic character and integrity of a city. Changes in industry have been so dramatic over the last century that certain areas of the United States have flourished, declined, and then relocated to other regions. For example, between 1890 and 1920, the textile industry flourished in the northeast, declined, moving to the southeast for greater profitability. This rapid shift in location was followed for almost a century of southern dominance, but globalization coupled with cheaper labor internationally, brought decline to the textile, as well as the furniture industry. Subsequently manufacturing mills and warehouses were abandoned as businesses closed. As a result of these economic circumstances, there were many deserted industrial buildings in the U.S. This created detrimental economic blight in many urban city centers (Cantrell, 2005).

When a building or a site loses its original function, it is possible to save it from abandonment or demolition by adapting it to a new use. This is a current practice world wide, particularly in the case of remarkable architecture that remains in good condition, as it is the case of many industrial areas. When a building of historic merit is preserved or restored for adaptive reuse, its cultural energy is also "recycled" (Bonda, 2005). History brought back to active life, and the elements of the built fabric — walls, floors, windows, doors, and roof — once again envelop a space to connect inside with outside to keep out the weather – still preserving the environment. Conversion of an existing building may be seen as more sustainable than new construction as re-use constitutes

conservation of scarce resources, reduction in consumption of materials and energy in construction, and resource management. According to Faulk (2006), 'the most convincing argument for conserving old buildings is the idea of minimization of waste. Old building represent past energy stored up in a useable form.' Adaptive re-use can be considered recycling, as it introduces much less waste and pollution into the environment than new construction. Also the process of re-use uses less new materials and less energy than new construction.

Adaptive Re-use: Studio Project

An innovative residential studio project provided the opportunity to engage interior design students in adaptive re-use design of an 1890's warehouse located in a revitalized urban downtown, which was translated into residential loft living. Through the research and identification of sustainable design applications and green materials, the students garnered an understanding and appreciation of cultural historic preservation while sustaining the health of the local community. This warehouse was an archetypal example of the abandoned warehouse district integral to the storage and transportation requirements of a once vital textile mill town. Through research of the Historic Preservation Commission regulations and codes for the building, students gained greater understanding on limitations and possibilities for designing for a historic adaptive reuse. This opportunity both challenged and inspired the students to process design solutions on multi-faceted levels. They were challenged by limitations of incorporating existing construction materials, architectural elements, while maintaining existing façade features for historic contextualism. Students were inspired by the character of existing materials (old hand-made brick, concrete floors, structural steel

columns, and picture windows), and the opportunity to creatively incorporate these elements.

One of studio focuses was on the environmental benefits of reusing buildings through the retention of the original building's "embodied energy." As attitudes towards sustainability and adaptive re-use have altered, the consideration of *embodied energy* has gained support (Faulk, 1993). Dan Kopec (2009) defines *embodied energy* as the energy consumed by all of the processes associated with the production of a building, from the acquisition of natural resources to product delivery, including mining, manufacturing of materials and equipment, transport and administrative functions. By reusing buildings, their embodied energy is retained, making the project much more environmentally sustainable than entirely new construction. New buildings have much higher embodied energy costs than buildings that are adaptively reused (Kopec, 2009).

Studio Project: Results

Students gained understanding that by circumventing the wasteful process of demolition and reconstruction there are environmental benefits of adaptive reuse. Such environmental benefits, combined with energy savings and the social advantage of recycling a valued heritage place make adaptive reuse of historic buildings an essential component of sustainable development. Old buildings preserve the local culture and identity and create a sense of belonging. In a way, we recycle embodied human resource energy along with material energy. We bring alive the past to be a part of the future, creating important connections through time.

Students' Studio Projects: Sustainable Methods Incorporated

Reuse existing materials in adaptive ways, such as wood floor, brick walls, and structural metal columns

- Use new materials with low environmental impact, such as insulated, Low E windows, recycled carpet
- Incorporate sustainable attributes into new design by using large amount of natural daylighting; energy efficient HVAC systems; wood flooring from certified sustainable forests; acoustical ceiling tiles with high recycled content; and biocomposite (made of recycled newspaper and soy bean fibers) concrete countertops, furniture of constructed of recycled wood, metal, and recycled textile.
- Water reclamation system for irrigation and household cleaning use
- Insulation of recycled paper products.

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Is House a Mirror of Self? – Revisited in an Ageing Community
The Psychology of Home Preferences for Residential Studio

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ABSTRACT

The concept of *home* depends on how individuals conceptualize the world around them (Cooper-Marcus, 1995). In environmental psychology, this is referred to as *place identity.* A sense of place develops when a level of comfort and feelings of safety are associated with a particular place, which for many people translates to a sense of belonging (Kopec, 2006). Whenever a psychologically supportive interior space is created, a sequence of expression-feedback-integration is fostered and simulated with that space (Jung, 1969). This is central to a larger process, when creating an environment to suit personal needs that allow them to feel at home. When their environment is created, they find themselves mirrored in it, seeing what had previously not been visible – a manifestation of that inner sense of self (Jung, 1986).

The interaction between people and their domestic environment has long been neglected in both interior design and psychology. Since, from early childhood, individuals change, growing in their psychological development which is punctuated with close, affective ties are created with their physical environment. The importance of understanding how individuals relate to their home environments is important to designing psychologically supportive interiors that meet the needs of the users. According to Kopec (2006), “the environment plays an intricate role in the overall psychological and physiological health of humans. “ How does the home environment

affect users in their middle age years? What are their choices on how they want to live? And why?

The interior design student is typically challenged with acquiring an in-depth understanding of client needs, beyond the student's personal preferences. The purpose of this course assignment was: 1) to generate self-reflection on what physical environment in childhood shaped the student's present preferences of interior space, and 2) how they can translate this self-understanding into a tool for understanding the psychological needs of future clients. The project assignment involved a reflective analysis of a favorite remembered place in childhood which is documented through a sketch, collage, and written narrative detailing the place and the experiences associated with it. The student was also requested to translate those reflections into present preferences of their 'ideal' home environment. These findings were both orally and visually presented to the class, followed by discussion. Certain issues emerged throughout student presentations: 1) need for autonomy from adults in childhood, 2) need for social interaction, and 3) freedom to create one's own environment. These issues were then translated into designing their 'ideal' home interior – in middle age years, in order to create psychologically supportive environments that reflect who they are. A greater understanding of the true meaning of *home* emerged.

This was a three-phase project assignment. Phase 1: Read: House is a Mirror of Self' by Claire Cooper Marcus; Phase 2: Involved a reflective analysis of a favorite remembered place in childhood which is documented through a sketch, collage, and written narrative detailing the place and the experiences associated with it, then the student was requested to translate those reflections into present preferences of their

‘ideal’ home environment. These findings were both orally and visually presented to the class, followed by discussion; Phase 3: Each student was required to interview four individuals (two males, two female) of the ‘Baby Boomer’ age group, developing a five-question survey instrument as to issues relative to remaining in their home, based on their readings of Cooper-Marcus’ study and their self-reflection exercise (Phase 1 and Phase 2). These findings were presented in a PowerPoint presentation to the class, followed by discussion.

NARRATIVE

Is House a Mirror of Self? – Revisited in an Ageing Community
The Psychology of Home Preferences for Residential Studio

The Concept of Home

The concept of *home* depends on how individuals conceptualize the world around them (Cooper-Marcus, 1995). It transcends the physical and identifies an emotional relationship with a place (Moore, 2002). In environmental psychology, this is referred to as *place identity.* A sense of place develops when a level of comfort and feelings of safety are associated with a particular place, which for many people translates to a sense of belonging (Kopec, 2006). Whenever a psychologically supportive interior space is created, a sequence of expression-feedback-integration is fostered and simulated with that space (Jung, 1969). This is central to a larger process, when creating an environment to suit personal needs that allow them to feel at home. When their environment is created, they find themselves mirrored in it, seeing what had previously not been visible – a manifestation of that inner sense of self (Jung, 1986).

The concept of *home* has been applied to a variety of places, which may include a person's country, town, city, birthplace, and family house. Even though house is separate from the concept of home, in that it identifies a specific form of physical shelter, the relationship between house and home is interwoven and reflective of both reality and the ideal (Moore, 2002). Home has been most frequently identified with emotions of affection, as a safe environment to escape the outside world.

In Norberg-Schultz's (1971) exploration of dwelling, describes it as 'the reciprocal relationship between humans and their natural environment.' Schultz characterizes

home as a refuge that supports personal expression, fulfilling an innate and unspoken need to retreat from the outside world. So home represents a familiar center in contrast to the unknown, where people linger and serves as a point of departure from which residents orient themselves. Consequently, based on the centrality of homes in people's lives, it is logical to to explore the role of domestic interior's ability to meet residents' needs and the quality of their daily experience. According to Cooper-Marcus (1995), the ability of an interior to support residents' activities such as dining together, influences the quality of the activity and the power to influence a person's daily experiences.

The concept of home identifies an emotional relationship between a person and their residence, whether it be positive or negative, is central to daily life. This central role accentuates the importance of the domestic environment's ability to support resident's daily activities. It is the quality of these seemingly small moments that create memories, shaping and enriching a person's daily experience. According to Relph (1976), 'to have roots in a place is to have a secure point from which to look out into the world, a firm grasp of one's own position in the order of things, and a significant spiritual and psychological attachment to somewhere in particular.'

The interaction between people and their domestic environment has long been neglected in both interior design and psychology. Since, from early childhood, individuals change, growing in their psychological development which is punctuated with close, affective ties are created with their physical environment. The importance of understanding how individuals relate to their home environments is important to designing psychologically supportive interiors that meet the needs of the users.

According to Kopec (2006), “the environment plays an intricate role in the overall psychological and physiological health of humans. “ How does the home environment affect users in their middle age years? What are their choices on how they want to live? And why?

Baby Boomers: Understanding their Unique Characteristics

With the ageing population in the United States, and the largest age group being the *Baby Boomers* (ages 47 to 64 years old), the need to support and understand choices of home is critically important to supporting this population in their ‘gray’ years. Remaining ‘in place’ by choice continues to grow in popularity. Surveys by the American Association of Retired Persons, found that more than 85 percent of Americans age 50 and older want to "stay in my own home and never move" (Carbo, 2009).

An aging society of Baby Boomers will have a very different sort of retirement. It is redefining retirement and how other generations perceive successful aging. Boomers are unique in their beliefs and their perspectives very different from past generations. This uniqueness affects every aspect of life: beliefs about themselves, their career, their leisure time, and choices in home. The likelihood is that they will work longer, initiate a second career, volunteer or go back to school. Baby Boomers desire is to enjoy a healthy existence, live comfortably, and age in familiar surroundings. Boomers plan to age gracefully, continuing a standard of living, lifestyle they worked many years to establish and intend on sustaining. Being a very individualistic generation Baby Boomers’ goals are to successfully age at home, not in a retirement or nursing facility. Just as every generation before them, many of the aging boomers will be diagnosed with chronic medical conditions and will face their own mortality, but Boomers will try

very hard to stop or control the aging process through exercise, anti-aging treatments and investigate alternative health treatments more than previous generations. And since Boomers have lived a very hectic lifestyle, and their leisure time is often interrupted by the many demands of life, they view home as a respite from the rest of the world.

Baby boomers are a generation that has sought fulfillment with self-help programs and community activities. *Successful aging* promotes the Boomer to be socially, mentally and physically active. They spend a lot of time volunteering and assisting to make their communities a better place to live and expect to age gracefully in their homes, remaining in their communities to volunteer. Baby boomers are comfortable with using computers and enjoy high tech products. Boomers will be open to technologies that will promote successful aging at home. They will also be open to technology that will be entertaining and fun. As the baby boomers begin to age gracefully, they will make demands for more products such as these, to assure activity and entertainment in their home.

Boomers plan for successful aging at home as they come to face the aging experience through their parents. As much as Boomers would like to ignore the fact that physical and mental changes occur during the aging process, they are dealing with facing their parents' mortality (Carbo, 2009). Boomers are faced with becoming caregivers of both their children and their parents. They are beginning to realize that they will have these experiences as they age and are now exploring avenues to successfully age at home

Home Preferences in Ageing Community: Studio Project

The interior design student is typically challenged with acquiring an in-depth understanding of client needs, beyond the student's personal preferences. The purpose of this course assignment was: 1) to generate self-reflection on what physical environment in childhood shaped the student's present preferences of interior space, and 2) how they can translate this self-understanding into a tool for understanding the psychological needs of future clients. This was a three-phase project assignment.

Phase 1: Read: House is a Mirror of Self' by Claire Cooper Marcus

Phase 2: Involved a reflective analysis of a favorite remembered place in childhood which is documented through a sketch, collage, and written narrative detailing the place and the experiences associated with it, then the student was requested to translate those reflections into present preferences of their 'ideal' home environment. These findings were both orally and visually presented to the class, followed by discussion.

Phase 3: Each student was required to interview four individuals (two males, two female) of the 'Baby Boomer' age group, developing a five-question survey instrument as to issues relative to remaining in their home, based on their readings of Cooper-Marcus' study and their self-reflection exercise (Phase 1 and Phase 2). These findings were presented in a PowerPoint presentation to the class, followed by discussion.

Studio Project: Results

Certain issues emerged throughout student presentations in Phase 2:

1) need for autonomy from adults in childhood, 2) need for social interaction, and 3) freedom to create one's own environment. Phase 3: These issues were then translated into a survey instrument that promoted understanding of parallel yet

opposing needs – in one's middle age years, in order to create psychologically and physiologically supportive environments that reflect who the users are, which promotes designs that allow Baby Boomers to remain in their homes as they age. A greater understanding of the true meaning of *home* emerged, as it relates at two polarized continuums of age.

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Learning from Our Own Live Experience
– collective phenomenological analysis of childhood experience

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ABSTRACT

When students come into a design studio, they do not come with blank minds, but their accumulated life experience. In the design process, they keep making reference to it consciously or subconsciously. When the design problem is designing a childcare facility, the students' childhood experience becomes even more relevant. Educators have been tapping into this fertile source of information in classroom (Boschetti, 1995).

In a sophomore design studio, the design problem was to design a childcare facility. The students were required to start the design with a recollection of their childhood spatial experience. The instruction for this first assignment was that the writing should be natural, descriptive, and specific. When the writings were collected, they were compiled into a single document and handed out to all the students. The students were required to read the collection of the recollections and conduct a thematic analysis to identify experiential themes and their design implications. This second assignment gave the students an opportunity to learn the childhood experience from each other and expand their personal horizons through the inter-subjective resonance. Although the theoretical framework of phenomenology was not formally introduced, the approach we took was indeed phenomenological (Seaman, 1993). The reason to make the

phenomenological approach implicit is to make the students focus on the life experience without being distracted by the theoretical and philosophical arguments. Different from using a group discussion method as applied in Boschetti's experiment (Boschetti, 1995), the recollection and analysis were completed individually in written form. In such a way, the students had no fear to reveal rather private experiences and personal circumstances. When the individual recollections were compiled, the students' names were not included so that the privacy of the students was protected. The textual form of the recollection transforms the transient reflections into something concrete and makes analysis easier.

From the phenomenological analysis of the collective recollections, the students found many important themes and derived many design implications. For example, from a recollection of 200 words, the students found seven important themes revealing that children are very sensitive to light, color, material texture, and scale. Some theme also shows children's need or preference for intimate spaces. This reconfirms previous studies on the intimate space issues (Friedmann and Thompson, 1995). The students' findings helped them to produce sensitive design solutions. It is important to notice that these findings are not simply a prosaic item list of things to consider. Each item is connected with vivid life-world stories and imageries, and remains poetic. It is interesting to notice that many students claim in their writings that they don't really remember much about their early childhood experience. This phenomenon may be explained by the infantile amnesia (Eacott and Crawley, 1998). This means that the findings from the students' recollections may only be used as a very general reference

for the purpose of design inspiration and they may not reflect children's experience of the interior space before the age of three.

NARRATIVE

When students come into a design studio, they do not come with blank minds, but their accumulated life experience. In the design process, they keep making reference to it consciously or subconsciously. It is actually behind all the statement of “I like this” or “I like that.” When the design problem is designing a childcare facility, the students’ childhood experience becomes even more relevant. Educators have been tapping into this fertile source of information in classroom (Boschetti, 1995).

In a sophomore design studio at Lawrence Technological University, the design problem was to design a childcare facility. In addition to meet all the functional requirements and relevant regulations and design guidelines, the design of the facility was expected to allow the primary users – the children – to have wonderful experiences in the designed spaces. This design challenge requires a profound understanding of the environmental psychology of children. One approach to meet this requirement is to look into the students’ own childhood experience.

The students were required to start the design with a recollection of their childhood spatial experience. The time and location of the experience is not restricted. It can be in a daycare or at home; it can be indoors or outside. The purpose of the exercise is to understand how children see and react to the environment around them. The instruction for this first assignment was that the writing should be natural with an open mind, descriptive, and specific. When the writings were collected, they were compiled into a single document and handed out to all the students. In such a way, the individual

recollections became a collective recollection. The students were required to read the collection of the recollections and conduct a thematic analysis to identify experiential themes and their design implications. This second assignment gave the students an opportunity to learn the childhood experience from each other and expand their personal horizons through the inter-subjective resonance. Although the theoretical framework of phenomenology was not formally introduced, the approach we took was indeed phenomenological (Seaman, 1993). The reason to make the phenomenological approach implicit is to make the students focus on the life experience without being distracted by the theoretical and philosophical arguments. Different from using a group discussion method as applied in Boschetti's experiment (Boschetti, 1995), the recollection and analysis were completed individually in written form. In such a way, the students had no fear to reveal rather private experiences and personal circumstances. When the individual recollections were compiled, the students' names were not included so that the privacy of the students was protected. The textual form of the recollection transforms the transient reflections into something concrete and makes analysis easier.

In the thematic analysis, the students first identify the keywords that reveal important themes. Then, the thematic keywords are annotated with definitions of experiential characters or meanings. Finally, the identified themes are summarized in the form of design implications.

From the phenomenological analysis of the collective recollections, the students found many important themes and derived many design implications. For example, from a

recollection of 200 words, (Fig. 1) the students found seven important themes revealing that children are very sensitive to light, color, material texture, and scale. Some theme also shows children's need or preference for intimate spaces. This reconfirms previous studies on the intimate space issues (Friedmann and Thompson, 1995). The students' findings helped them to produce sensitive design solutions. For example, in the conceptual sketch of a student, "sleeping caves" are created in response to the need of children for private and secrete hiding places as reflected in the student recollections. (Fig. 2)

It is important to notice that these findings are not simply a prosaic item list of things to consider. Each item is connected with vivid life-world stories and imageries, and remains poetic. It is interesting to notice that many students claim in their writings that they don't really remember much about their early childhood experience. This phenomenon may be explained by the infantile amnesia (Eacott and Crawley, 1998). This means that the findings from the students' recollections may only be used as a very general reference for the purpose of design inspiration and they may not reflect children's experience of the interior space before the age of three.

Most of the students recalled their favorite spaces and experiences, while some others described some rather adverse experiences of hardship. Both experiences of favorable and adverse conditions help the students to learn children's perception of the environment. For instance, the recollection of sleeping on piles of straw on cold concrete floor in a building without a door in a winter day reveals a stronger desire of a

warm and secure shelter. The recollections from students of different cultural or ethnic background reflect the cultural diversity in children's experience. For instance, the recollection of a student with middle-eastern ethnic background focuses on people, relatives of an extended family, and celebrations of life in family gatherings with a lot of food. In contrast, recollections of students from American suburban culture focus more on individual experiences. Although the number of students in the studio does not suffice for valid statistics, common themes may suggest shared sensitivity to some particular experiential characteristics of designed environment among children. Many recollections include vivid memory of colors and textures of the childhood environment, especially about the floor covering such as carpet or rugs. Therefore, imaginative use of color and texture are purposefully used in students' project to satisfy the need for the sensual stimulation of children. (Fig. 3) Another common theme of spatial experience found in many recollections of the students is about scale. Adjectives describing sizes are frequently used in the descriptions. Amazements of looking at the immense high ceiling of a gymnasium while laying down on the floor makes excellent illustration of the sensation about size and height from children's perspective. Excitement of being at a high space looking down at the adult world reveals the secrete and mischievous revenge of all children. Therefore, scale can cause a wonderful sensation and be a game.

The phenomenological analysis of the recollections generated ideas and sensitized the students in the poetic dimensions of design. As a result, the final designs of the students went beyond the simplistic functions and tried to satisfy the imaginative mind of

children. The naturally formed tall spaces with catwalk suspended in the air produced by a student, (Fig. 4) for example, is not a formalistic imitation of Frank Gehry, but a phenomenological response to entertain children's poetic curiosity.

A common problem of writing the childhood recollection is too much rationalization. If one enters the analytical mode while writing the recollection, he or she will tint the childhood experience with the color of adult thinking and suffocate the life in the recollection. As adult, people try to be conclusive, and rationally clear about what they say. A student actually failed to produce a recollection because he felt that he could not be certain about his childhood experience.

The case of adverse experience found in the student's recollection indicates that bad experience can be as useful to design as best experiences. We can learn from our past experience regardless of its nature. Previous studies and experiments have usually focused on positive past experience, more study and experiment on the use of recollections of adverse experience to inform design can be conducted in the future.

The experiment on the use of recollection of childhood experience to inform interior design demonstrate that this phenomenological approach to design can be effective for the students to obtain profound understanding of the needs of children at the poetic level of the human existence.

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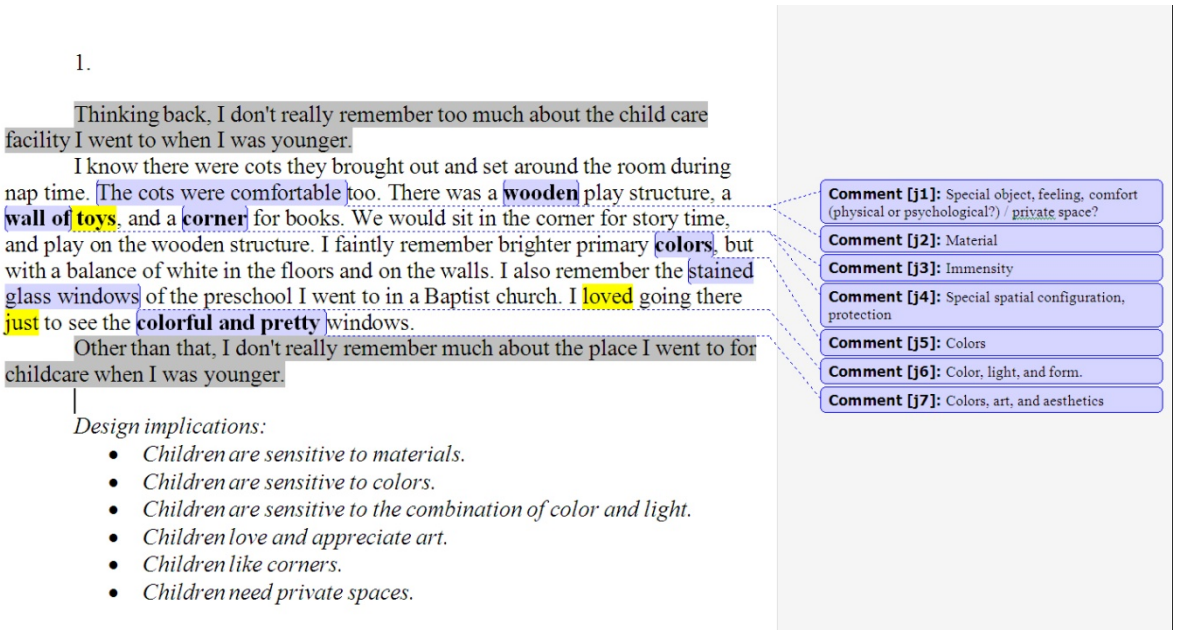

Figure 1. Example of student recollection of childhood experience and phenomenological analysis.

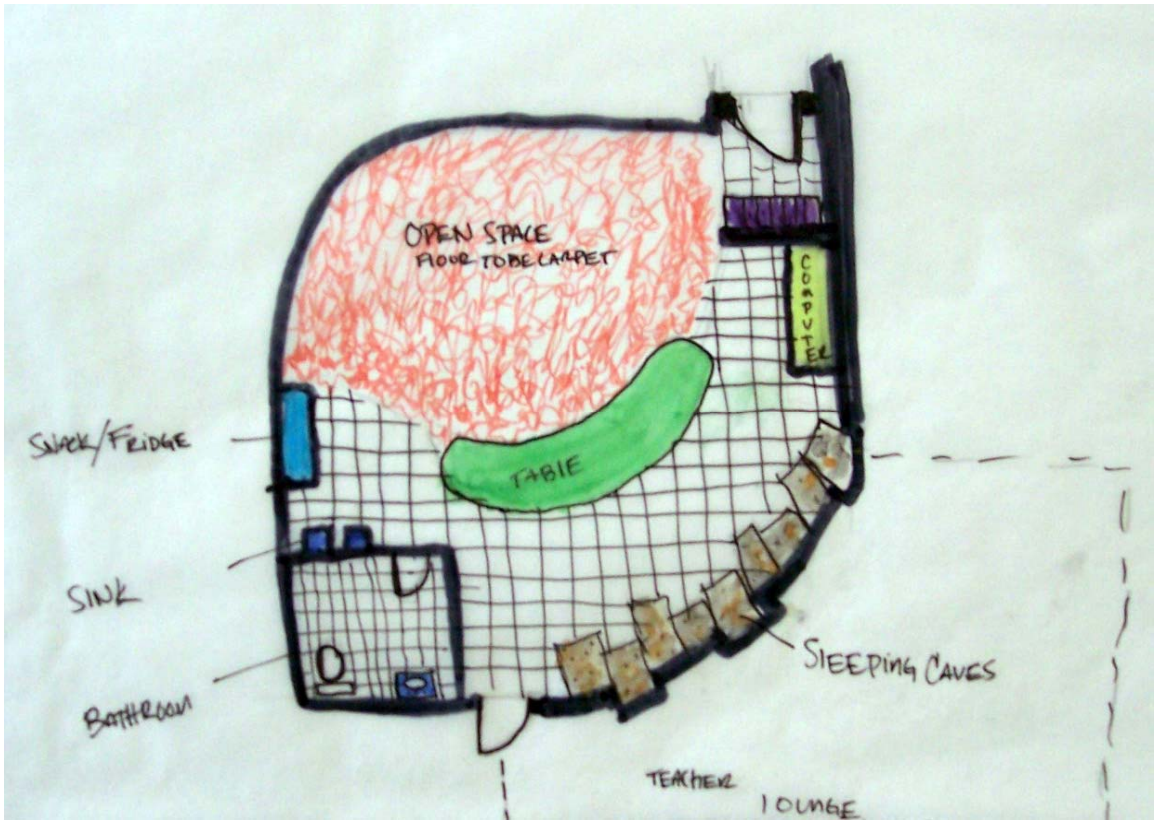

Figure 2. Student first sketch reflecting experiential themes such as need for intimate spaces.

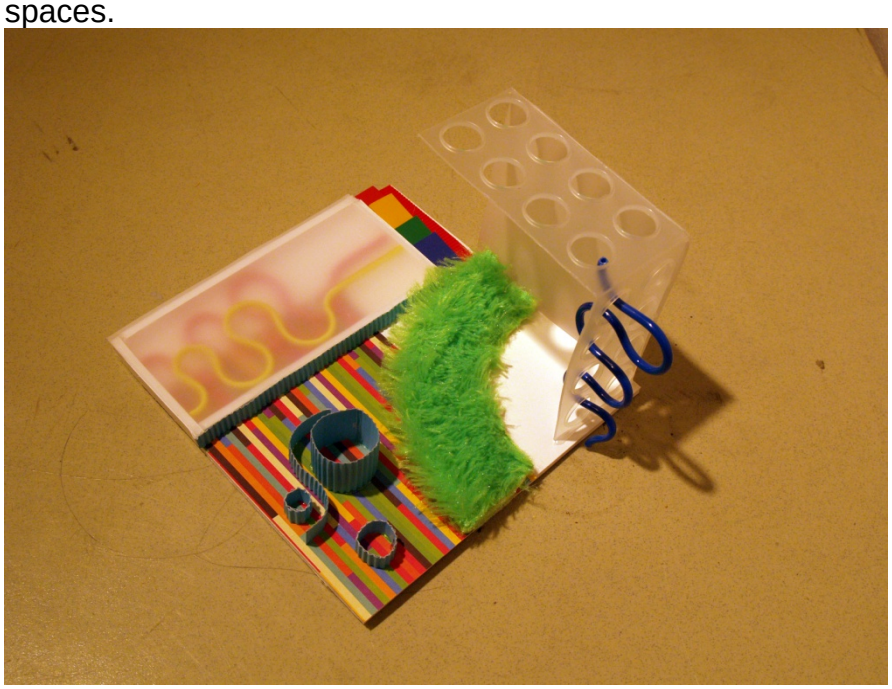
Figure 3. Conceptual material assembly reflecting children's preference of color and texture.

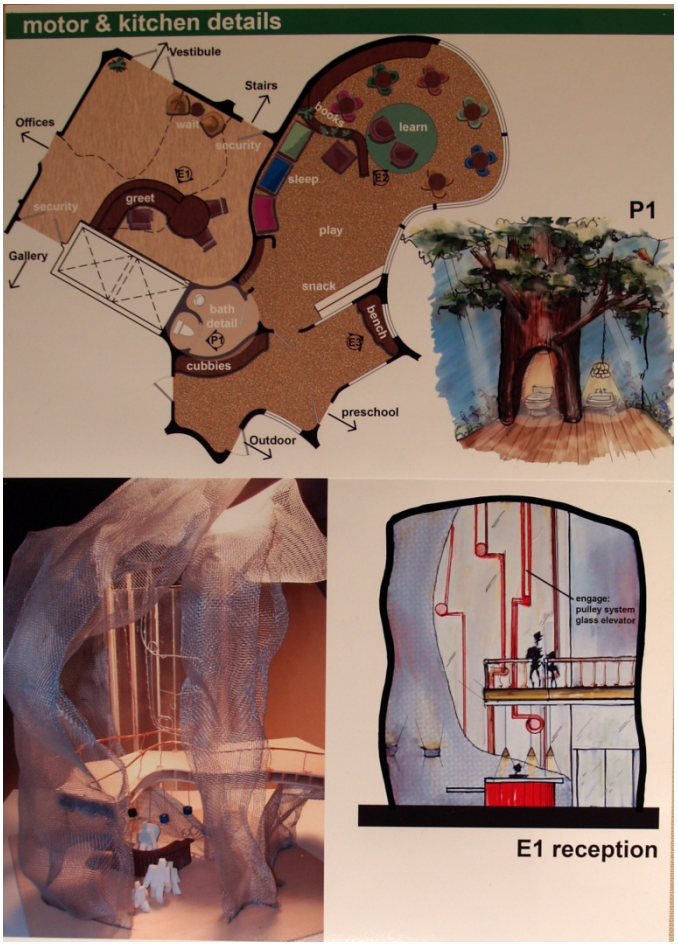

Figure 4. Example of student's final design proposal.

Modernization of Artistic Methods in Design Exploration

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Lawrence Technological University

ABSTRACT

Realistic sketching has traditionally been a major means of design exploration in the interior design process. Even initial conceptual ideation depends on realistic depiction of architectural forms or spaces. Although the significance of sketching has been challenged by the emergence of digital technology in recent years, most educators still believe in sketching as the way to initiate a design (Bilda and Demirkan, 2003; Brandon, 2001). As a traditional art form, sketching sharpens a designer's ability in developing shape and form, particularly through use of shade and shadow. But at the same time, sketching can limit a designer by only allowing exploration of one or two views of a project. New art forms developed after the Renaissance (Hay, 2000), expanded the horizons of artists and developed new sensibility beyond the traditional modes of artistic exploration. The question is whether other ideation methods can help designers more effectively and creatively explore their design ideas.

Installation art has recently been applied as a tool for exploring conceptual ideas for interior designs (Whitney, 2006). This method has also been used as a means of design presentation to create a more holistic experience of designed interiors (Feng, 2007). Based on this preliminary research, a case study was developed to examine the

application of installation art into the early phases of a design process to determine whether this method would allow students to develop new ideas more effectively than just use of sketching. This study focused on integration of conceptual ideas, form, materiality, and lighting in an interior design project.

The case study took place in a sophomore design studio. Students were initially assigned to produce a small art installation in the form of a conceptual material assembly to explore the design through dynamic interaction of material, light, form, and other aspects that might emerge from the interplay of design elements. Then, the students were required to produce a full scale art installation with interactive and immersive experience to further develop the initial concept.

The students took materiality and lighting effects of both materials and forms into consideration prior to the development of a spatial scheme. As a result, they obtained insight on the interaction of light, color, texture, and form, and used it to inform the spatial scheme of the design. Through the assignments, students became sensitive to the emphasized aspects of experiential qualities in materiality and lighting.

Students' final projects were compared with projects from other sections of the sophomore studio where sketching was the primary method of concept and design development. Examination of these projects revealed that the conceptual exploration of interior design is not a simple linear process with a single entry point. While traditional sketching is one way to start a design project, scale models and full scale installations

focused on aspects of the design that are volumetric and three dimensional, such as materiality and lighting, result in a more thorough understanding of these design elements. The result was a more creative application of lighting and materials in the final design solutions.

NARRATIVE

In the interior design process, sketch in realistic style has been the major means of design exploration. Even initial conceptual ideation depends on realistic depiction of architectural forms or spaces. Although the significance of sketching has been challenged by the emergence of digital technology in recent years, most educators still believe in sketching as the way to initiate a design (Bilda and Demirkan, 2003; Brandon, 2001). As a traditional art form, sketching sharpens a designer's ability in developing shape and form, particularly through use of shade and shadow. But at the same time, sketching can limit a designer by only allowing exploration of one or two views of a project. New art forms developed after the Renaissance (Hay, 2000), expanded the horizons of artists and developed new sensibility beyond the traditional modes of artistic exploration. The question is whether other ideation methods can help designers more effectively and creatively explore their design ideas.

Installation art has recently been applied as a tool for exploring conceptual ideas for interior designs (Whitney, 2006). This method has also been used as a means of design presentation to create a more holistic experience of designed interiors (Feng, 2007). Based on these ideas and previous experiments, a case study was developed to examine the application of installation art into the early phases of a design process to determine whether this method would allow students to develop new ideas more effectively than just use of sketching. This study focused on the integration of conceptual ideas, architectural form, materiality, and lighting in an integrated design studio project.

The case study took place in a sophomore level integrated design studio at Lawrence Technological University. The studio has three instructional components: architecture, interior design, and lighting design, taught by three instructors representing each of the three disciplines. The problem was to design a retail space. Instead of starting the design exploration with sketch, students were initially assigned to produce a small art installation in the form of a conceptual material assembly to explore the design through dynamic interaction of material, light, form, and other aspects that might emerge from the interplay of design elements.

As introduced in interior design textbooks (Jones and Allen, 2004), an interior design project begins with adjacency matrix and bubble diagram, followed by sketches of floor plans. Sketches of 3D development and initial finish material sample selections are at the end of schematic design to illustrate the design for presentation. In such an approach, the use of sketch is in the order of from 2D to 3D, and the 3D sketches exploring the spatial forms are separated from finish material considerations. Lighting is most likely to be an afterthought after all the rest is determined. With the weakened instruction on shade and shadow in sketch, the integration of lighting in the initial design exploration through sketch becomes technically difficult. In our experiment with installation art, we wanted to challenge the conventional design approach that is supported by traditional style sketches. In the initial assignment, the students took materiality and lighting effects of both materials and forms into consideration prior to the development of a spatial scheme. As a result, they obtained insight on the interaction of

light, color, texture, and form, and used it to inform the spatial scheme of the design. Through the assignments, students became sensitive to the emphasized aspects of experiential qualities in materiality and lighting.

In the initial exploration of materiality and lighting, a student was inspired by unconventional openness of artistic expression in installation art. With the goal of integrating form, light, and materials in his mind, the student explored the dynamic interaction of colored liquids between films under light, and used the projected animation of the flowing colors on translucent surfaces as his answer to the challenge of integration. (Fig. 1) In this example, the unconventional artistic approach employed by the student shows the impact of installation art as an art form different from the traditional architectural sketch. The student obtained a new artistic freedom to explore the essential qualities of the design from new perspectives that are not available through traditional sketches. The resulting idea of dynamic interior surfaces materialized by light is creative and intriguing. Based on the small installation of light, color, and form, the student worked out the interior architectural spaces. (Fig. 2) This process is totally different from the traditional assumption that interior design that deals with materials and lighting follows the design of the architectural form. The explorations of materials, light, and logic of installation, came before the creation of the architectural shell. The student studied the effects of a lighting projection on the architectural model indicating the sensitivity to light aroused through the installation assignment. The conceptual studies resulted in the development of the architectural form through the combination of materials, structure and light.

After the initial small installation assignment, the students were required to produce a full scale art installation with interactive and immersive experience to further develop the initial concept. (Fig. 3) The construction and installation of the designed artifact added an additional dimension of the student experience of physical interaction with the design. It is an important step beyond “paper interior design.” Students were able to experience their own and other students’ concepts in full scale space and were able to interact with many of these installations.

The design studio had eleven sections. Comparison of the students’ final design with projects from other sections where sketching was the primary method of concept and design development revealed the impact of using art installation as a means of initial design exploration. Student projects of comparable grade were selected for comparison. (Fig. 4) The student work using art installation appears to have a higher degree of integration of form, light, and materiality. The materials of the comparison group appear to be more applied than intrinsic to the interior elements. The lighting appears to be more conventional in terms of interaction with other interior elements.

In the design process, students were allowed to use traditional style sketch to explore the interior spaces and lighting concept. (Fig. 5) Reflecting on the purpose of the traditional style sketches and the design issues they address, we realized both the value and limitation of traditional style sketching in the formal exploration of the interior

spaces. We found that a combination of artistic methods can enhance the creative process of design exploration.

Limited by the small number of students in the studio, we have no intention to draw generalized conclusions about the effect of using art installation in the interior design process. The student projects produced with different artistic methods, however, demonstrate that the conceptual exploration of interior design is not a simple linear process with a single entry point. Traditional sketching is only one way to start a design project and to explore the design possibilities. Art installation as a relatively new art form can be effectively used in the interior design process. Because of its openness in method and medium, art installation has great potential to integrate related aspects of interior design, and to stimulate the students' creativity in the design process. The traditional artistic method of design represented by sketching on "onion skin" should be modernized by including more contemporary artistic methods such as art installation to enrich and enhance the design.

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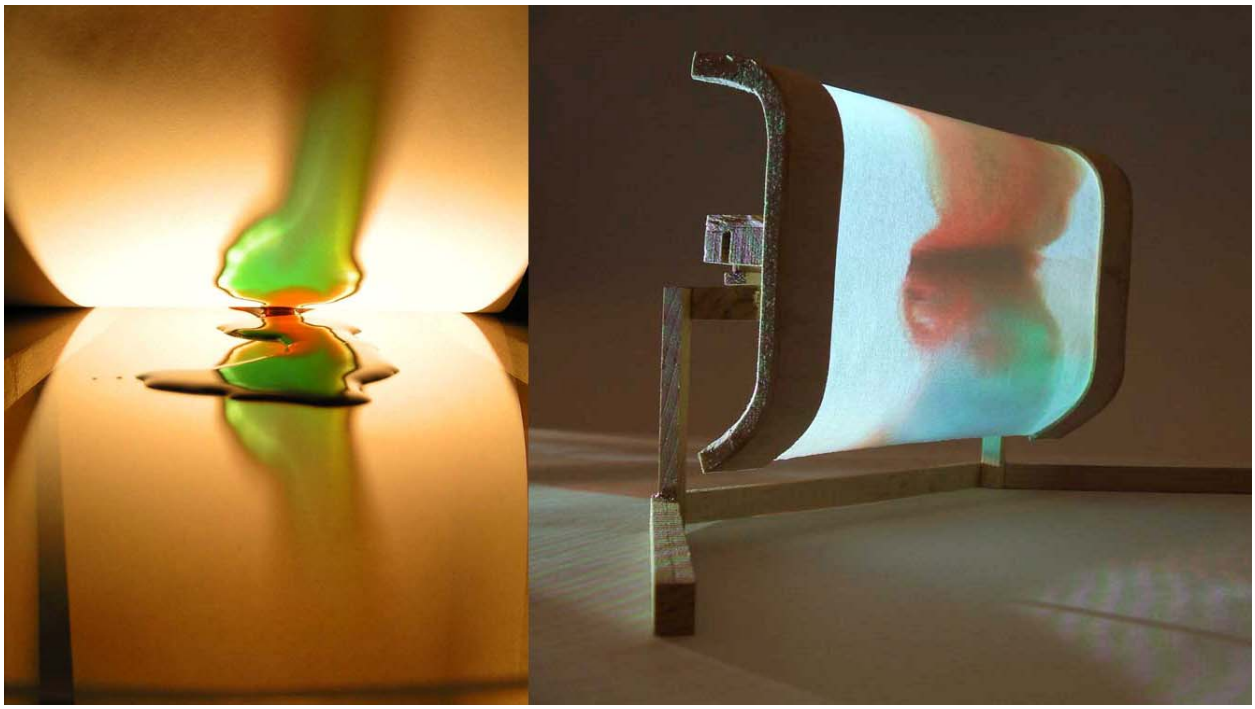


Figure 1. Initial design exploration in art installation and conceptual material assembly.

Figure 2. Study of dynamic interaction of Light, material, color, and space.

Figure 3. Integration of light, form, and materiality in art installation.

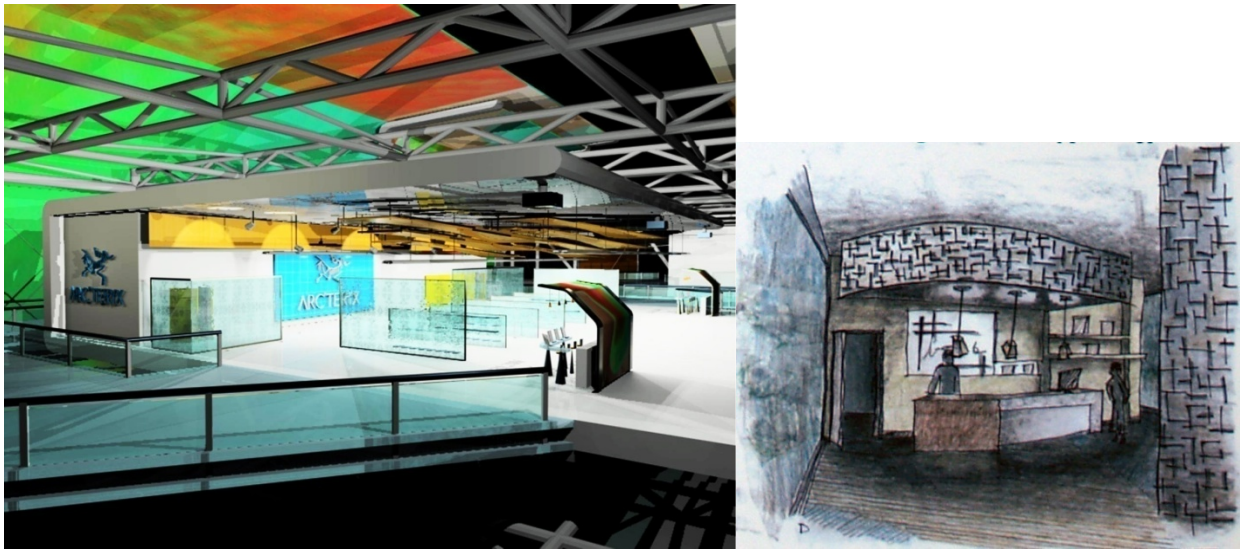
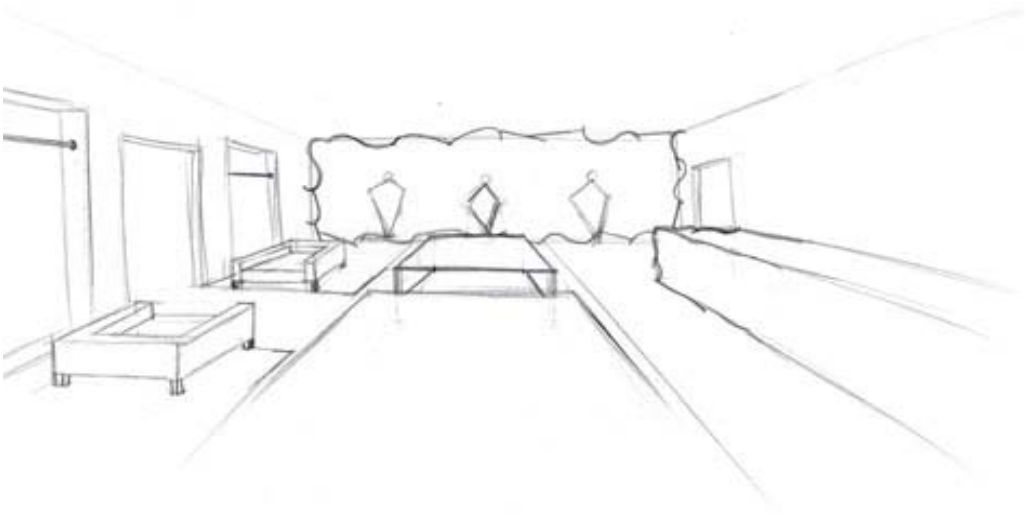


Figure 4. Comparison of final designs produced with different approaches.



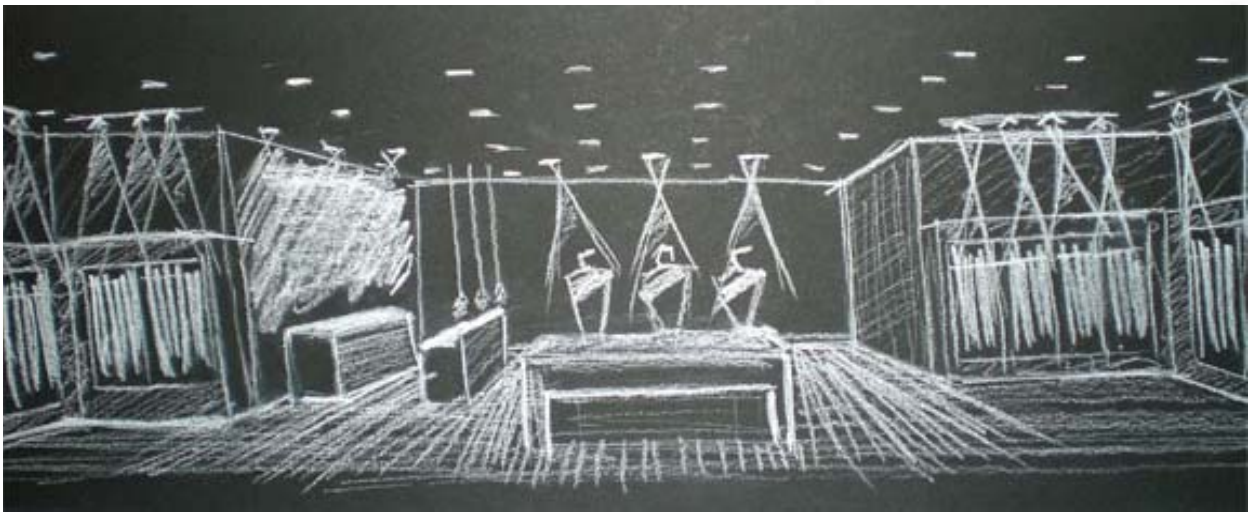


Figure 5. Traditional style sketch.

POE Instrument Development to Determine the Relationship of Occupants' Satisfaction, Performance, Sustainability Ethic, and Behavior Change in Sustainable Buildings

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ABSTRACT

Purpose

The purpose of this project was to develop a self-administered, Internet-based, post-occupancy evaluation instrument that is valid and reliable. The findings from each stage in the instrument development are also analyzed to identify any relationship of sustainable design criteria to occupant satisfaction, performance, sustainability ethic, and behavior change.

Method

Development of a reliable and valid instrument is a multi-stage procedure of data collection, data analysis, and confirmatory analysis via a second data collection. The instrument was first developed from sustainable design criteria and pre-tested for readability, ease of use, and clarity. Revisions were made to statements used, then the instrument was given to 200 occupants in a county service center sustainable building occupied within the last 18 months. The statements are then analyzed for coherency with the construct for validity. Factor analysis will be used to identify the subdimensions or factors of each construct for reliability. The second stage of the procedure will be to do confirmatory analysis with a second set of data. Instrument changes will be completed and prepared for new data collection.

Even during instrument development and testing, the data can be analyzed to respond to the purpose of the study. For this analysis, a 7-point Likert-type scale is being used to determine occupants' satisfaction with their workspace, perception that the workspace hinders or enhances their performance, and importance of sustainable design process (sustainable ethic). Behavior change is being measured for certain actions carried out between occupants' current building and their former building. The data are being collected now; the results of the study are due to the client in January 2009.

Importance of the Study

The development of a valid and reliable instrument is an important step in sustainable building design progress, especially as these findings relate to occupant behavior, not building operations (Center for Building…, 2007).The importance of developing this type of instrument cannot be understated. Assessment of existing POE instruments for sustainable design show some limitations:

1. Existing instruments do not adequately and reliably measure employee satisfaction and performance in relation to sustainable design criteria.
2. Occupants often cannot answer questions accurately (e.g., "How many feet from a window is your workstation?").
3. Questions are written ambiguously making data interpretation difficult.
4. Frequently, the data are aggregate data and cannot be analyzed as individual respondent data.
5. Many instruments are not adequately pre-tested/piloted, have not been written in easily understood language, and have not been statistically evaluated for reliability and validity.

Relevance to Interior Design

This study will provide interior design researchers with a valid and reliable instrument to assess the relationship of occupants to sustainably designed environments. Business owners must stabilize and retain employees through improving their well-being, which is related to their satisfaction with their physical environment and their perception of their performance (Heerwagen, 2002; Needy, et al, 2004). Sustainable design metrics must begin to include occupants' satisfaction and performance in sustainable buildings, their sustainable ethic, and their changed behavior (Dietsche, 2008, Director of Research, USGBC, personal communication). This presentation will focus on procedures used to create a valid and reliable instrument and the results of the POE: occupants' satisfaction, performance, sustainable design ethic, and behavior change as related to sustainable design.

NARRATIVE

Purpose

The purpose of this project was to develop a self-administered, Internet-based, post-occupancy evaluation instrument that is valid and reliable. The secondary purpose is to identify which sustainable design criteria are related to occupant satisfaction, performance, sustainable ethic, and behavior.

The development of a valid and reliable instrument is an important step in sustainable building design progress, especially as these findings relate to occupant behavior, not building operations (Center for Building…, 2007). The importance of developing this type of instrument cannot be understated. Assessment of existing POE instruments for sustainable design show several limitations:

1. Existing instruments do not adequately and reliably measure employee satisfaction and performance in relation to sustainable design criteria.
2. Occupants often cannot answer questions accurately (e.g., “How many feet from a window is your workstation?”).
3. Questions are written ambiguously making data interpretation difficult.
4. Frequently, the data are aggregate data and cannot be analyzed as individual respondent data.
5. Many instruments are not adequately pre-tested/piloted, have not been written in easily understood language, and have not been statistically evaluated for reliability and validity.

Method

This presentation relates the method used to develop a reliable and valid instrument, which is a multi-stage procedure of data collection, data analysis, and

confirmatory analysis via a second data collection. The instrument was first developed from the B3 (Buildings, Benchmarks, and Beyond) Sustainable Design Guide developed by the University of Minnesota's Center for Sustainable Building Research (see http://www.sustainabledesignguide.umn.edu/). Each guideline has several indicators, and we developed one or more statements (questions) for each indicator to which occupants respond. The instrument is "customized" for each building to include the specific indicators used in the sustainable design of that building. The idea is to have a 'question bank' from which to draw the statements so that a database can be developed to be able to compare variables across buildings.

There are four constructs for which statements were developed; all will be measured on a 7-point Likert-type scale (#1-3) or by number of actions (#4).

1. Occupant Satisfaction: Responses will range from Very dissatisfied (0) to Very Satisfaction (7)
2. Occupant Performance (perceived): Responses will range from Environment Hinders Performance (0) to Environment Enhances Performance (7)
3. Occupant Sustainability Ethic: Responses will range from This is… Very Unimportant to Me (0) to Very Important to Me (7)
4. Occupant Behavior Change: Responses will be quantified as a number that relates to the specific activity, e.g., Current Number of Times (days/week; times/day, etc.) to Previous Number of Times (post-move to pre-move)

A 7-point scale is appropriate to use as it accounts for greater variability in the data. Respondents often do not use the two end points in a scale, so a 5-point scale is effectively reduced to a 3-point scale. A "No Opinion" response option will be included

sparingly for statements where it makes sense, generally the sustainable ethic statements. We want to reduce the missing data and not force people into a numerical response, but also not give them an easy answer to all questions.

Prior to piloting, the instrument was pre-tested for readability, ease of use, and clarity. Revisions were made to statements used, then the instrument was given to 200 occupants in two newly design and constructed county service center sustainable buildings occupied within the last 18 months. The statements were then analyzed for coherency with the construct for validity and then analyzed for reliability.

Validity

Coherency of each statement to the construct is being judged by the researchers who have developed the instrument based on our experience, knowledge, and literature. Additionally, we will use some questions from other POE studies on satisfaction and performance e.g., Center for Built Environment, UC-Berkley, regardless of whether or not they are used in sustainable design studies.

Reliability

To develop uni-dimensionality, factor analysis will be used to identify the sub-dimensions or factors of each construct. A view of the data after running factor analysis will help us determine at what level we will cut it off. It is common in behavioral research to use .4 and .5 (Chronbach's alpha). After we identify those constructs that are reliably measured, we will complete a confirmatory analysis with another building. We considered only collecting data from half of the occupants, then do half of the occupants for confirmation. The two county service centers have approximately the same number of occupants, same tasks, same architect, similar number of square feet, etc., so, we

could do one building first, then the second building. However, this does not seem very realistic for the client. Surveying only half at one time, while it could provide us with adequate data for analysis, may not be very pleasing to the client. It also leaves half of the occupants wondering why they were not chosen; sharing of information that may contaminate the data for the second half. The need to bring the client's project to closure, indicated we will survey the entire sample and do confirmatory data collection and analysis on other buildings.

Analysis

Regression analysis will be used to explain the variance and predict design criteria that reflect the constructs. We will also ask some overall questions:

- Overall, how satisfied are you with your workplace?
- Overall, do you believe your workplace hinders or enhances your performance?
- Overall, how important is sustainable building practice?
- Overall, have you changed your behaviors (give some examples…?) since moving into this building?

The overall questions are used to confirm and compare indicators to the overall intent of a design criterion. Each set of questions was placed in the instrument so that they did not have a certain place (beginning or end of the related set of questions), but to randomly change their position, as well as position of other questions or question sets, to reduce the order effect. With four questions sets, the order in which they were asked was changed, and we changed the order of the questions within a set. Demographic questions were placed at the end of the instrument to reduce the off-putting effect of private questions.

Implications

After we have developed valid and reliable questions for the B3 instrument, we will use this knowledge to develop POE instruments for the LEED™ Guidelines.

Relevance to Interior Design

This study will provide interior design researchers with a valid and reliable instrument to assess the relationship of occupants to sustainably designed environments. Business owners must stabilize and retain employees through improving their well-being, which is related to their satisfaction with their physical environment and their perception of their performance (Heerwagen, 2002; Needy, et al, 2004). Sustainable design metrics must begin to include occupants' satisfaction and performance in sustainable buildings, their sustainable ethic, and their changed behavior (Dietsche, 2008, Director of Research, USGBC, personal communication). This presentation will focus on procedures used to create a valid and reliable instrument and the preliminary results of the POE: occupants' satisfaction, performance, sustainable design ethic, and behavior change as related to sustainable design.

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Music as Design Inspiration: A Cross-Disciplinary Exercise

Exploring Elements and Principles of Music and Design

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ABSTRACT

Purpose

This presentation describes the development of a design studio exercise requiring students to listen to music, create two dimensional representations of that music, and develop these representations into three dimensional interior designs. The exercise uses the transition from auditory perception into visual and spatial thinking to help students creatively conceptualize, which breaks down left-brain problem-solving dominance. In *Drawing on the Right Side of the Brain,* Edwards quotes a finding by Sperry that "the human brain uses two fundamentally different modes of thinking, one verbal, analytic, and sequential, and one visual, perceptual, and simultaneous…." Edwards labels these modes "left-brain" (verbal/analytic/sequential) and "right-brain" (visual/perceptual/simultaneous), and notes that right-brain thinking seems critical to drawing and other creative acts. (Edwards, 1999. p.xii) Introducing music into the design process encourages students to step away from left-brain, rational, problem-

solving mode, and to allow more imagination to enter their creative process. They develop more nuanced designs and design processes, by relating musical structure to elements and principles of design in the creation of interior spaces.

Process

Music is introduced as a design tool, one that students are familiar with but not familiar working with. In this exercise, students listen several times to a piece of music, and create a series of abstract drawings based on their impressions. They use line, shape, texture, color, and value. The resultant drawings generate a model which students use as the basis of their design for a residential or commercial space. The drawing also may serve as a generator for patterns or elements within the space.

Relevance to the Profession

Many designers and students do not reach for deeper sources of design inspiration than magazines or online images. This “left-brain” approach looks for the most direct, linear, “easy” solution to a problem. Too often, the design process starts with selection of furniture and then ends with selection of finishes. There is a lack of exploration and of thinking about space rather than about objects. Introducing the medium of music into the creative process expands the mind and the design possibilities; it allows the more intuitive, holistic right-brain a greater share in the design process. Since “… qualities of being adventurous, imaginative, and inventive are perceived as important traits across allied design … fields,” (Portillo, 2002. p.23) this exercise is designed to embed creative exploration in students’ design process, a process they will carry with them into professional practice.

Conclusion

The process of the exercise encourages creativity and complex problem solving. Students have reported, after using this exercise in class, that the exercise helped lead them to new sources of inspiration, strengthen their creativity, and think and visualize in new ways. One student summarized her class experience thus: “Now, every time I listen to the radio or a CD, visions of abstract and geometric forms will be floating through my head.” (Kraynock, 2006)

NARRATIVE

Purpose

This presentation describes the development of a design studio exercise requiring students to listen to music, create two dimensional representations of that music, and develop these representations into three dimensional interior designs. The exercise uses the transition from auditory perception into visual and spatial thinking to help students creatively conceptualize, breaking left-brain problem-solving dominance. In *Drawing on the Right Side of the Brain,* Edwards quotes a finding by Sperry that "the human brain uses two fundamentally different modes of thinking, one verbal, analytic, and sequential, and one visual, perceptual, and simultaneous…." Edwards labels these modes "left-brain" (verbal/analytic/sequential) and "right-brain" (visual/perceptual/ simultaneous), and notes that right-brain thinking seems critical to drawing and other creative acts. (Edwards, 1999. p.xii) Introducing music into their design process encourages students to step away from left-brain, rational, problem-solving mode, and to allow more imagination to enter their creative process. They can develop more nuanced designs and design processes, by relating musical structure to elements and principles of design in the creation of interior spaces.

Background

This exercise looks at how creativity can be enhanced in studio courses.

The literature of psychology suggests that creativity can be enhanced, that it is worthwhile to attempt this enhancement, and that introducing "divergent thinking" may encourage such enhancement. Nickerson believes that enhancement of creativity is

possible, and that the challenge is to discover more effective approaches of bringing it about. Among important aspects of creative thinking is the "ability to see things from different perspectives, especially novel or unusual perspectives." (Nickerson, 1999, p. 410) Csiksczentmihalyi points out that divergent thinking has been extensively studied as a "creative cognitive style", and has been related to creative originality. (Csiksczentmihalyi, 1999) Earlier, Mednick suggested that the juxtaposition and correlation of remote, apparently unrelated ideas will be more likely to produce strong creative products. Starko devoted her book *Creativity in the Classroom: Schools of Curious Delight*, to the proposition that creativity can indeed be enhanced. One of her many exercises to address creativity enhancement is Random Input, which pairs the subject under consideration with a completely unrelated subject, to spark exploration of their potential interrelations.

Process

Goethe's quote that "Architecture is frozen music" suggests a relation between these two disciplines. According to Sheridan and Van Lengen, "Vitruvius devoted as much text in *The Ten Books on Architecture* to sound, music, and acoustics as he did to site design, materials, and color". (Sheridan & Van Lengen, 2003, p. 38) Both disciplines utilize design elements to structure their productions. In the design of the Stretto House in Dallas, Steven Holl based his design on both a waterscape of ponds and dams on the property, and on Béla Bartók's *Music for Strings, Percussion and Celeste*. Both water and music offered Holl a continuous movement over "obstacles", which inspired the interaction of forms through the house. The division of the stream into ponds, and of the piece of music into movements, led to Holl's creation of spatial

“dams” – heavy masonry pavilions that interrupt and modulate the flow of the house’s glass walls and wave-like roofs. Here the rhythms and structure of music have created a powerful model for a powerful piece of architectural design.

Through the Music as Design exercise, music is introduced as a “random input” design tool in several design studios. The fact that MP3 players are owned by well over 22 million Americans (iPodpalace.com, 2005) and that the Apple store has recorded upwards of 100 million downloads over a 60 day period (Complemedia, 2008), indicate the ubiquity of music in our lives. It is a medium that most students are familiar with, but not familiar working with as a visual design tool.

In this exercise, students listen several times to pieces of music. They are encouraged to note the various structural elements in the piece, and how they relate to each other: melodic and harmonic lines, rhythm, color, and movement. They then use the visual elements of line, shape, texture, color, and value to create a series of abstract drawings based on their impressions from the music. The resultant drawings generate a model or plan which students use as the basis of their design for a residential or commercial space. The drawings also may serve as a generator for patterns or elements within the space.

Relevance to the Profession

This exercise is designed to embed creative exploration in students’ design process, a process they will carry with them into professional practice. Many designers and students do not reach for deeper sources of design inspiration than magazines or online images. This “left-brain” approach looks for the most direct, linear, “easy” solution to a problem. Too often, the design process starts with selection of furniture,

proceeds directly to the selection of finishes, and ends there. There is a lack of exploration and of thinking about space rather than about objects. Introducing the medium of music into the creative process expands the mind and the design possibilities. Since "… qualities of being adventurous, imaginative, and inventive are perceived as important traits across allied design … fields," (Portillo, 2002. p.23) this exercise has the potential to add value to students' education by strengthening these valued traits in them.

Conclusion

The random input process of this exercise encourages creativity and complex problem solving. Students have reported, after using this exercise in class, that the exercise helped lead them to new sources of inspiration, strengthen their creativity, and think and visualize in new ways. One student summarized her class experience thus: "Now, every time I listen to the radio or a CD, visions of abstract and geometric forms will be floating through my head." (Kraynock, 2006)

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Figures

Figure 1: Student boards and models from the exercise Music as Form.

Figure 2: On the right is a “stream of consciousness” drawing to Vivaldi’s Four Seasons. On the left is the process of uncovering the structure of the music and illustrating it graphically and 3-dimensionally.

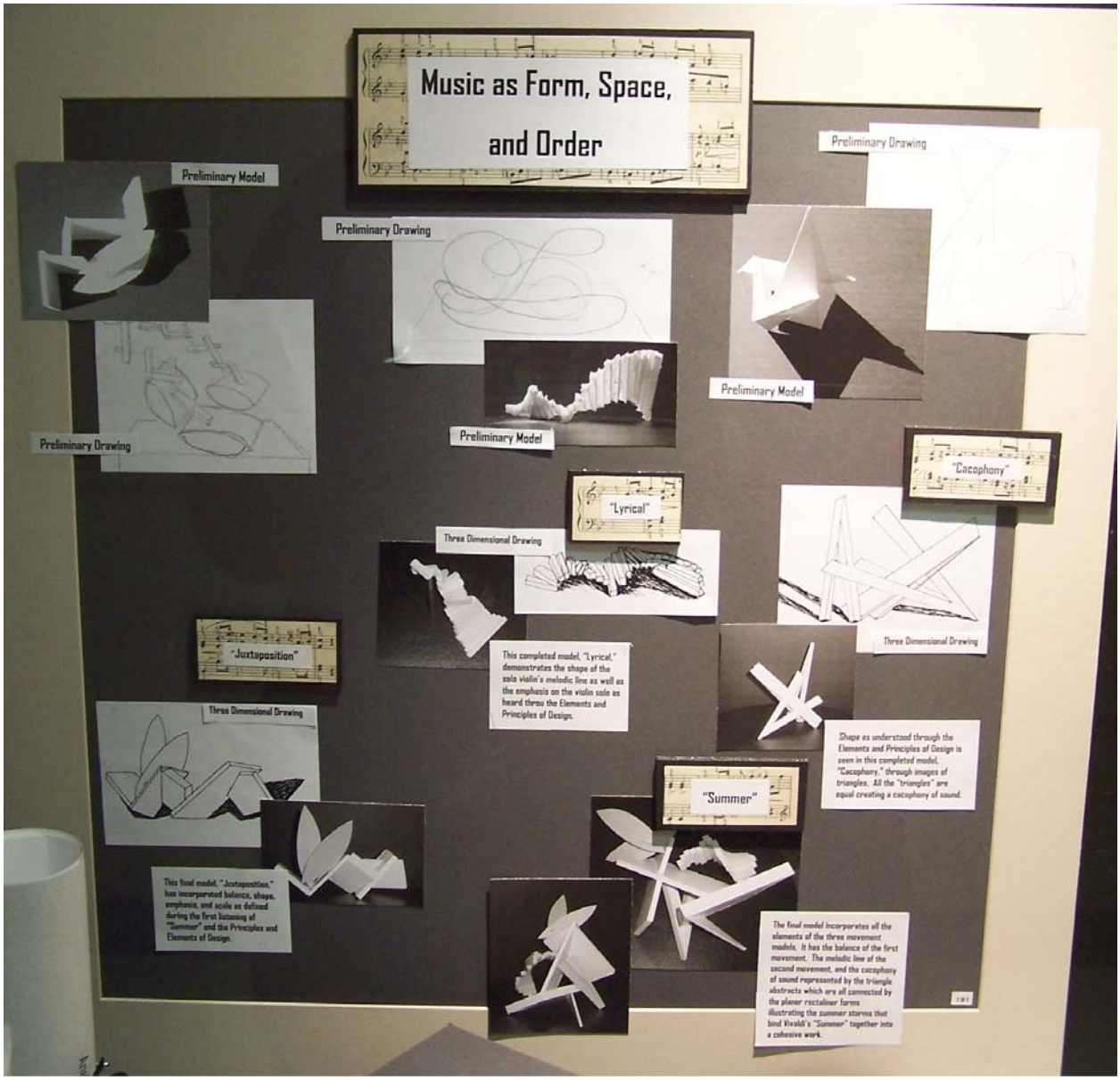

Figure 3: This board represents the movement from 2-D to 3-D development of images.

Figure 4: This image is representative of the Winter movement of Vivaldi's Four Seasons. The absence of color is deliberate to represent the shortened days and absence of color in the environment.

Figure 5: This project represents Autumn. The model on the right represents the blending of the individual parts of the movement (smaller models) into a cohesive voice of the whole movement.

Tackle This: A Case Study of Residence Hall Design Collaboration Focused on University Athletes

Paulette R. Hebert, Ph.D.

Oklahoma State University

ABSTRACT

Background

Inadequate student housing, budget constraints, and the desire to be more competitive in recruiting and in retaining student athletes prompted a University to consider renovating their existing Conference Center into a residence hall. Although this building suffered from deferred maintenance, it offered a substantial amount of structurally sound square footage in a prime, on-campus location.

To effectively realize this project and to continue providing practical experiences for faculty and students, the University commissioned the Facility Design and Management Studio (the Studio) to furnish interior design services for the Residence Hall Project. The Studio's University-sanctioned mission was for students and faculty to provide on-campus design assistance led by a licensed interior designer/interior design educator. The Studio was founded three years before, and had since utilized only interior design participants. Adopting the University's Architecture faculty's successful Community Design Workshop model, the Studio also engaged architectural participants for the current interiors project (Edwards, Hebert, Powell, & Sammons, 2000).

The Residence Hall's anticipated end-users, current and potential student athletes, required careful design consideration. It has been postulated that a university's facilities are a determining factor in school selection (Kennedy, 2005).

Although NCAA requires the co-habitation of student athletes and non-athletes (Boyle, 2005), it was the athletes' physical attributes that influenced many design decisions for the Residence Hall design. Previously, no interaction between University athletics and the Studio existed. Indeed, little collaboration at any university between academic programs and athletes was found (Powers, 2007).

Methodology

The Residence Hall Project represented a year-long collaboration and exploration between the Studio designers (interior design students, interior design faculty, and architecture students) and University stakeholders (Athletics, Residential Life and Physical Plant). Student designers participated after self-selection. Based on the budget allocated by the University to the Studio, all students were offered hourly pay or variable course credit via independent study. Most of the students elected to receive three hours of studio course credit in lieu of pay. Male and female, European-American and African-American, undergraduate and graduate students participated in the current project.

Design inputs were gathered through precedent studies, industry and product literature reviews, materials and furniture samples acquisition and review, field studies, interviews and regular meetings with University stakeholders, interviews with and observations of athletes, reviews of raw physical attribute data (height, weight, etc.) from student athletes, review of the existing building plans, and reviews and documentation of existing field conditions.

Summary of Results

Design outcomes of this collaboration included a unique Residence Hall interior design solution which was disseminated to and accepted by the University. FF& E recommendations, specifications, price estimates, construction and PowerPoint presentations were provided by the Studio.

As part of a larger, longitudinal study, a questionnaire was administered to the University stakeholders regarding FDM Studio projects. The positive responses recorded along with numerous informal comments received during the project were indicators of successful design collaboration. Although harmonious interaction between athletics and academics and between interior design and architecture does not always occur, this project provided opportunities for such interaction with measurable results.

NARRATIVE

Background

Inadequate student housing, budget constraints, and the desire to be more competitive in recruiting and in retaining student athletes prompted a University to consider renovating their existing Conference Center into a residence hall. Although this building suffered from deferred maintenance, it offered a substantial amount of structurally sound square footage in a prime, on-campus location. Therefore, it was selected for renovation for the Residence Hall Project.

To effectively realize this project and to continue providing practical experiences for faculty and students, the University commissioned the Facility Design and Management Studio (the Studio) to furnish design services for the Residence Hall Project. The Studio's University-sanctioned mission was to provide on-campus interior design assistance. The Studio was led by a licensed interior designer/interior design educator. The Studio was founded three years before, and had previously utilized strictly interior design participants. To date, the Studio has produced ten separate on-campus interior design renovation projects, some of which addressed multiple buildings at once.

The Studio adopted much from the model used by the successful Community Design Workshop (CDW), which was active at the same University. The CDW began at the University in 1994 and its stated mission was to "help cities, small towns and neighborhoods visualize their potential as communities", with specialization in the areas of "urban planning and landscape design as well as architecture, housing, and

preservation" (University of Louisiana at Lafayette, 2003). The CDW had been founded and led by architecture faculty but had long included multi-disciplinary contributions also, including those made by interior design faculty and interior design students (Edwards, Hebert, Powell, & Sammons, 2000). The principles of the CDW model reflect Sherry Arnstein's theoretical work, "A Ladder of Citizen Participation". This classic 1969 publication encouraged participation by "citizen" stakeholders in the decision making processes made by societies, including planning and design decisions.

Even after the development of the Studio as a separate entity, the interior designer/educator who founded and directed the Studio also continued to be affiliated as a designer with the CDW. However, the Studio and the CDW were never commissioned for the same projects. With the current project, the Studio also achieved multi-disciplinary collaboration and stakeholder participation in its own right, engaging interior design as well as architecture participants with other University stakeholders.

One particular group of project stakeholders, current and potential student athletes who were the anticipated end-users of the Residence Hall, required careful design consideration. It has been postulated that a university's facilities are a determining factor in school selection (Kennedy, 2005). Although NCAA requires the co-habitation of student athletes and non-athletes (Boyle, 2005), it was the athletes' physical attributes that influenced many of the Studio's design decisions for the current project's design.

However, little previous interaction between University athletics and The Studio or other design-related academic programs existed on the Residence Hall Project's campus. Indeed, little collaboration at any university between athletics and

academicians was found. It was discovered that many academics regularly express disinterest in their University's sports programs (Powers, 2007).

Methodology

The Residence Hall Project represented a year-long collaboration and exploration between the Studio designers (interior design students, interior design faculty, and architecture students) and University stakeholders (Athletic Department, Residential Life and Physical Plant). Student designers participated after self-selection. Student participation was invited via flyers posted in the School of Architecture and Design (SOAD) Building, where the University's architecture and interior design programs were housed. Based on the labor budget allocated by the University to the Studio, all students were offered hourly pay or variable course credit via independent study. Most of the students elected to receive three hours of studio course credit with the Studio director in lieu of pay. The Studio faculty were paid summer salary. Male and female, European-American and African-American, undergraduate and graduate students participated in the current project.

Design inputs were gathered through precedent studies, industry and product literature reviews, materials and furniture samples acquisition and review, field studies, interviews and regular meetings with University stakeholders, interviews with and observations of athletes, reviews of raw physical attribute data (height, weight, etc.) from student athletes, review of the existing building plans, and reviews and documentation of existing field conditions.

Summary of Results

Design outcomes of this collaboration included a unique Residence Hall interior design solution which was disseminated to and accepted by the University. FF& E recommendations, specifications, price estimates, construction documents, and PowerPoint presentations were provided by the Studio.

The Studio acquired physical data on the University's existing athletes from the University's Athletic Department. These data were very enlightening and proved to be some of the most influential information acquired towards the design of the facility. The physical data revealed that, on average, University athletes were 3" taller and weighed 82 pounds more than most males. Individual sports were associated with much greater differences (e.g., very tall athletes in basketball programs and relatively heavy athletes in football programs). Conversations and visits with the athletes revealed additional differences between athletes and the average population, including some that surprised the Studio members. For example, some of the heavier and larger football players had trouble climbing a ladder to the proposed loft bed. Some of the beds being considered would not carry the anticipated weight of some of the larger football players.

This information spurred the proposal of various interior design modifications, including the reduction of existing furr down depths over lavatories, the raising of existing lavatory counter heights, and the relocation of existing devices previously mounted on ceilings to the walls (e.g., smoke detectors, lighting fixtures, annunciating devices). Further, the athletes' physical data and a review of literature on relevant human factors influenced the selection of furniture and furnishings, including the specification of extra long bed frames and mattresses, the elimination of loft-style bed

frames from consideration in some rooms due to head clearances and anticipated problems with some of the athletes climbing ladders, and the use of bowed shower curtains to extend the usable area in existing shower stalls.

As part of a larger, longitudinal study, questionnaires were administered to the participating University stakeholders subsequent to the completion of the design projects. The questionnaires were sent to the subjects via campus mail. Return was requested via campus mail. Stakeholders' opinions regarding the communication processes and the design deliverables for the applicable renovation projects were sought.

Unfortunately, only two useable questionnaires were returned to the researchers for the Residence Hall Project. In both cases, the respondents rated the "overall design work"; "the quality of design solutions"; the "overall experience of working with the Studio"; and "solving of relevant issues", including "ergonomics", "providing for privacy" and "space planning" on this project as "high" or "very high".

Additionally, ongoing conversations had been initiated by the Studio with stakeholders. The Studio solicited comments and suggestions from the stakeholders, during meetings with the University's Residential Life office, the Dean of Students, and the University's Physical Plant. Most of the comments received, regarding the consideration of the special population, the athletes, in the Studio's design, were positive.

At the time of this writing, the Residence Hall had not yet been renovated. Budget constraints and some concerns about the building's existing systems were cited by University administrators as reasons for construction delays.

The voluntary participation of interior design and architecture students in the project, the positive responses of stakeholders, and the University's acceptance of the design were seen as indicators of successful design collaboration. Harmonious interaction between athletic and academic entities and between interior design and architecture students do not always occur. The Residence Hall project provided interior design and architecture students and faculty with relevant and real opportunities to engage in a collaboration with athlete end-users and other stakeholders with measurable results.

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Diversifying the History of Interior Design

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ABSTRACT

Across the country, interior design chairs are scrambling to diversify their curricula, and professors are working to diversify their courses. The pressure comes from top down and bottom up: CIDA and NAAB gave notice that programs must broaden their offerings. Additionally, the student body is changing, and students expect courses to reflect their histories. Publishers are reissuing old textbooks with non-Western sections and commissioning new texts. How can historians accomplish this diversification? How do professors whose training focused on Western design respond? With ten years experience teaching design history (interiors and furniture), my presentation will present how I incorporated non-Western examples into design history courses. I recently completed a textbook that approaches the history of design from a global perspective. The qualitative presentation will offer classroom advice and address the theoretical ramifications of this important sea change.

ACCREDITATION AGENCIES and IMPORTANCE OF TOPIC

The second 2009 CIDA standard is “Global Context for Design”. Students should understand “globalization and the implications of conducting the practice of design within a world market.” And the program should provide “opportunities for developing knowledge of other cultures.”

Three NAAB performance criteria address the issue: “9. Non-Western Traditions: *Understanding of* parallel and divergent canons and traditions of architecture and urban design in the non-Western world; 10. National and Regional Traditions: *Understanding*

of national traditions and the local regional heritage in architecture, landscape design and urban design, including the vernacular tradition; 13. Human Diversity: *Understanding of* the diverse needs, values, behavioral norms, physical ability, and social and spatial patterns that characterize different cultures".

CONCEPTUAL RAMIFICATIONS

Some new books present architecture and design history from a global perspective (Ching, et al, 2007). One step is to broaden the subject matter, but this process involves conceptual frameworks that organize materials in new ways. Alternatives to the canonical history can consider chronology, geography, gender, race, and ethnicity.

One method to change how one teaches involves moving from stylistic explanations based on ideal examples to explicitly looking at variations, that is, to consider the margins as well as the center. This provides the opportunity to highlight the too-long overlooked contributions of women.

Scholars in many fields are grappling with issues related to making history more inclusive, including multiculturalism, postcolonialism, and globalization. Literary studies have developed multiple ways to consider cultural productions as hybrids. A recent line of inquiry that shows promise is cosmopolitanism, claiming that as long as humans have walked the earth, there have been intercultural communities.

PRACTICAL ADVICE and LOOKING FORWARD

The talk will include assignments and sources that are useful for preparing lectures. It will also examine some of the pitfalls that can occur, such as angry or bewildered students, with the goal of easing some educators' teaching experiences.

Design historians face a challenge and an opportunity. This juncture is a chance to rethink why we do what we do, and how we do it. This curricular recrafting will allow

historians to build on previous knowledge, engage students in new ways, and reconnect design history to contemporary debates.

NARRATIVE

Globalism is a tricky term that most people think they correctly grasp, its meaning somehow related to politics and economics. Yet arriving at a precise definition proves elusive. Fredric Jameson likened it to the elephant felt by multiple blind people, each person familiar with only one part. Globalism is a speculative term, with no disciplinary or geographic home, vaguely associated with communications and world markets. Some see it as a force of liberation, others see it as domination.

An example of how globalization means different things to different people are the words of a West African American-based scholar, Manthia Diawara:

> There is a globalized information network that characterizes Africa as a continent sitting on top of infectious diseases, strangled by corruption and tribal vengeance, and populated by people with mouths and hands open to receive international aid. The globalization of the media, which now constitutes a simultaneous and unified imaginary across continents, also creates a vehicle for rock stars . . . [1]

Regarding globalism's impact on interior design, my experiences grow out of teaching architectural and design history classes. My dissertation was on West Africa, but I never had a single class on Asian or Latin American art of any kind. My initial exposure to architectural history followed a once-common path. In a 2-semester survey, students plowed through Sir Banister Fletcher's *A History of Architecture on the Comparative Method*. What enlivened the course considerably is that it was taught by Kenneth Featherstone, sporting an Edwardian moustache and beard.

Once I started teaching, my desire to broaden the coverage got a boost when Zeynep Kezer, an architectural historian fresh from Berkeley, came into my orbit. She developed a writing assignment in which students analyzed Fletcher's book, by looking at the number of pages devoted to each subject, and tracking the changes as the book evolved over time.

The book Fletcher wrote presented a chronological history with four major periods of heightened achievement, the classical world, the Renaissance, the Enlightenment, and Modernism:

Egypt
Greece
Rome
Middle Ages
Renaissance
Baroque
Rococo
Neoclassicism
Victorian
Modernism

The number of non-Western topics was initially miniscule, despite the all-encompassing title. The non-Western coverage grew with each new edition, and it eventually lost any resemblance to whatever Sir Banister had first delivered to his editors. Most major survey books, of art, architectural, and design history followed a similar path. Publishers hired new editors or commissioned entirely new titles.

One of the first steps in righting the exclusionary wrong was truth in advertising. Books that were histories of the West rightly said so. A popular art history text, *Gardner's Art Through the Ages*, grew a subtitle "The Western Perspective". Since its initial publication, John Pile's *A History of Interior Design* has had two subsequent editions, and the advertisements highlight its non-Western coverage. Tweaking an existing text is an expeditious way to get a product into the marketplace, but it is also a problematic process. By the nature of their development, such texts rely on a European body of knowledge as the framework; everything else occurs outside of those developments, a strategy some decry as "the West and the Rest".

A livelier critique refers to this as epistemic violence, where a body of knowledge is structured that does a clear injustice to other systems of thought. The growing realization of this injustice occurred in publishing as schools were revising their core curricula. Two alternatives, a thematic approach, and a revamped chronological

approach, have their supporters. Neither is perfect. Art history departments have been particularly enamored of the thematic approach, in which a course presents art history according to a series of issues, often utilizing the entire faculty. An art history course taught at Northwestern, Art Objects and History, wrapped up a few weeks ago, and included a series of lectures that addressed:

Institutions
Medium
Materiality
Artist
Feminism
Religion
Politics
Iconography
Patronage
Reception
Circulation

While such courses are great with their vitality, they do not replace the survey course. Faculty bemoan students who are ignorant of large swaths of history. Students who probably could not put Jesus, Michelangelo, and Eleanor Roosevelt in chronological order would not gain that clarity with the thematic approach.

In 2007, Wiley produced *A Global History of Architecture*, and the authors, Francis D.K. Ching, Mark Jarzombek, and Vikramaditya Prakash, underscore the house's commitment to diversity.[2] They crafted a resolutely egalitarian chronological method. They started by dividing history into 500-year increments; as time progresses, chapters focus on 400-year increments, then 200-year increments, then 100-year increments, with the twentieth century divided into two 50-year increments. They attempted, and succeeded, in presenting "a wide swath of the globe, in all its diversity".[3] Each chapter pans out across the globe. Thus, the chapter centered on the year 1400 includes the Aztecs in Mexico City, the Chimu in Peru, Ming Dynasty China, the Joseon Dynasty in Korea, Muromachi Japan, the Timurid Dynasty in Uzbekistan, Mughal buildings in Ahmedabad, the Topkapi Palace in Istanbul, the Pazzi Chapel in Florence, and the Chateau of Chambord. This approach is admirable in its inclusiveness and fairness; it has the uncertain effect that architectural production is "always triangulated by the exigencies of time and location."[4] This system also means that information on a

specific location is found in multiple chapters. Material on China is found in 16 of the book's 18 chapters. A course that follows the book's organization would pose its own problems.

Across the country, interior design chairs are scrambling to diversify their curricula. The pressure comes from top down and bottom up: CIDA and NAAB gave notice that programs must broaden their offerings. The second 2009 CIDA standard is "Global Context for Design". Three NAAB performance criteria address the issue: "Non-Western Traditions", "National and Regional Traditions": and "Human Diversity". Additionally, the student body is changing, and students expect courses to reflect their histories. After ten plus years teaching, I recently completed a textbook that presents the history of design with a global perspective.[5]

Allan Bloom's *The Closing of the American Mind* was an early challenge to the academy's embrace of diversity.[6] Published in 1988, it argues that universities are impoverishing students and failing democracy. Larry Schweikart, a Fox TV regular, published *48 Liberal Lies About American History* in 2008, proving that the culture wars have not gone away.[7] While culture is political, and some students will interpret history lectures from a political frame of reference, this happens less frequently than I had anticipated.

More thoughtfully, Richard Rosecrance articulates three conceptualizations of how groups formulate their responses to globalization.[8] One is rejecting it outright, which would result in a renewed nationalism based on jingoism. Another is to embrace its variety wholeheartedly, which could signify a lessening of American influence. Another choice is middle-of-the-road, with alternate allegiances, and cautious half-measures. I am struck that his responses, rejection, embrace, and mediation, are reflected in others' attempts to conceptualize globalism, including my own.

Teaching impacted my position towards history, and now informs my writing. Regarding Rosecrance's formulations, my work belongs in the category of mediation, as

much out of pragmatism as conviction. I categorically reject the notion that the purpose of instructional survey books is to position Western culture as superior (Bloom and Schweikart). I also see that the approach of Ching, et al, has the risk of presenting no cohesive narrative to explain its cultural mosaic.

My text book relies on chronology, but with a significant shift from Fletcher's use of chronology. This global focus is developed in two ways. Entire chapters are devoted to non-Western topics that are presented from within the parameters of the specific cultures. The second approach concerns how Western history is theorized. Fletcher's history, anachronistically, can be characterized as rejecting globalism with its presentation of Western achievements as superior, the results of internal European activities.

My approach, not unique to me, is to similarly marvel at many European wonders, but to focus on the interactions between Europe and the world. The difference lies in how the development process is conceptualized. Thus Art Nouveau was not only an European phenomenon, but a global one as well, with examples in Peru, and Japan. The change is subtle but significant, and involves moving from stylistic explanations based on ideal examples to explicitly looking at variations, that is, to consider the margins as well as the center. Literary studies have developed multiple ways to consider cultural productions as hybrids. A recent line of inquiry that shows promise is cosmopolitanism, claiming that as long as humans have walked the earth, there have been intercultural communities.

However it is accomplished, diversifying the design history is necessary. Along the way, there are pitfalls, such as the occasional bewildered student. And there is the effort involved in teaching new materials. So design historians face a challenge and an opportunity. This juncture is a chance to rethink why we do what we do, and how we do it. The resulting curricular recrafting allows historians to build on previous knowledge, engage students in new ways, and reconnect design history to contemporary debates.

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BUILDING THE DESIGN SKILL SET:
USING IDEATION TO EXPLORE AND COMMUNICATE DESIGN SOLUTIONS

Denise R. Homme Ph.D., ASID, FCSD, IDEC, IIDA

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ABSTRACT

This presentation introduces a methodology that utilizes ideation as a creative problem solving tool for teaching foundation level space planning. The intention of the methodology is to build the first level design skill set by engaging students in studio exercises that use concept drawings and sketches to explore and generate creative solutions to simple space planning problems. To illustrate the proposed teaching method, course materials and examples of student creative work from design studio will be examined and discussed.

In July of 2009, a newly revised series of professional performance standards developed by the Council of Interior Design Accreditation (CIDA) standards become effective. Standard 6 states that "*Entry-level interior designers are effective communicators*"; qualifying a student's ability to "*use sketches as a design and communication tool (ideation drawings)* as an indicator of performance. (Council for Interior Design Accreditation. Professional Standards, 2008. pg. 14). To facilitate a design skill set that includes a high level of proficiency in visual communication, interior design educators are urged to integrate teaching strategies and techniques designed to provide their students with classroom experiences that forge an understanding of the value of ideation (expressed through sketches and drawings); and that underline the importance of integrating freehand drawing into the concept development phase of a design project.

It has been the experience of the author that some interior design students are of the opinion that the highly polished images generated by CAD soft-wares hold greater value in

communicating design ideas and concepts than “primitive” and “messy” hand drawings and sketches (personal communication with students, 2008). This presentation will challenge this assumption and offer a teaching approach devised to help students realize the necessity and overwhelming value of freehand drawings as exciting explorative tools that can be used to successfully investigate, understand and plan interior environments. A review of the literature finds a chorus of voices echoing similar sentiments; among them Leseau, who writes “*While digital media and developing communication technologies are bringing new tools to design, freehand sketching continues to provide unique and vital capabilities to architects and designers in allied fields*” (Laseau. 2004. pg 7). Speaking from a deep understanding of both the positive and negative aspects of digital technology, Buxton offers a surprising point of view in his comment that “*sketching is fundamental to the cognitive process of design, and it is manifest through a kind of conversation between the designer(s) and their sketches*” (Buxton; 2007. pg 115). If freehand sketches and drawings offer added value to the process of design, how can interior design educators successfully integrate ideation into their course materials?

By examining an introductory level studio project that asks students to explore various solutions to a three-dimensional “interior environment puzzle” -armed only with a specific set of evidence-based design standards, their imaginations and freehand drawing skills - this presentation hopes to foster meaningful dialogue among interior design educators by offering a unique approach to the use of ideation as a tool for teaching interior space planning.

BUILDING THE DESIGN SKILL SET:
USING IDEATION TO EXPLORE AND COMMUNICATE DESIGN SOLUTIONS

Denise R. Homme Ph.D., ASID, FCSD, IDEC, IIDA

Design Institute of San Diego

NARRATIVE

INTRODUCTION

In July 2009, a revised set of performance standards, developed by the Council for Interior Design Accreditation (CIDA), become effective. Standard 6 states that "*Entry- level interior designers are effective communicators*"; qualifying a student's ability to "*use sketches as a design and communication tool (ideation drawings)"* as an indicator of performance. (Council for Interior Design Accreditation, 2008. Pg. 14). Compliance requires that the student is offered the academic experience necessary to acquire the level of competency needed to demonstrate design concepts effectively through the use of ideation sketches. To facilitate learning, educators are urged to consider integrating new strategies into the learning experience - strategies that provide students with opportunities to forge an understanding of the value of drawings and sketches as indispensable tools; essential to the development and expression of design concepts.

In the author's experience, interior design students often feel the images generated by a computer hold greater value in communicating design ideas than "primitive" and "messy" hand drawings and sketches (personal communications with students, 2008). My presentation challenges this assumption and introduces a pedagogical approach devised to help students realize the value of ideation as an exciting, explorative design tool that can be used to successfully investigate, understand and plan interior environments. By examining an

introductory level studio exercise that uses ideation as a tool to explore various solutions to a three dimensional “interior environment puzzle”, this presentation proposes a unique approach to teaching interior space planning .

BACKGROUND

As an interior design educator with nearly three decades of university-level teaching experience, I have observed hundreds of first and second year interior design students struggle with both the concept and mechanics of interior space planning. I have sat at countless drawing tables; talking with students and watching their first cautious attempts at creating measured relationships between furniture and architecture. What I have seen in my interactions with these students leads me to believe that foundational- level students have difficulty understanding the unique relationship that exists between people, buildings and the objects that we commonly associate with interior spaces.

An examination of the objects associated with interior space reveals that interior designers tend to consistently utilize standardized groupings of objects. For example, a typical hospital room grouping might be expected to contain at least one bed, at least one bedside storage cabinet, wall-mounted medical equipment and one or more guest chairs. A living room grouping, by contrast, would be expected to contain seating (sofas and chairs) and tables strategically placed for the convenience of those individuals occupying the space. With the exception of extremely large or highly specialized interior spaces that involve multiple groupings or unique arrangements, the idea or concept of furniture groupings seems easily understood by students. Student errors in regard to furniture groupings - should they occur - usually reflect inaccuracies in measurement or dimensions rather than in the use of inappropriate groupings.

Similarly, the physical characteristics of building s and the spatial relationship of these characteristics to furniture groupings are easily recognized and understood by most students. Most likely discovered by personal experience, foundation level students are able to comprehend how the location of a doorway or window affects how and where furniture groupings are placed as well as how the placement of furniture groupings impact or compromise the movement of people through interior space. When they occur, errors in judgment concerning the relationship of furniture groupings to building characteristics appear to be associated with a lack of understanding of the distances required between furniture objects, groupings and the building characteristic. A layout that locates a furniture grouping too close to a doorway; for example, expresses a space planning decision that significantly and negatively impacts the path of travel for the people using the space. A space planning error of this type underlines a lack of understanding of what logically occurs in the intervals of space that exist between some aspect of the building's physical characteristics and the furniture groupings the student is proposing to use in the interior space.

THE TEACHING STRATEGY

Student errors and oversights involving the what occurs in the spatial intervals between fixed elements such as walls and doorways and the semi-fixed elements such as furniture groupings , are the basis for the development of this teaching strategy. As an interior design educator and practicing professional, I am intrigued by how little attention has been paid by educators to a concept that, I believe, plays a significant role in learning how to plan interior space –focused attention on the dynamic intervals of dimensional space occurring between objects, groupings of objects and the fixed aspects and characteristics of the building envelope.

Although evident as measurable distances separating objects and groupings of objects on a floor plan, these dynamic intervals of space are the setting for the rich amalgam of human activity taking place within the interior environment. Rarely discussed in regard to their true nature - areas fully animated by human activity - these spatial intervals are, in my opinion, the most meaningful place for students to focus their attention as they take their first space planning steps.

Giving evidence to my claim, Ann Colley' s provocative essay entitled "Bodies and Mirrors" proposes that interior spaces are not defined by the objects found within them but rather by the human experience that occurs around and among those objects. In Colley's opinion, objects "do not define interiors, bodies that move and feel their way among these objects do" (Taylor & Preston, 2006. pg. 68). Drawing on this intriguing presumption, I have developed a teaching method that offers interior design students the opportunity to use ideation to understand the richness of spatial intervals and the significant role they play in the space planning process. By asking students to focus on activities that occur within the spatial intervals as well as the anthropometric needs of people as they interact with groupings of objects, this approach to learning promises to positively impact student performance in space planning and in the ability to "use *sketches as a design and communication tool (ideation drawings)"* (Council for Interior Design Accreditation, 2008. Pg. 14).

This teaching strategy was presented to students in studio by way of a three part exercise that was tested informally in the classroom. The students involved in the development and testing of this teaching method are second year students enrolled in a course titled Interior Design I; the first in a series of interior design studio courses offered in a CIDA accredited four year private interior design college.

Part 1 of the exercise requires that each student sketch a series of small furniture groupings, in plan view; groupings that increase in the number of furniture pieces used and, most importantly that require evidence of people interacting with furniture objects. To facilitate focused attention on what occurs in the spatial intervals between the people and the objects, students are directed to use the provided materials which include a sheet of scaled furniture objects, an anthropometric data sheet, two floor plans, 3-D drawing templates and drawing flimsy. To minimize the necessity to use a scale ruler and allow the students to focus on the activities that occur in the spatial intervals, hand sketching and tracing is mandatory.

Part 2 of the exercise involves the addition of building enclosure to the planning process. Using the furniture groupings developed for Part 1 and provided floor plans, students use ideation to examine spatial intervals and the relationships between building characteristics and furniture groupings. Part 3 of the exercise asks that the student translate one or more space planning solution into 3 – D drawings representing the chosen space plan. A 3 – D drawing template is provided; allowing students to concentrate on creating sketches that depict furniture groupings, people and spatial intervals dimensionally.

THE FINDINGS

Based upon the impressive results I have observed in the student drawings created in this entry level space planning exercise, I find this teaching strategy affords the student a unique opportunity to develop and demonstrate a high level of competency in the organization and communication of interior space planning concepts. Introductory interior design studio work appears to assume students come equipped with an understanding of the relationship between people, buildings and the objects associated with interior space. My presentation has challenged this assumption and offered an alternative approach to preparing interior design students to meet

the rigors of the interior design profession. An understanding of the dynamics of interior space in conjunction with proficiency in the use of ideation as a space planning tool promises the student greater awareness, control and use of space as a dynamic interior design element. It is my sincere hope that the idea I've presented today will foster further dialogue among educators; and especially in regard to assessing the value of this teaching method as a way to increase student performance and competency.

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Teaching Millenials: What Educators Need to Know to Effect Meaningful Change

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ABSTRACT

Today's college students are unique. They view themselves and the world differently from past students and this perspective impacts their preparation and motivation to learn. Consequently, many of the traditional teaching methods used in higher education are now less effective. For some time, the higher education literature has called for a shift from teaching to learning (Barr & Tagg,1995; Bain, 2004; and others). This call is even more imperative when addressing the unique traits of this cohort of students. In order to engender learning in this generation, educators must employ different methods and techniques--approaches that meet students where they are and gently move them toward lasting and meaningful change. With only a limited time of potential influence, what can educators do to encourage millenials to be more competent and intellectually engaged adults?

The fundamental and systemic differences between this generation and any previous generation are deeply rooted in the major cultural, familial, educational, and technological changes of the last 50 years. One of the significant challenges interior design educators face is how to cope with the consequences of the constant self-esteem programming that has encouraged today's students to feel good about themselves--no matter what--resulting in an inflated view of their own talent and worth,

too little respect for authorities or anyone who feels differently, and an inability to bounce back from and overcome obstacles (Taylor, 2006).

Additionally, today's students approach their education as consumers, constantly evaluating whether the effort is worth the reward. They view a college education as a process of acquiring credits, things that must be accumulated in order to get a degree and ultimately a job, not an opportunity to gain intellectual maturity. As consumers, they want instant gratification, try to negotiate for the best deal, and are resentful when disappointed (Taylor, 2006).

Millennial college students hold very little expectation of ever having to do anything that is not entertaining or, at least, pleasant. They are wired for fast stimulation, not careful reflection. (Durden, 2005). Inevitably they are too often unprepared for the real world upon graduation. Levine (2005) asserts that employers complain that novice employees "appear unable to delay gratification and think long term." Millennials don't want to start at the bottom and have to deal with the mundane as they work their way up a career ladder.

If one of the goals of higher education is to prepare those novice employees, then it is clear that our traditional teaching methods no longer produce the same outcomes. Even in interior design, where the studio has long been an effective model for active learning, today's skeptical student is still likely to remain aloof from any serious developmental change unless convinced that the effort will pay off.

This paper presentation will briefly describe the characteristics of the millennial generation and how these characteristics impact the university, and specifically, the interior design university experience for students and educators. The author will lead a

discussion that presents current best practices and elicits successful methodologies for moving millennials towards meaningful and lasting change.

NARRATIVE

The term “millennial” is just one of several names used to categorize the generation born between the years of 1982 and 1994. This large cohort is the echo of the baby-boom generation and will continue to fill our college classes until nearly 2020. While millenials began to mature into adulthood at the turn of the millennium, it has taken observers several years to accurately recognize their unique character traits and understand their origins. In the millennial year of 2000, Howe and Strauss predicted that millenials would be “The Next Great Generation.” Now, nine years later, there is very little evidence to support those hopeful assertions of civic and social responsibility. Instead, today’s students appear to be the physical manifestation of the dramatic cultural, familial, educational and technological shifts that have occurred in the last 50 years. (Taylor, 2006, p.1)

As products of our postmodern culture, today’s college students are likely to demonstrate character traits that challenge the traditional ways education has been delivered. Interior design educators, along with their colleagues in higher education, are being forced to reconsider their tried and true teaching methods in a search for new approaches that better serve this cohort. As we try to figure out what works better, we must first define more clearly our desired outcomes. Is education a simple transfer of knowledge, or is it fundamentally richer, filled with the possibility of effecting lasting and meaningful change in the lives of the student?

For some years now, there has been a call in higher education to abandon the “teaching” model in favor of the “learning” model. (Barr & Tagg,1995; Bain, 2004) Barr and Tagg in their seminal work, “From Teaching to Learning – a New Paradigm for

Undergraduate Education" argue that "In the Learning Paradigm, . . . a college's purpose is not to transfer knowledge but to create environments and experiences that bring students to discover and construct knowledge for themselves…." (Barr & Tagg, 1995, p. 15) In the traditional *teaching* paradigm, the conventional teaching methods; i.e., the large lecture format, have been constant, while the amount of student learning has been dependent upon the learner and the effort he/she is willing to expend. By contrast, in the *learning* paradigm, student learning is the constant, with a variety of methods used to enhance the student's learning potential.

But even educators committed to the learning model may be challenged by millenials, as this generational group is fundamentally and systemically different from previous cohorts. Effecting change in millenials is not simply a matter of delivery; it requires a new, more holistic way of thinking. This author asserts that meaningful change *is* possible and more imperative than ever before, given the unique needs of this cohort. Meeting millenials where they are and gently moving them toward healthier behavior patterns is vital to their personal and professional success.

One of the most helpful steps in designing an effective pedagogy is having a better understanding of the student cohort. While it is difficult and perhaps unwise to generalize about a complete generation, there are some well-documented recurring themes. These character traits will only be briefly touched upon here, as much has already been written and discussed. The simplified but critical truth is that millenials are the natural outcome of misguided but well-intended parenting, and the all-pervasive influence of technology.

The baby-boomer parents of millenials were discontented with the formality of their traditional upbringing; consequently they encouraged their children to see them as friends rather than as authority figures. Unwilling to discipline firmly, baby-boomers have allowed their children to experience few, if any, negative consequences for bad behavior. As a result, the notion of "respecting an expert" may be foreign to today's college student. The traditional view of the professor as an authority figure has all but disappeared. Faculty can no longer rely on their experience and maturity to persuade students to care about their education. (Durden, 2005, Taylor, 2008)

With the recommendation and support of child psychologists, baby boomer parents believed high self-esteem to be the panacea for almost everything. Consequently, many of our incoming students overrate their own abilities and either wither from, or completely reject, feedback that puts that ability in question. Additionally, millenial children have lived highly scheduled lives. Their parents, or daycare providers, programmed every minute, allowing them very little time to plan, reflect, dream, and develop creativity. As a result, many millenials find it difficult to organize their own lives. Procedural planning, or how to get from point A to point B, is frequently deficient. (Taylor, 2008) These weak skills become particularly debilitating upon graduation, where employers complain that their new employees are unable to receive criticism or work without constant direction. (Levine, 2005, p.1)

While these traits may not be evident in every student, most interior design educators will see a similarity between the stereotypical millennial and the students they teach every day. When educators do not, or are unable to, address these issues, the

burden then falls to the employers to deal with the challenges of mentoring the millennial and helping them transition to the work force. (Yovovich, 2009)

What is the interior designer educator's obligation when faced with the millennial student? Is it possible to deliver the dense content required by CIDA accreditation and still meet the unique expectations of the post modern student and their future employers? This paper now examines the broad purpose of education and proposes new ways to think about a design pedagogy that builds on student strengths and helps move millenials toward meaningful and lasting change.

Lee Shulman of the Carnegie Foundation believes that "The goal [of higher education] must be long lasting, fundamental, deep change which can only be produced by a pedagogy that actually address issues of 'formation'." (Shulman, 2005b, p. 57) Shulman defines pedagogies of formation as "experiences of teaching and learning that can influence the values, dispositions, and characters of those who learn." (p. 57)

Shulman studied the "signature" pedagogies of law, medicine and divinity in an effort to define why they are effective in preparing young professionals. (Shulman, 2005a, p. 24) Shulman's work led him to believe that the best professional education helps to develop habits of the mind, the heart, and the hand. In design, our habits of the mind are how we think, question, analyze, and solve problems. Our habits of the heart are the moral and ethical dimension of our work; the understanding and concern we have for users, society, clients, employees and employers. And finally, our habits of the hand are seen in the technical dimension of our skills, such as drawing by hand or creating digital images. It is helpful to think about making our design pedagogy more

successful by purposefully addressing all three “habits” as a whole, rather than as separate content areas.

By Shulman’s definition of excellence, interior design education, at its best, should be based upon core theoretical knowledge *and* must challenge the student to think more deeply about the fundamental issues of social responsibility. As interior design educators, we face the challenge of developing our own “signature” pedagogy that is truly formational in its power to influence the “values, dispositions and character” of the learner.

How does a committed interior design professor develop a professional pedagogy that is transformational in its reach? And, how do we mold it to address the unique strengths and weaknesses of the postmodern student? The personal and professional success of our students demands nothing less. Actually, by understanding the particular needs of this generation, an educator increases his/her capacity to create a formative pedagogy.

Dr. Mark Taylor, (2008) has studied millenials extensively and offers helpful recommendations for educators. While there are too many ideas to include herein, a few overarching ideas are briefly listed, with an expansion of this list and specific examples included in the presentation.

1. Articulate all desired outcomes**.** Taylor encourages educators to focus on student change by asking, “How will the students be ‘meaningfully and demonstrably different’ upon completion of this course?” (Taylor, 2008, p. 4) The requirement to meet CIDA content competencies can distract from this fundamental issue, although the new guidelines make it easier to think more inclusively about *change* rather than *proficiency*.

2. Establish clear expectations and communicate these expectations early and often. The more consistent an educator's message is, the more confident students will become in investing their energy in their education. Ideally, the expectations for student performance should be consistent across the entire program.

3. Identify external goals that matter to students. Interior design education is rigorous and demanding. It is incumbent upon the instructor to powerfully demonstrate to the student that the rewards are worth their effort. In order to help students own their goals (or those encouraged by their instructor) they must see those goals as critical to their personal future.

None of these recommendations are a simple matter of a new teaching "technique." These recommendations promote a holistic way of thinking about instructor and student interactions. The effective interior design professor doesn't just teach content. By being knowledgeable about the typical traits of millenials, educators can watch for and create valuable opportunities to engage students in the process of meaningful and lasting change.

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Paper Mache – An Alternative Method of Teaching Furniture Design

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ABSTRACT

Custom furniture design, particularly seating, is an important and common activity for interior designers and architects. But most ID programs lack the facilities to offer students the opportunity to design and fabricate actual furniture. Confronted with this challenge, ID programs have creatively developed alternative strategies. Some programs have their students develop detailed scale models of their designs. This can be effective by accurately conveying a sense of proportion, materiality and detail. Furthermore, the model making work can be easily done at their desks using materials such as balsa wood, Plexiglas, sheet metal, etc. Other programs have been inspired by the cardboard furniture of architect Frank Gehry. Between 1969 and 1973 Gehry designed a collection of cardboard furniture aptly named the Edges Collection [1]. Immensely influential, the collection has inspired both students and designers to experiment with cardboard as a furniture building material. Since the material is both easily accessible and relatively inexpensive, full scale mock-ups can be affordably constructed. Because they are full-scale, students can sit in the furniture and test them for their ergonomic and structural qualities.

Both approaches have their advantages, but they also have significant shortcomings. Detailed as they may be, viewers cannot experience models as full-scale objects with strong spatial presence. Dimensions, ergonomics, and structural

issues remain only abstract principles. They are a poor substitute for actually sitting in and experiencing the piece.

Cardboard furniture also has significant shortcomings, primarily due to the nature of the cardboard itself. Being a thin, rigid, and planar material which depends on lamination for strength it does not lend itself to bending and shaping. Hence, most cardboard furniture is rather unimaginable with simple block-like massing. To address these shortcomings, the authors utilize paper mache as a fabrication material for the construction of detailed, full-scale furniture.

Paper mache offers a number of significant advantages worth noting, namely:

1. It can be used to create full-scale ergonomically accurate furniture that can easily support human weight,
2. It can be shaped into an unlimited range of forms/shapes with varying thicknesses,
3. Detail can be integrated into the piece to accurately represent joints, edging, etc., and
4. Additional materials can be integrated into the furniture to create a fuller, more realistic representation of the design.

The authors have also integrated two important additional overlays to the project, namely, realistic computer renderings and the use of historic precedent. To accurately portray the design in its final form, the students also develop a realistic 3-D computer model showing materiality, color, and detail. This combination of both a full-scale paper mache mock-up and computer model addresses all of the shortcomings of the two other approaches.

The second overlay requires the students to individually research and use a historic piece of furniture as the inspiration for their design. Rather than simply reproducing the historic piece; they use it as a starting point to create new and unique design.

The authors shall present examples, discuss didactic value, and describe the paper mache process.

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NARRATIVE

Problem Identification

Coursework in furniture design has become an important and integral component of many interior design curriculums. As a common activity for most interior designers it is important that interior design students are given the opportunity to design and construct furniture. The process of developing a design, refining it and ultimately fabricating it is crucial for a thorough understanding of a range of important issues such as scale, proportion, ergonomics, and structural stability (resistance to torsion, tension, moment of inertia, etc). But unfortunately, most programs cannot afford, and/or don't have the space necessary to build, furnish, and manage a workshop. Faced with this problem many interior design programs have attempted to creatively develop one or more alternative strategies. Each strategy has a number of advantages, but they also suffer from a several crucial shortcomings. The following is a brief summary of the advantages and disadvantages of the two most common alternatives.

Background

1. Scale Models

One of the most common alternatives is to have students develop detailed scale models of their designs. The students construct their models out of a variety of materials including balsa wood, Plexiglas, sheet metal, etc. This strategy can be effective because it can accurately portray a sense of proportion, materiality, and detail.

But just as it offers a number of advantages there are several disadvantages that limit its use. First, there is no sense of human scale—an understanding of how humans interact with the overall piece is not possible. Second, its presence as a full-scale, three-dimensional object in space cannot be experienced. Third, its lack of scale also affects the ability to study the smaller, more detailed elements of the design. For instance the precise form of a chair leg or table edge cannot be studied. Fourth, the ability to test its structural stability is limited. Because the structural connections of the piece are only representative of the actual connections assumptions of its structural resistance to common forces such as tension, compression, moment of inertia, and torsion have to be made.

2. Cardboard Furniture

Between 1969 and 1973 the architect Frank Gehry designed a collection of cardboard furniture referred to as the Edges Collection [1]. Immensely influential, the collection has inspired generations of students and designers to experiment with cardboard as a building material. But, just as with scaled models, cardboard furniture offers a number of advantages and disadvantages. Its most important benefit is how easy it is to build full-scale. With full-scale mock-ups students are able to test the structural integrity by actually sitting in the piece. Second, they can also test their ergonomic appropriateness such as: Does the piece sit at an appropriate angle for the task? Does it support the upper and lower parts of the back? Is the seating depth correct?

As important as these strengths are cardboard furniture also has several significant shortcomings. These are primarily due to the nature of the cardboard itself.

Being a thin, rigid, and planar material it depends on lamination for structural stability. But lamination does not lend itself to bending and shaping. Hence, most cardboard furniture is rather unimaginable with simple block-like massing. Finally, because of its unique materiality it is poor at representing furniture constructed of conventional materials and methods of construction.

Methodology

To address these shortcomings, the authors utilize paper mache as a fabrication process for the construction of detailed, full-scale furniture. Paper mache offers a number of significant advantages worth noting:

1. It can be used to create full-scale ergonomically appropriate furniture. By building full-scale the piece has actual spatial presence that relates both to human-scale and the built environment in which it is placed.
2. The process of fabrication used to construct the piece by its very nature allows for easy modification during the construction process. If at any point in the construction process a student desires to change the design it can be done so very easily.
3. The furniture can also be easily built to support human weight. The construction process utilizes a honeycomb internal structure with a veneer of paper mache. For more delicate load bearing parts wood or steel pieces can be embedded and hidden in the structure to increase its structural integrity without resorting to heavy or cumbersome details.

4. Structural principles such as compression, tension, moment of inertia, and torsion can all be easily tested. By actively sitting on the piece, shifting one's weight, and/or leaning it will induce actual structural forces in the piece and give immediate feedback on its structural potential.
5. Since the fabrication process depends on a honeycomb structure it can be formed into an unlimited range of forms or shapes unlike conventional cardboard furniture.
6. A range of detailed elements such as table edges, special contours, and details can be easily integrated into the honeycomb structure by either using pre-made shapes that are integrated into the piece or by carefully creating contoured shapes in the honeycomb sub-structure.

Computer Modeling

One major shortcoming of paper mache modeling is that it cannot accurately depict the actual appearance of the materials and color of the proposed piece. So to address this shortcoming the students are required to develop a series of realistic computer generated 3-D renderings of the designed piece. In these renderings the students can manipulate the materials and their appearance until they reach a final decision. At the project's completion the students will have both a life-size paper mache piece, as well as, a realistic depiction in its final form.

Studio or History

A furniture design project is commonly assigned either in a design studio or as part of a dedicated furniture design course. But it can also be taught in other course formats. At KSU it is taught as part of a history of furniture course. As such, it needed to create an important didactic overlay to the teaching of furniture history. To do so, the students were required to choose a historic piece of furniture for inspiration. They then studied the historic piece in depth for its historic significance and for its functional and aesthetic attributes. The second step had them creatively abstract those functional and/or formal attributes to create something new and inventive. They were under no circumstances to simply copy or duplicate the original piece. They applied a number of techniques including: exaggerating the scale of individual parts; altering the overall lines of the piece; and manipulating the materials, details, and connections. In the end the goal of using a historic overlay help the students appreciate the relevance of studying precedent and how it can become of well-spring of inspiration for their own design work.

Summary

The authors feel that while there are many unique opportunities afforded students in a workshop setting, there are, as described herein, an abundance of teaching options which are of similar value in terms of learning potential and well within reach of a far broader cross section of programs. All are hands-on and manifest a three-dimensional outcome. Resources are literally off the shelf, relatively inexpensive, potentially recyclable and can be manipulated utilizing a simple palette of tools. The use of paper mache, however, allows for combining all of the positive attributes of the other

techniques while exploring, in greater depth, the more subtle, intimate details and nuances of actual furniture.

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Engaging Adolescents with Interior Design

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ABSTRACT

Purpose

This teaching forum will demonstrate the process and share outcomes of a summer camp course developed for metropolitan adolescents. The course exposed adolescents to interior design as a future course of study and as a career. Many disciplines are able to expose school-aged (K-12) students to their industry as part of general educational requirements; interior design has largely been unsuccessful in this regard (Clemons, 2002). Reality television interior design programming benefits the profession by creating greater interest in interior design (Waxman & Clemons, 2007), but at the same time it creates misperceptions about interior design (Martin, 2004).

Findings from in-class surveys (pre- and post-test), a log of activities, photographs of students at work, and the instructor's observations reveal that diverse students came to the class with different degrees of knowledge and attitudes about interior design, which were positively informed through this "fun" experience. This venue could serve as an alternate model of education to broaden and engage a diversified, adolescent audience with interior design.

Method

A weeklong course for adolescents (12-15 year olds) was developed collaboratively by a graduate student and faculty member in the interior design program of a large, metropolitan university for the university's Youth and Community Programs Summer Camp. Curriculum development for "Spaces of Your Imagination" identified goals, objectives, interactive activities, schedule, and a materials list. The curriculum had students design a space that would sell their favorite object, activity, or food. This project focus was deliberately chosen to act as a draw for boys and girls. The class accommodated 13 students; a waiting list was evidence of high interest in this first-time offered class.

The collaborators constructed a survey in the form of a brief questionnaire, administered as a pre- and post-test, intended to determine students' preconceptions as well as what they had learned about interior design based on their experiences in class. Daily lecture/discussion occurred at the beginning of each class to support the creative activities for that day.

Importance of the Topic

This topic addresses the profession's future. Exposing adolescents to interior design prior to decision-making about their post-secondary course of study is essential to bringing bright, engaged students into the profession (Clemons, 2002). Currently, the primary exposure most adolescents have to interior design is via reality television, which does not consistently present interior design accurately. As this class was offered in a large metropolitan area at a modest cost with scholarships available, a greater diversity

of students was possible as compared with the interior design program's typical student body demographics. The Twin Cities where the program was offered is a vastly diverse area.

Relevance to Interior Design

Prior studies have shown that for the interior design profession to display strength in the collaborative, professional environment it is important that students are exposed to interior design as a potential career earlier in their schooling (Clemons, 2002). This model for a gender-neutral, interior design experience for adolescents, offered to a broad socioeconomic group can augment in-school (K-12) exposure of youth to interior design as an essential profession. Diversification of students entering interior design programs will benefit the profession and society.

NARRATIVE

Purpose

The purpose of this paper is to demonstrate the process and share learning outcomes of a University of Minnesota's (UMN) Youth and Community Programs (summer camp) course focused on interior design. A goal of the summer camp is to promote the UMN to Twin Cities' (Minneapolis/St. Paul metropolitan area) families by educating campers and their parents about an emphasis area, while creating an enjoyable experience (UMN, 2009).

The educators believed that offering this course provided a great opportunity to educate adolescents, including minority students (i.e., gender, ethnicity/race) about interior design as a future profession. This demographic watches reality television interior design programming (Waxman & Clemons, 2007), but are at the same time influenced by the misinformation these programs disseminate about interior design (Martin, 2004), possibly dissuading them from entering the profession.

Background

Interior design is typically not seen in the K-12 curriculum, and when it is, the profession has not been accurately portrayed. Many professions have already begun developing programs to integrate knowledge of their field into the K-12 curriculum, anticipating future benefits. These students represent both potential professionals and clients (Clemons, 2006). Interior design must work towards more frequent and accurate representation within the K-12 environment. Students may already apply the elements and principles of design in their classes, but are not necessarily conscious of their

relationship to interior design (Clemons, 2002). Doing so will aid K-12 students to better understand the basics of interior design.

Architecture has begun to integrate their profession into K-12 education. The American Institute of Architecture (AIA) is attempting to reach out to more diverse demographics than are commonly seen in practice through programming for K-12 students via course syllabi (AIA, 2008). The Architectural Foundation of Santa Barbara has helped facilitate the Built Environment Education Program (B.E.E.P) into the 3rd through 6th grade curriculum of Santa Barbara public schools, incorporating concepts of the built environment into typical classes, such as science, math, and art (AFSB, 2009).

A challenge facing interior design is that many of the counselors and teachers who guide students in their future career choices do not understand interior design, and therefore do not direct students to this potential career (Clemons, 2002). As Dohr states, “Our challenge in interior design education is to demonstrate readiness in reaching out to the public and to educational leaders” (1992, p. 131).

The process of creating and delivering a course for adolescents will be discussed to illustrate an opportunity to present interior design to adolescents. Findings from a pre- and post-test will demonstrate the variation in knowledge and attitudes about interior design embodied in these adolescents.

Method

A faculty member was approached by the UMN summer camp to create a course about interior design. Fall 2007, this interior design faculty member and an adjunct faculty member/practitioner collaborated on the development of a weeklong course for 12-15 year olds. Based on the educators’ experience, this age group would connect

with the course due to their interest in HGTV programming. It was anticipated that they would have some understanding of interior design, whether accurate or not.

The educators directed the course to a retail focus to attract a diverse group of students (i.e., gender, ethnicity) broadly interested in design, to counteract the stigma of males entering interior design. For those reasons, the course name and description was decidedly gender-neutral. To peak curiosity, the course was titled “Spaces of Your Imagination,” and was described as follows:

> Have you ever thought about the design of the store that sells your iPod or hockey equipment, or the restaurant that you beg your parents to take you to? Discover how all kinds of places are designed—like schools, hotels, offices, hospitals, and homes. Use your creativity to design a store to sell your favorite food, product, or activity while you learn about a real designer’s daily activities.

The course limit was 13 students; it filled up quickly and had a waiting list of several students, two of which were male. The diversity of the Twin Cities was represented by those enrolled; four students were African American and one was Asian, though only one of the students was male (Caucasian). The educators identified the following course objectives:

1. Experience what it is like to be a designer of interior spaces
2. Understand the practice of interior design
3. Understand how interior designers work (i.e., collaboration)
4. Understand the basics of furniture and finish selection

Curriculum included a discussion of different building types (public and private), who designs them, how allied practitioners work together (e.g., interior designers, architects, engineers, graphic designers), and why interior designers are important to

the team. In addition to planning the course to meet these objectives, the educators constructed a pre- and post-test to identify interior design knowledge before and after this interactive course and to evaluate if the course was beneficial to the students.

The class was offered July 23-27, 2008, from 9:00 a.m. until 12:00 p.m. (15 contact hours, plus some “homework”). The first day, students introduced themselves and discussed why they had chosen this course; they said: it looked interesting (4), it looked fun (4), they have always been interested in interior design (2), their parents signed them up (2), and it was a mistake (1). After introductions, they were given a pre-test to identify their knowledge of interior design for the purpose of the pre-test and to inform the curriculum. The same test was administered on the last day of class to see what they had learned in the course of the week.

Throughout the week, students recorded daily activities in their own personal journals, conducted research (“homework”) about the products/activities that would be sold in their retail space, selected finishes, drew basic floor plans in their journals, and constructed a model of their final designs in a shoebox accompanied by a finish board. Students presented their designs to the group on the last day.

There were daily, brief discussions about the day’s activities and a small group project before working on their retail space. Observation and sketching were common activities. Once, students toured the interior of an award-winning bowling alley on campus and another time explored the campus’ green spaces. With both activities, students were challenged to “see” space differently by sketching it from different views or drew based on the premise that their eye was a camera’s zoom lens so that they

could draw intimate details of commonly found natural objects. Lively discussion ensued as these sketches were shared.

Findings

As part of the pre-test that was administered, students were asked about typical tasks of an interior designer, an interior decorator, and an architect. Responses indicated that most students defined the tasks of an interior designer similarly to those of an interior decorator, identifying the main foci as color and furniture selection. However, of the 13 students only 9 provided a response; of those only three articulated a semi-accurate response. In the post-test, every student attempted to explain the tasks of an interior designer and many students (7) provided a partially correct definition. When asked where they learned about interior design, most students in the pre-test said that it was from a family member or friend, or that they didn't know anything about it. In the post-test the majority of students (8) said that they know an interior designer or referred to the educator and this course as their source of knowledge.

Supporting the thought that most of the students believed at the beginning of the week that the roles of an interior designer and decorator are the same; the pre-test showed that few students (4) thought that it was necessary to have a college degree to practice interior design. However this changed dramatically in the post-test, when nearly all students (12) responded that a college degree is required. While almost equal numbers of students responded that the work of an interior designer is "fun" from the pre-test (8) to the post-test (9), their perception of the complex nature of interior design did change from the pre-test (8) to the post-test (13) responses.

Overall, the findings show that the students' understanding of interior design increased from the beginning of the week. However, there were still some misconceptions that were durable. Findings from this experience suggest the need to incorporate interior design into K-12 curriculum. An earlier intervention could provide a more in-depth view of interior design than can be covered in a week long summer class.

Conclusion

The summer class was created as a way to deliver an enjoyable introduction to interior design for adolescents. Students were extremely excited to see their spaces come to life in a model form and to share their ideas with their peers. They also found sketching and journaling very engaging. Much discussion ensued from these experiences, energizing the student's interest in design generally, and interior design specifically. It is apparent that a cross-section of Twin Cities' adolescents does not have an accurate understanding of interior design. Beyond this knowledge much was learned about how to conduct this course. Curricular changes for the course will be implemented for summer 2009, at which time the pre- and post-test instruments will used to extend the data.

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Developing Emergency Shelters for Disaster Preparedness:

A Community Service Project

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ABSTRACT

Major natural disasters have reoccurred nationally and internationally since Katrina devastated New Orleans in 2004. With each new calamity, the author wondered what designers could do to assist local communities in preparing for future disasters. Inspired by the work of Habitat for Humanity[i], Rural Studio[ii], and Architecture for Humanity[iii], the author began exploring various opportunities to involve design students in providing humane solutions to meet community housing needs during future disasters. The "eureka moment" occurred while the author was driving by abandoned airport hangers in town: why not renovate these buildings as temporary emergency shelters? It would not only rejuvenate the old**,** desolate neighborhood, but would also provide space for various other community activities when the buildings were not being used as emergency shelters. Once a facility program is developed for emergency shelters, other cities also can adapt this concept as part of their disaster response plan, thereby be better prepared before the next unfortunate event occurs.

The purpose of this paper is to disseminate the positive results of this service -learning project the author introduced in the junior interior design studio to promote the value of community service and civic engagement. In this paper, the author will discuss the project concept and context in detail and provide information about project objectives and requirements, review relevant literature and discuss the importance of introducing a service - learning component in the interior design curricula. Teaching methods and tools and the design process adapted for this project will be described. Best practices and innovative ideas introduced will be explained. The author will discuss successful outcomes that students achieved and the challenges they faced. New approaches adapted for this project will be explained, and challenges the author faced while developing and executing this project will be discussed to assist other educators in developing future service learning and community design projects. The author hopes that sharing this experience will inspire other educators to involve young designers in service learning and civic engagements projects.

Developing Emergency Shelters for Disaster Preparedness:

A Community Service Project

NARRATIVE

Project Introduction and Objectives

The idea for emergency shelter prototype emerged while exploring the options to involve interior design students in service learning projects wherein: 1) disaster affected community can receive much needed temporary shelter design prototype, and 2) interior design students can gain service learning experience. The project involved eleven interior design students in the redesign of three abandoned airport hangers in Ruston, Louisiana. Implementation of this project was made possible by the receipt of a $15,000 grant from University of Louisiana's Learn and Serve grant to promote service - learning experience. Working together, the author and students proposed renovation plans for these buildings. The program developed for these facilities were then presented as a future temporary emergency shelter prototype for the local community so that funding agencies, professional and community organizations can be prepared for the next disaster.

The primary objective was to develop emergency shelters for families who are affected by disasters and need a shelter for a few days, weeks, or months at a time on an as-needed basis. The specific objectives were to:

- Introduce a service learning and civic engagement component in design curricula that promotes universal human values of *"Tolerance, Respect, Love, Compassion and Prosperity"* for all.
- Encourage student & faculty participation in disaster recovery and preparedness efforts.

Literature Review

Author extensively researched strategies for how to provide meaningful service learning experience for students. While searching for the answer: "*how to develop civic minded designers?"* the author found a book "*Common Values"* by Sissela Bok, who suggested "*developing limited set of values so down-to-earth and so commonplace as to be most easily recognized across societal and other boundaries. To the extent that they are acknowledged as common and respected as such."* (Bok, 2002). That sparked another question: "how could one define common values for interior design education?" The author found answer in Wendell Bell's "*Values, Objectivity, and the Good Society, Volume 2 of Foundations of Futures Studies*." In this study, Bell lists universal human values which have stood the test of time. Inspired by Bell, the author developed the following "Universal Human Values" in the context of interior design education:

1. Tolerance: for all cultures, religions, races and people and difference of ideologies and values (Relates to Global Issues)
2. Respect: for knowledge, new experiences, ideas and thoughts (Relates to Education and New Innovations)
3. Love: for all leaving, breathing organisms (Relates to Environmental Awareness)
4. Compassion: for anyone in need (Relates to Civic Engagement)

5. Prosperity: for all (Relates to Social Justice)

Once these values were defined, author searched for much needed precedents for this project. Two books served as a guiding light: "*Design Like You Give a Damn*," by Architecture for Humanity, and Dean and Hursley's, "*Rural Studio: Samuel Mockbee and an Architecture of Decency."* These books provided information on community service projects under taken by architects and design students and inspired students immensely.

To encourage environmentally conscious design solutions, author wanted students to research sustainable/ green design solutions. Students reviewed *Ten Shades of Green: Architecture and the Natural World* by Buchanan, *Sustainable Design for Interior Environment* by Winchip, *Green Architecture* by Wines, *Sustainable Construction: Green Building Design and Delivery* by Kibert, *The Green Studio Handbook: Environmental Strategies for Schematic Design* by Kwok, *Sun, Wind, Light: Architectural Design Strategies* by Brown, *Heating, Cooling, Lighting: Sustainable Design Methods for Architects* by Lechner. Students formed groups and collectively worked on their research assignments. Research information was formulated in a twofold comprehensive package: a) a booklet was prepared that contained in-depth research data on green strategies and case studies that students could use as a reference**,** and b) presentation boards were prepared outlining the most significant research information that the local community could understand and use.

Teaching Methods and Tools

Author incorporated Kolb's experiential learning theory that includes associative real life situations and the use of critical reflection as a learning tool[iv]. Active learning[v] (what

Kolb termed concrete evidence) involves direct exposure to and interaction with a real-life situation. Reflective observations[vi] include reflection on “real-life” experiences. Thus, learning begins with an experience, continues with reflection**,** and leads to action. During abstract conceptualization[vii], students draw conclusions about real-life experiences. In the last phase, active experimentation, these conclusions are tested[viii]. The author utilized the following tools:

- **Combination of lecture/discussion:**

  The author encouraged active participation of students during presentations by posing controversial questions, asking students’ opinions, encouraging students’ comments, and fostering an open, friendly environment in which students could provide their feedback, discuss their views, and compare and analyze information.

- **Creative expression:**

  Students were encouraged to research various subjects, digest the information, and present their findings in creative manner. Presentation board layouts and design decisions were presented and discussed, and the best layout was selected as a final format for presentation. Everyone enjoyed discussing, debating**,** and expressing their opinions in a creative manner!

- **Reflective Thinking:**

  The journal was used as a tool to document observations**,** and provided a medium in which students could think critically about their real-life encounters. The students were asked to express their feelings through sketching which facilitated reflective thinking. Most students diligently recorded their thought processes, feelings**,** and

observations**,** and used it as their source book for ideas, materials**,** and information about green design strategies.

Design Process

- **Program Generation:**

  Students narrowed down requirements for the shelters after reviewing many case studies. A meeting with a psychology professor was arranged to create awareness about the needs of people in distress. After meeting with the psychologist, students debated which functions and activities were most important for evacuees and discussed space requirement to generate the program for the shelter. The building program was divided into three categories: administration and café (see Fig. 1), living quarters (see Fig. 2) and community activities (see Fig. 3). Each activity was assigned a building according to its space requirement.

- **Feasibility Study:**

  Students visited the site, measured the existing buildings, documented and analyzed the old airport hangers' existing condition to determine if the buildings could meet the space requirements and can be renovated at a reasonable cost.

- **Concept Generation:**

  Music, art, poetry**,** and articles related to grief, pain and suffering, hope and healing were introduced to assist students in understanding the state of minds of distressed people. Inspirational architectural case studies were shared. Each group generated various concept ideas, and reconvened to select the most appropriate concept for their building and what it represented. Concept sketches, drawings, and models for the re-design of the buildings followed.

- **Schematic Design:**

  Student teams redesigned the buildings based on their concepts, research findings, condition of the airport hangers, and the neighborhood's context. Students presented the first draft of their schematic design to get feedback from faculty members. Sustainable design principles, appropriate construction systems, and green material selections were considered to reduce the impact on the environment and to make the renovation affordable.

- **Design Development:**

  Students discussed feedback received within their groups and with the author and made appropriate changes to enhance their designs. A detailed site plan, building renovation plans, sections, elevations, and reflected ceiling plans were prepared and presented to the author for corrections. Once approved, each group prepared final drawings and submitted them to the presentation manager who developed cohesive presentation boards for this project.

- **Leadership Skills:**

  In order to develop individual leadership skills, the studio was set up and run as an independent firm. Students prioritized tasks, discussed their strengths and weaknesses**,** and assigned appropriate roles within the group. Important tasks were identified, and each student was assigned a task accordingly. For example: the project manager was responsible for scheduling task and made sure that the project deadlines were met**;** a presentation manager coordinated the formulation of a cohesive presentation scheme**;** a document editor edited the presentation materials for final publication**;** and an accountant tracked time and finances.

- **Introduction of Technology:**

  A web-designer came to show the group how to develop a web site. Students selected a web manager who developed a web site for the overall project. Students utilized laser technology to develop models.

Through this design process**,** students learned how to design affordable, sustainable**,** and contextually appropriate emergency shelters that blend well with the existing neighborhood.

Outcomes and Conclusions

Students understood Robert Venturi's statement "*wall is a momentous architectural event"* and how wall molds the division between space and form and how the elements of any building share the essential dual-countenance of the wall, window, and threshold. Students stressed thorough integration between the building's interior and the character of the building's exterior form, approach, and total sequence of spaces.

The students also commented that they felt empowered to impact change in their communities and have more confidence as they proceed toward practicing interior design professionally. In conclusion the authors found that the students developed:

- Vicarious understanding of site planning and programming.
- Greater appreciation for the shaping of the building's envelope and openings.
- Working knowledge of mechanical system layout, importance of lighting and its integration in building design.

Author learned that engaging students in community based projects requires:

- Establishing a clear method of communication.
- Active management of project duration and intensity.

- Immediately defusing conflict arising from collaboration.
- Holding each team member responsible for their respective duties.
- To be *nothing but positive* in every situation!

If above mentioned guidelines and values are adapted, collaborative community service projects can be successful. End Notes

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[i] President Jimmy Carter established Habitat for Humanity.

[ii] Samuel Mockbee established Rural Studio at Auburn University in Alabama.

[iii] Architect Cameron Sinclair and freelance journalist and documentary producer Kate Stohr established Architecture for Humanity in 1999.

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Fig. 1 Airport Hanger 1: Administration and Café

Above Left: Existing Airport Hanger Condition
Above Right and Below: Rendering of Proposed Dining Area
Left Middle: Models
Below Left: A student is presenting their proposed renovation plans

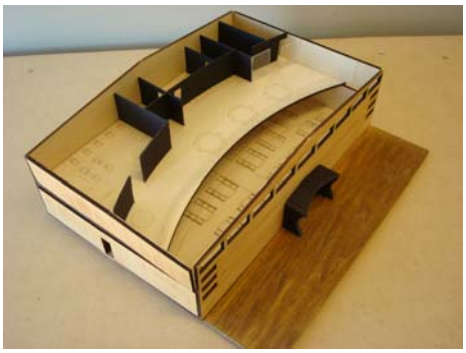
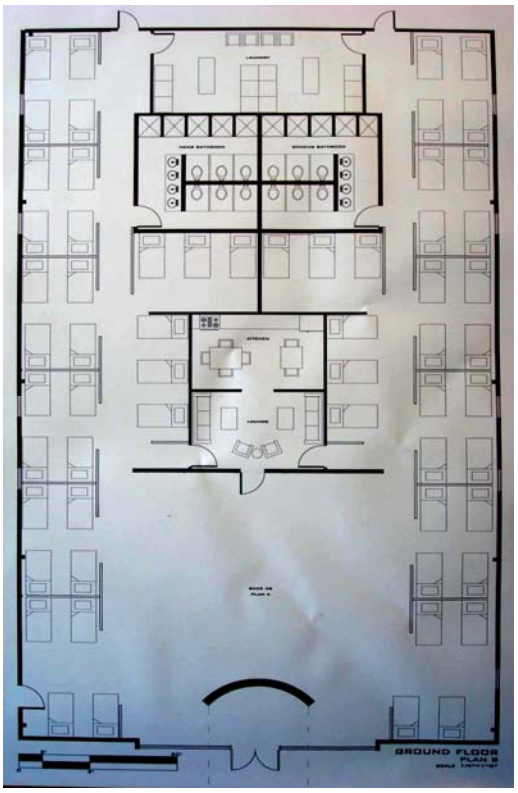


Fig. 2. Airport Hanger 2: Living Quarters



Above Right: Existing Airport Hanger 2, Left: Proposed Floor Plan for Living Quarters

Fig. 3. Airport Hanger 3: Community Activities

Above Left: Existing Airport Hanger 3, Right: Model of Proposed Community Space
Below: Material Selections, and Renderings for Proposed Community Space

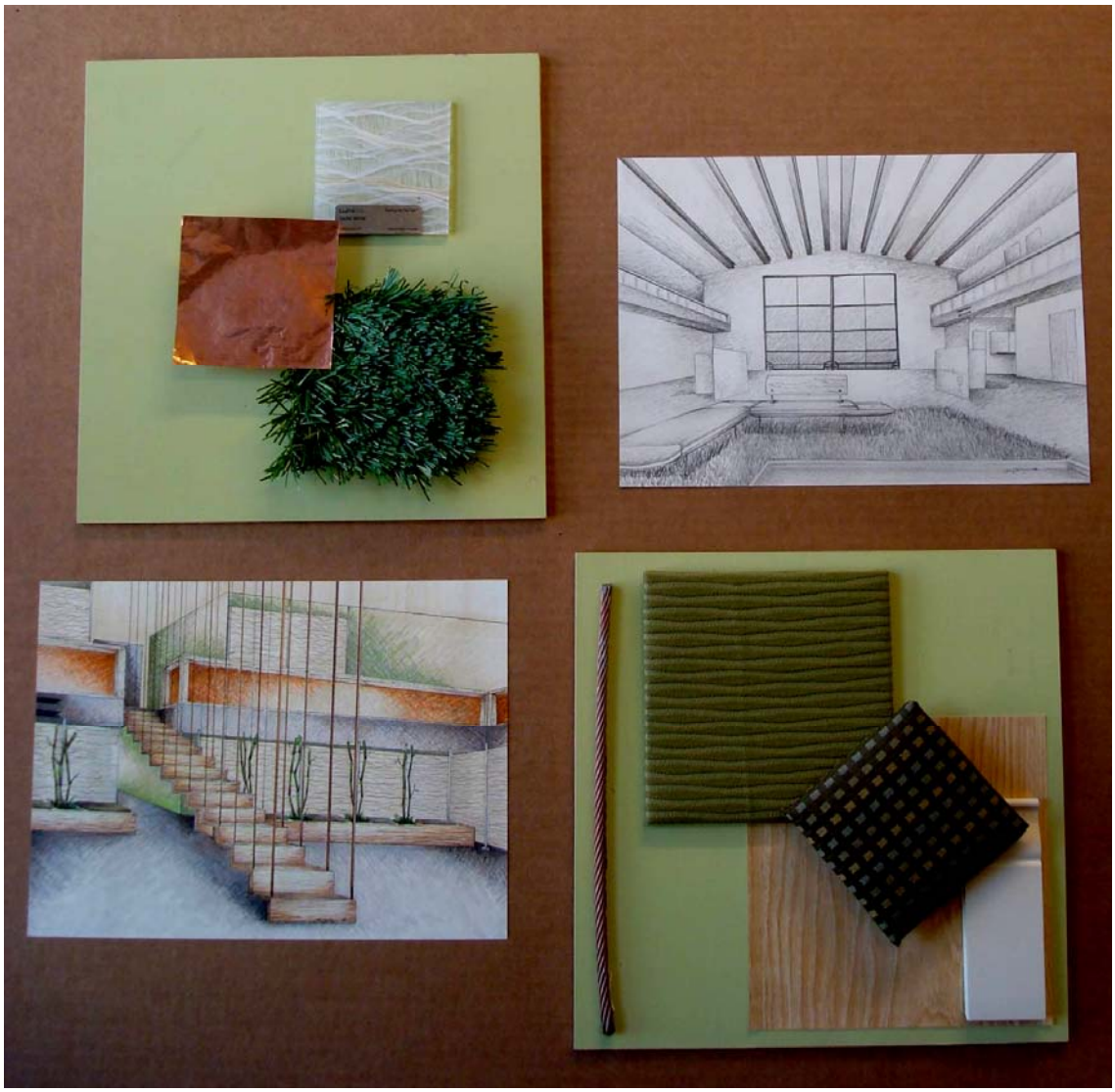


Fig. 4. Airport Hanger 3: Community Activities

Above: Rendering for the Proposed Entrance Area, Below: Student Presentation Photo

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Privacy in Home Environment:

A Comparative Approach between Gujarati and Arab Cultures

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ABSTRACT

Issue

CIDA requires that interior design programs cultivate awareness of alternative possibilities by providing diverse cultural experiences. Inclusion of diverse perspectives in design curricula is promoted by accreditation boards, advisory councils, and strategic plans of many interior design programs. Yet, in the US, Interior design is taught from a Western point of view as precedents of non-Western design is not readily available.

Purpose

The purpose of this paper is to bring to light how two non-Western cultures: Gujarat (India) and Arab (North Africa) incorporate concerns for privacy in design of their residential dwellings so that other educators can provide diverse perspectives in teaching interior design. In this paper, authors will: 1) discuss the Western thoughts on privacy, 2) compare it with non-western view, and 3) analyze Gujarati and Arab residential dwellings to show similarities and differences in how privacy is achieved in their home environments.

Context

The need to develop shelter is based on human being's desire to provide protection against natural elements and seclusion from others. Alan Westin believes that each individual tries to balance the desire for privacy with the desire for disclosure and communication with others, depending on the social and environmental conditions of the society in which he lives. The authors believe that the concept of privacy is a culturally loaded phenomenon that designers and educators must understand so that design decisions are well-informed.

Methodology

Authors adapted a grounded theory approach for the research design that encompasses a comparative, qualitative investigation of two distinct cultural settings[1]. Conceptual framework was developed to understand the role of religions, social and cultural traditions, male-female equation, joint family system, and hierarchy play in defining privacy, and in the development of spatial configuration, as well as articulation of exterior and interior components[2]. Data were analyzed using open and axial coding (Strauss & Corbin, 1990, p.62) which consists of breaking down, conceptualizing, and reconstructing data in new ways.

Privacy in Home Environment:

A Comparative Approach between Gujarati and Arab Cultures

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NARRATIVE

Introduction

Westin (1967) describes the concept of privacy as “the claim of individuals, groups, or institutions to determine for themselves when, how, and to what extent information about them is communicated to others." (P.1). According to Westin, each individual tries to balance the desire for privacy with the desire for disclosure and communication with others, depending on the social and environmental conditions of the society in which he lives. He parted privacy into four types: 1) solitude, 2) intimacy, 3) anonymity, and 4) reserve. While Marshall (1972) added the fifth component 'seclusion to Westin’s theory, Altman (1985) differentiates between the desired and achieved levels of privacy. Most of the studies on privacy were limited to behavioral understanding of the phenomenon, but lacked to address the physical environment. This study attempts to address how privacy is viewed in non-Western culture using a dichotomous approach, environment and behavior concomitantly.

Privacy in Gujarati Culture

In Gujarati culture and dwellings, issue of privacy transcends social, religious, cultural, and economical differences and achieves sacredness through articulation of

exterior and interior elements. Caste division, male-female equation, joint family system, climatic requirements also play a role in defining and development of concept and concerns of privacy. For example: *Pole* houses of Gujarat are constructed within a confined settlement in a dense pattern and do not seem to provide privacy. However, as one approaches the house, one can sense the privacy concerns at various levels beginning at the entrance porch. Thacker(2004) notes that an *otlo*, (a narrow raised platform) is designed to create a transitional space between street and the house and serves as a communication zone between the guest and the resident of the house, while *umro* serves as the threshold. The entrance doors of these houses generally have small window - like openings with metal or wooden grills that serve as a veil between an outsider and the female occupants of the house (Fig. 1 -2). After crossing *otla*, one can enter into a *baithak (living room),* which serves as a buffer space between *otla* and the main house*.* Traditionally, the *baithak* used to be a male domain, women rarely entered in to the *baithak*. *Chowk (*open interior courtyard) *can be seen from baithak* (Fig. 3, 4). Semi open space between *baithak* and *chowk* is called *parsal. Chowk* served as the nodal point and connected all other areas of the house including *rasodu* (kitchen), *paniyaru* (place to store drinking water), and the *puja* (prayer room), predominantly female area of the house. The farther most room in the house from the street is called *ordo (room)*. Only male members of the family, friends, and servants are invited in the inner sanctum of the house highlighting the need for privacy based on gender differences (Fig. 1 -2, 5).

Various threshold changes (*otlo, omro, parsal*) and sequential spatial development reflect gender based privacy concerns in Gujarati household. Thakkar

(2004), notes that the need for privacy in the business transaction led to the development of *divankhanu (a larger reception or meeting room for male occupants and the guests),* on the upper floor of the pole house.

In contrast to the Pole houses, were privacy concerns are dealt in a subtle manner; palaces reflect privacy concerns in a very obvious way: by separating male and female activities in two different parts of the palace. Here privacy is achieved through entrance gates, various threshold changes, and by development of paths and courtyard sequences. Many palaces had female wings separately built to provide privacy for women and protect their honor. Only family members, guards and servants entered the female wings of the palace. This practice became prevalent after Muslim emperors invaded Guajat.

Although *Jali* form developed in Islamic tradition to provide light, it later transformed as a privacy screens in palaces, havelis (large houses for rich people) and pole houses (homes for common folks). The use of *jali* provided privacy for ladies inside the house by shielding their identity, as the person outside couldn't easily see inside. Here, the privacy concern is not only based on gender differentiation but also on socio-economic and religious aspects.

Privacy in Arab Culture

Arab Muslims use the metaphor *Dari sattaratu a'ri: "*my house is the shield of my disgrace." This highlights the importance of the concept of privacy in their lives. *A'ri* or disgrace refers to the lost of chastity, honor, loyalty; lack of the protection of the family from intruders and other issues[3]. The *dar*, (home) provides an arena where our natural

innate behavior is displayed beyond the artificiality of our behavior in public environments and away from the eyes of the intruders (Fig 6). Transcending the Arab adage, the Islamic tradition stated clearly in different theological references the importance of privacy. Both the Qur'an[4] and the *Hadith*[5] decreed the prominence of visual and auditory privacy[6].

The Prophet Muhammad (PBUH[7]) in one of his allocutions states: '*Ida aradtum qada hawaijikum fa-ista'enu bi-essatree wa el-kitman',* meaning*,* if you need to accomplish your needs, seek support using protection and silence. Thus visual and auditory privacy played a major role in the shaping of the Arab Muslim traditional buildings and has remained one of the major cornerstones of the Arab Muslim house. Visual privacy can be sensed in the Arab Muslim home interior at different levels: separation between male and female sections, at the level of the entrances of the house, separation between children's bedrooms, and reception of guests.

The doorstep marks the transition between public and private realms, where the notion of privacy reaches its apex (fig 7). In order to prevent the passerby's eye to intrude on the resident, devises are used to shield the interior of the home from the outside including *musharabia*, wooden lattice work, to a total architectural re-arrangements like arches and traditional artifacts providing a clear spatial transition, as well as endowing the doorstep with an instantaneous cultural reading (Fig 8). For example: at the ground level of the house, a wall is erected in an open large living room that divides the room in two spaces; the space facing the doorstep has received an additional treatment to convert the extrovert character of the entrance into an L shape introvert entrance, *'une entrée en chicane*' to provide visual privacy (Fig 9). At times

backyard doors are refurbished to become the second main entrance (women's entrance) of the house, which coincides with the kitchen and its peripherals. These are considered as the women's realm.

To provide the bedrooms with more privacy a non-bearing partition wall is built and doors are added to create a more private setting. The bedrooms' arrangement is emphasized by the children's separation. The Islamic teaching ordains the believers to separate between boys and girls when they reach the age of ten[8]. The separation between girls and boys is a must according to the Islamic teaching.

For Muslims, being courteous to his/her guest(s) is an inherent part of Islam[9]. Guests' consideration is an intrinsic component, among others, that shape the home interior of the Arab Muslim family. The arrangement of the home to satisfy a guest is an irreproachable issue, yet taking into account the reciprocal privacy of the family and the guests' privacy. Alterations to the house are made to satisfy the family needs, but also to provide an adequate environment for the guests such as adding a bedroom and a bathroom at the basement level to put the guest at ease: The orientation of the windows are also very important, the street windows are not desired, as it lacks privacy and curtains have to be added. Privacy remains one of the most pervasive entities of the Arab Muslim family although the contemporary Arab Muslim family is not as traditional as it used to be.

Summary

Authors' preliminary findings suggest that privacy plays a pivotal behavioral role in influencing the design of the home environments and remained one of the most pervasive entity of these two community based cultural environments. Another very

important fact to note was that both cultures considered secondary *symbolic* functions of the space more important than the primary *utilitarian* functions. Additionally, it was found that it is not the primary functions of privacy (secluding oneself from the others, being solitary, intimate, anonymous, or reserved) that are of concern, on the contrary, the secondary semantic functions (why do we seclude ourselves) or the meanings anchored to such behavior was more important.

End Notes

[1] Two distinct cultures are: Gujurat (India) and Arab (North Africa). Participants were carefully selected to understand information related to physical environments and its conspicuous privacy manifestations. The primary collection of data included social and physical contexts based on participant's observations.

[2] The exterior and interior components include transitions, courtyard configurations, visual field and openings, circulation, decorative and symbolic artifacts.

[3] Other issues are: being greedy, showing no respect to elders, being unjust, being transgressor

[4] Allah's [SWT] words

[5] The Prophet sayings [PBUH]

[6] Quran describes concern for privacy this way: "Say to the believing men that they should lower their gaze and guard their modesty: that will make for greater purity for them: And Allah is well acquainted with all that they do. And say to the believing women that they should lower their gaze and guard their modesty; that they should not display their beauty and ornaments except what (must ordinarily) appear thereof; that they should draw their veils over their bosoms and not
display their beauty except to their husbands, their fathers, their husband's fathers, their sons, their husbands' sons, their brothers or their brothers' sons, or their sisters' sons, or their women, or the slaves whom their right hands possess, or male servants free of physical needs, or small children who have no sense of the shame of sex; and that they should not strike their feet in order to draw attention to their hidden ornaments…"(Qur'an 24:30-31).

[7] PBUH: Peace be upon him.

[8] The Prophet (PBUH) on the education of children says: teach them at seven and discipline them at ten and use different bedrooms for them (boys and girls).

[9] In the right and sound *hadith*, the Prophet (PBUH) related: "whoever believes in Allah and the day of judgment, he should be generous and courteous to his neighbor, and whoever believes in Allah and the day of judgment, he should be generous and courteous to his guests, and whoever believes in Allah and the day of judgment, he/should say benevolent saying, or he/she has to keep silent." The Forty Nawawi Hadith (16th ed.) (1991).

Fig. 1: Pole House. Photo of an otla and front elevation of a Pole house.

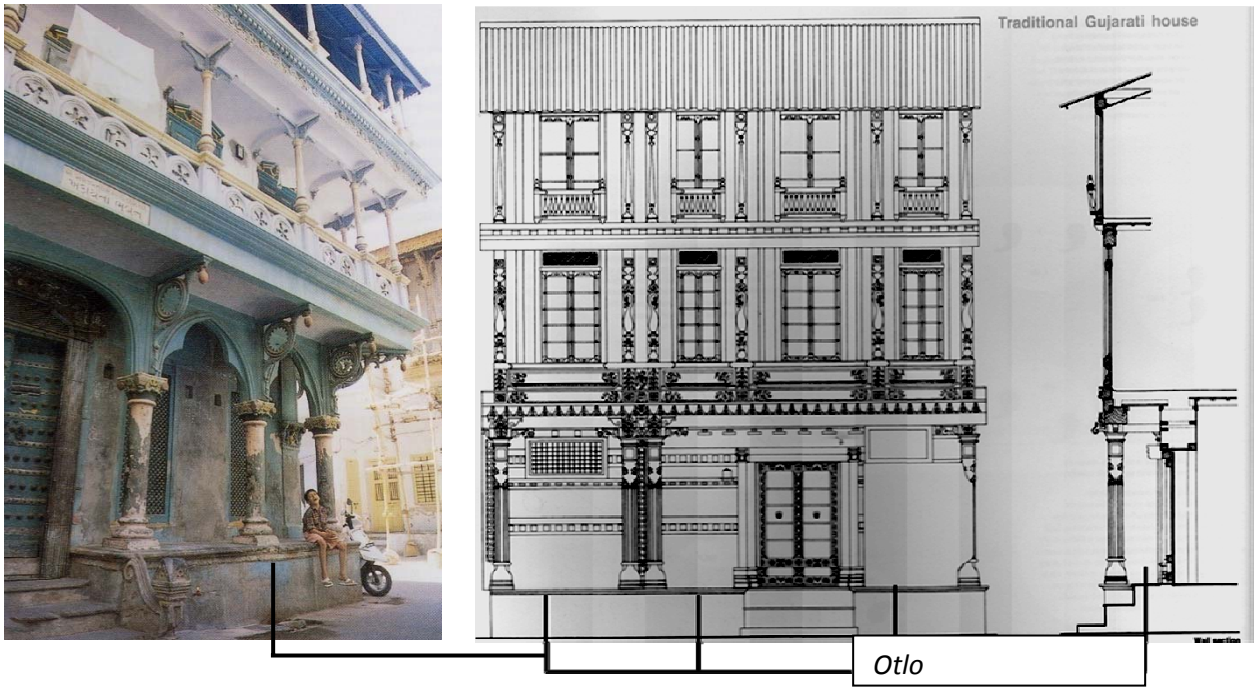


Fig. 2: Section showing interior of a Pole House

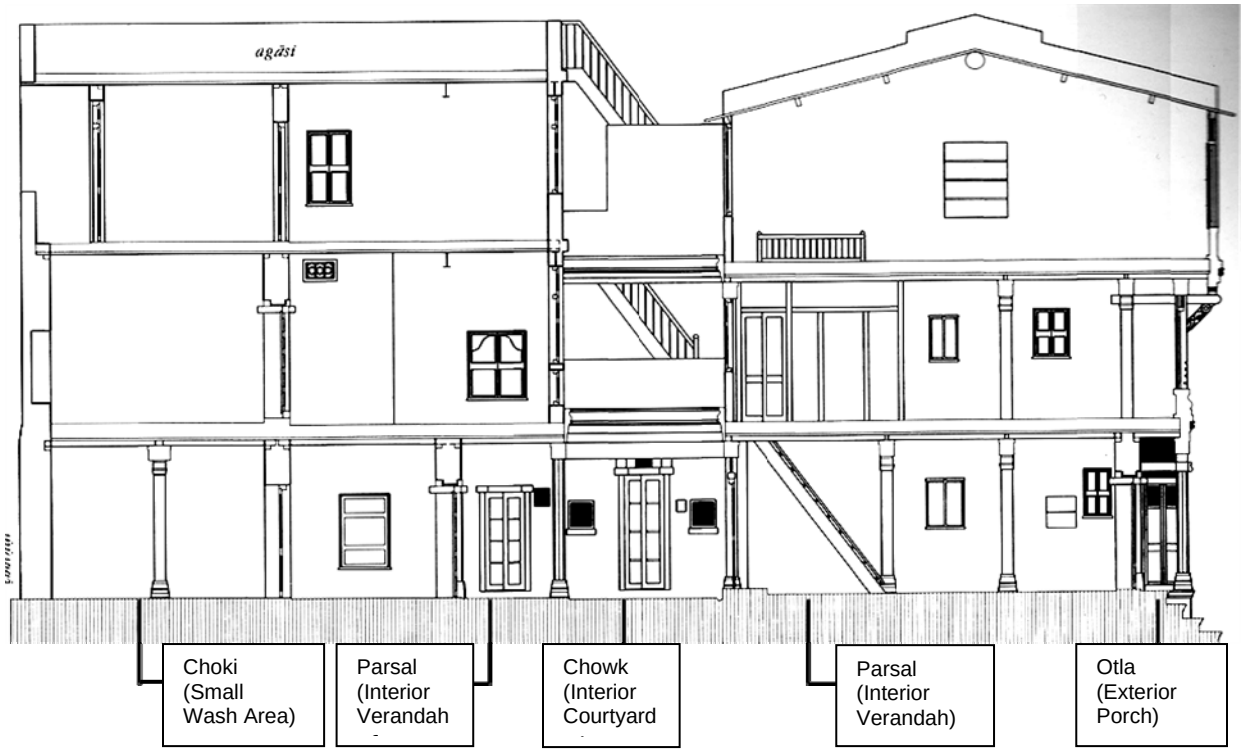


Fig. 3: Section showing Gujarati Haveli Interior. (A dwelling of the wealthy people)

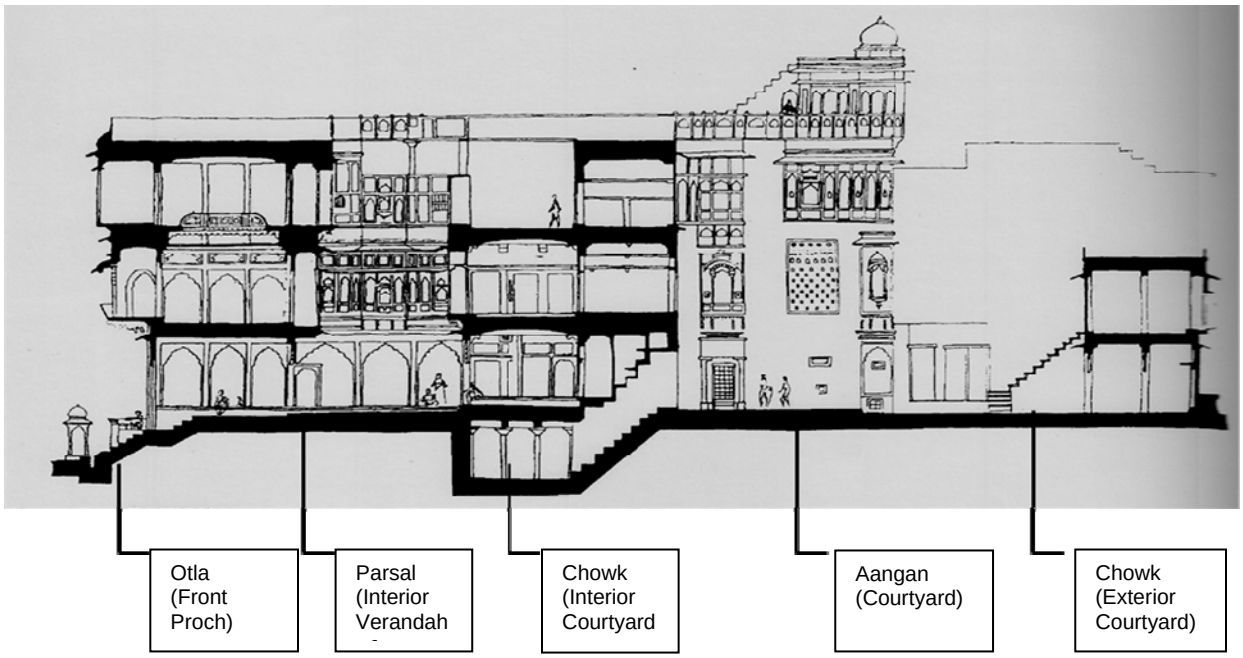


Fig. 4: Photographs of a Haveli's Chowk

Fig. 5: A Traditional Small Gujarati House

Chowk (Courtyard) in a traditional Gujarati house is a prime nodal point and links outside to inside and all the spaces of the house together. The chowk serves as transitional space (from public to private) and functional space and also represents the religious center of the dwelling. It is used for cooking, get to gathers, social activities, celebration of festivals, for resting, to bring light to otherwise dark areas of the house like kitchen, and to catch breeze. Generally male guests do not travel beyond this space.

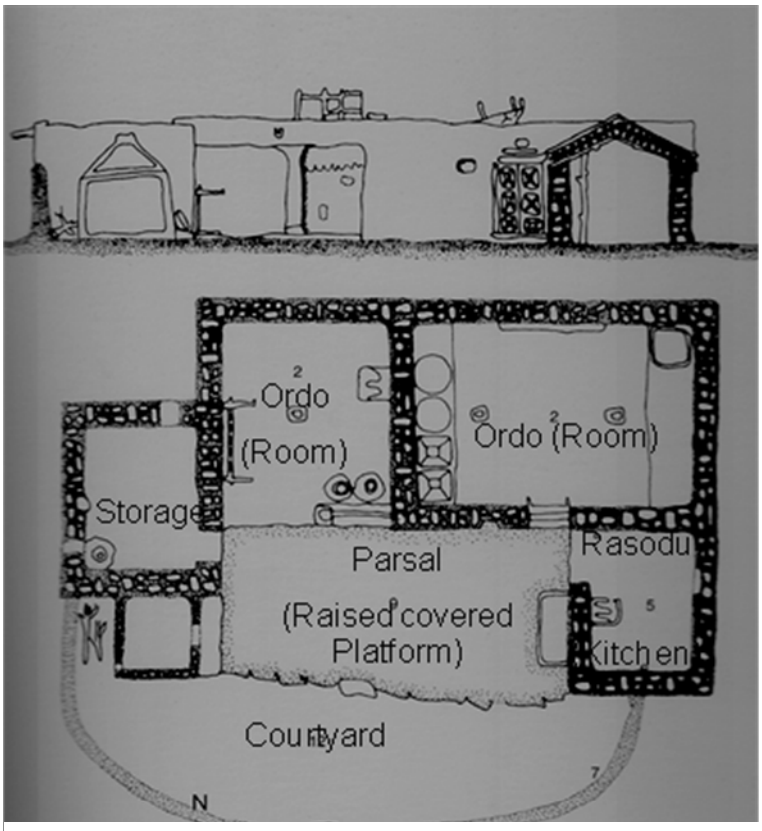


Illustration taken from book "Architecture of the Indian Desert."

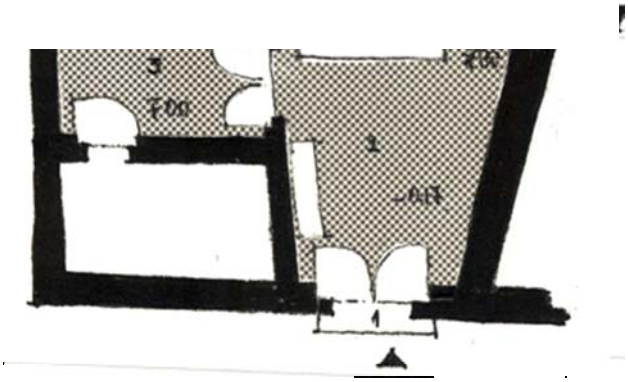
Courtyard and parsal (verandah) is used mostly during the day by women and by men in the evenings and night. Parsal also serves as thrash hold, and a transitional space between public and private space, providing partial privacy.

Fig. 6: Typical transition to an Arab house through a dead end underscoring privacy concept.

Fig. 7: Doorstep and arch demarcate the exterior from the interior environment but also provide a spontaneous cultural reading of the built environment.

Fig. 8: *Musharabia*, i.e., wooden lattice window architectonic device that permits the space users to see outside without being seen.

Fig. 9: The main entry to the house is a world of transition that features an “L” shape entry veiling the interior from the exterior environment.



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Recycling Behavior in the Home Environment: A Comparative Approach between Daegu, South Korea and Lubbock, Texas, United States

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ABSTRACT

Waste management has become a serious concern in the world because population growth and prosperity produce a lot of products that are both wasted and disposed of after use (Barr, 2002). Thus, it is critical to develop a system of sustainability.

In 2005, Americans generated about 245.7 million tons of solid waste (USEPA, 2008). Hattam (2005) mentioned that only 30% of the waste is recycled and most trash is produced from households. Oskamp et al. (1991) suggested that one vital method to reduce solid waste is recycling in the household. Thus, interior designers can play a vital role of increasing recycling by designing areas for recycling in homes.

The purpose of this research is to first, investigate the readiness to recycle in the home environment, design an appropriate location for a recycling bin to recycling behavior, and identify an appropriate design for a recycling bin to promote recycling behavior. The intention of comparing two cultures is to evaluate recycling behavior in the home environment from two distinct settings to understand the reasons why

people's behaviors towards recycling are different. The results will help the designers to implement recycling in homes and create a recycling environment within the community.

A quantitative research approach was used in the present investigation. A total of 200 samples, which consists of 100 samples from Daegu, South Korea, and 100 samples from Lubbock, Texas, United States, were used for the current study. The minimum age requirement was 18. A random selection method was used by conducting the survey in public settings such as downtown areas, malls, and parks.

The questionnaire for this study was developed to research how people perceive the idea of recycling in their homes in order to determine the most convenient area to place a recycling bin in homes and the design of the recycling bin to promote recycling behavior. The questionnaire included five categories (71 questions): socio-demographics (9 items), psychological aspects of recycling behavior (35 items), recycling behavior (12 items), recycling location (4 items), and design of recycling bin (11 items).

Preliminary findings indicate that in Daegu the majority of the respondents have a general knowledge of the materials that can be recycled. But, it appears that over half of them do not know where recycling is done in their community nor know of a local recycling program. On the other hand, the samples collected in Lubbock, TX point out that not only do they have a positive knowledge of recyclable materials but know of recycling programs and recycling locations within their community.

In terms of recycling behavior and understanding the effects of recycling, all respondents demonstrated that they have a concern for the environment and know that recycling is important. Yet, it seems that the respondents in Daegu consider themselves to recycle and will feel a sense of guilt if caught not recycling. In contrast, samples in Lubbock have a greater number of those who do not consider themselves to recycle and are not conscious of others knowing of the fact.

Other preliminary findings show that all respondents agree that financial incentives will encourage recycling behavior. Regardless, respondents of Daegu indicate that they expect their friends and neighbors to recycle as it is expected from them for the respondent to recycle as well. Where as in Lubbock, TX there is a lesser expectation that others will recycle, and respondents believe that others do not expect it from them either.

NARRATIVE

Nowadays, waste management has become a serious concern in the world because population growth and prosperity produce a lot of products that are both wasted and disposed of after use (Barr, 2002). Thus, it is critical to develop a system of sustainability.

In 2005, Americans generated about 245.7 million tons of solid waste (USEPA, 2008). Hattam (2005) mentioned that only 30% of the waste is recycled and most trash is produced from households. Oskamp et al. (1991) suggested that one vital method to reduce solid waste is recycling in the household. Thus, interior designers can play a vital role of increasing recycling by designing areas for recycling in homes.

The purpose of this research is to first, investigate the readiness to recycle in the home environment, design an appropriate location for a recycling bin to promote recycling behavior, and identify an appropriate design for a recycling bin to promote recycling behavior. The intention of comparing two cultures is to evaluate recycling behavior in the home environment from two distinct settings to understand the reasons why people's behaviors towards recycling are different. The results will help the designers to implement recycling in homes and create a recycling environment within the community.

Many studies about determinants of conservation behaviors such as recycling in the household have been conducted. According to Gamba and Oskamp (1994),

individual variables examined by past researchers pertain to knowledge, environmental attitudes, motivations, and demographics.

Understanding how individual attitudes and behaviors can make a substantial contribution to an appreciation of what factors shape behavior and how these might be changed is important. Psychological research toward conservation behaviors needs to be studied in order to comprehend the factors encouraging or detracting from recycling (Oskamp et al., 1991). The different psychological aspects between the recyclers and non-recyclers will help us understand what obstacles exist for an individual or household to recycle, and how we can overcome this hindrance to encourage people to recycle in their households.

Socio-demographic variables evidently do have an impact on recycling behavior. However, these vary according to the behaviors being studied. Hence, there is a need to be more specific about the behaviors being researched, as well as using appropriate techniques to assess the predictive power of such variables in the context of other factors that could impact upon environmental behavior (Oskamp et al., 1991).

Guagnano, Stern, and Dietz (1995) tested a model in which attitudinal factors and external conditions act in combination to influence behavior. They found that possession of a bin had a significant effect on recycling behavior. In their study, people did not pursue to change their behavior without the bins. Many studies in quite varied settings such as housing tracts, apartment complexes, business offices, and college dorms, have all shown that having recycling collection receptacles close at hand notably increased the amount of recycling (Jacobs, Bailey, & Crews, 1984; Oskamp et al., 1991).

An interesting finding from Macy and Thompson's study was that the main reason for recycling in the home environment was to reuse recyclable materials. The research in Macy and Thompson (2003) presented that people are more likely to have storage area for recycling outside near the kitchen due to their convenience.

Besides, they found that there was not a strong relationship between the size of storage area for recycling and people's awareness of its convenience; however, they considered that the correlation between the storage of recycling in one place and convenience are more important (Macy & Thompson, 2003). Howenstine (1993) also supported the fact that the location of recycling is more critical than the size of storage area.

A quantitative research approach was used in this investigation to identify how people perceive the idea of recycling in their homes in two different cities, Daegu, South Korea and Lubbock, Texas, United States. A total of 200 samples, which consists of 100 samples from Daegu and 100 samples from Lubbock were used. A random selection method was used with a minimum age requirement of 18, by conducting the survey in public settings such as downtown areas, malls, and parks.

The questionnaire for this study was developed to research how people perceive the idea of recycling in their homes in order to determine the most convenient area to place a recycling bin in homes and the design of the recycling bin to promote recycling behavior. The questionnaire included five categories (71 questions): socio-demographics (9 items), psychological aspects of recycling behavior (35 items),

recycling behavior (12 items), recycling location (4 items), and design of recycling bin (11 items).

One hundred usable questionnaires, identified as completed, were the source of data collection for each city. The data were of a descriptive nature. The responses were then analyzed by frequency distribution, analysis, percentages, bivariate correlations, and ANOVA using SPSS Statistical Package.

The results proved to be appealing as some of the correlations between the two cities corresponded to one another and some differed. First of all, the collected socio-demographics between Daegu and Lubbock were similar in terms of educational level and total household income. Though there were higher female respondents in Daegu than Lubbock by approximately 20 percent.

Regardless of cultural differences, the result confirmed that people who have knowledge of recyclable materials have a greater tendency to recycle. This correlation is also true with those who have a favorable viewpoint towards recycling. The respondents have demonstrated that another motive to recycle is social pressure. All of these conclusions are in line with the determinants of household waste recycling as outlined in the literature review.

The frequency distribution of respondents' educational level ranged from middle school graduate to doctoral degree. Yet, for either city the respondents' educational level had no correlation with one's tendency to recycle.

The clear differences amid the two cultures were that the respondents in Daegu showed no correlation between one's concern for the environment and recycling behavior, whereas respondents in Lubbock demonstrated that their environmental concern directly related to their tendency to recycle. Similarly, Daegu results illustrated that having space for recycling in their homes or a preference for a larger recycling bin compared to their generic trash can did not have any association with recycling behavior. Lubbock results, on the other hand, showed that having space for recycling in their homes and a preference for a larger recycling bin compared to their generic trash can translated to recycling behavior.

Regardless, respondents from both cultures indicated that their primary reasoning behind recycling is their concern for the environment (above 60 percent). Yet, 14 percent of Daegu respondents selected the financial factors as a motivation, whereas no one selected that choice in Lubbock. Instead, 20 percent chose self-satisfaction as their reasoning for recycling in Lubbock compared to 11 percent in Daegu.

For recycling bin location, the respondents selected that their current recycling bin location is their preferred location. Over 50 percent of Daegu's respondents selected the utility room for their recycling bin location with another approximately 20 percent selecting the entryway. In contrast, almost half of Lubbock's respondents chose the garage with another approximately 20 percent choosing the kitchen for the location for their recycling bin.

For the design of the recycling bin, the respondents of Daegu preferred a detachable bin that had a swing door and was automatically operated. As for the color, there was an approximately equal distribution between a recycling bin that matched the color of the cabinetry and the texture of the appliances and a recycling bin that contrasted from them. Lubbock respondents also preferred a detachable bin. But approximately half of the respondents chose a swing door bin and the other half chose a pull-push door bin. There was also a higher preference for the recycling bin door to be manually operated rather than automatically operated. For the color, there was a higher preference for a recycling bin that matched the color of the cabinetry and the texture of the appliances.

This study demonstrated the readiness to recycle in the home environment as many factors directly corresponded to recycling behavior. Also, the comparison of the two cities supported that the determinants of household recycling behavior are closely congruent multi-nationally. In addition, the study of two distinct cultures clearly portrayed that the location for a recycling bin and the design is distinct yet clear for each culture as it relates to their own home environment.

The contents of this study have proven to be valuable, but limitations exist as these samples cannot be used to generalize the entire South Korean and American culture. Even so, the outcome of this study can be used for future research activities that investigate how the determinants of household recycling behavior identified in this study relate to household recycling behaviors in other cultures.

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Improving Student Project Outcomes through Writing in a Senior Capstone Course

Margaret T. Konkel

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ABSTRACT

Purpose

> "The act of writing … allows us to manipulate thought in unique ways because our thoughts visible and concrete and allows us to interact with and modify them … writing progresses as an act of discovery – and furthermore, that no other thinking process helps us develop a given train of thought as thoroughly. Scientists, artists, mathematicians, lawyers, engineers – all 'think' with pen to paper …" (Fulwiler 1986, 21-22)

The purpose of this teaching study is to observe the differences in student project outcomes through varying the temporal placement of written self evaluations within the design process, and assessing whether student design work will better meet course requirements.

The process of discovery through self-evaluation is a major learning component to design studio courses. Teaching design students to 'think' with pen to paper through sketching, critiques and revisions all contribute to this learning objective. However, writing as self evaluation is often left out of the process. Writing has been shown to be an important tool in developing a student's creative process (Danko, et al), however the application of writing as a tool "not just to share our work, but to improve it before we

do" (Booth et al.2008, 12) must be appropriately timed to maximize its effect on project designs.

Method and Framework

In the Marymount University senior capstone course, students are required to individually develop projects from program to design solution. Professional jurors help in critiquing students in the deliverable stages, and a written component is introduced through the completion of a process book.

This study will compare these components across two semesters, fall 2007 and fall 2008, measuring the outcomes of student performance using rubrics and questionnaires. As shown in Figure 1, in fall 2007, student writing evaluations were completed at the end of the design process. In fall 2008, student writing evaluations were integrated within the design process.

Jurors are provided a rubric to rate student work at each critique of the three major deliverables (see Figure 2). Using a qualitative rating scale based on CIDA's levels of student learning, juror rubrics will be evaluated for differences in project outcomes between fall 2007 students and fall 2008 students. Student process books will be assessed by analyzing the grading rubric shown in Figure 3. Jurors who critiqued both semesters will be given a questionnaire that will provide their assessments of changes to student project outcomes. Students in the fall 2008 semester also will be given a questionnaire to evaluate their perceptions of their final design outcome and their self engagement within the deliverable stages of the project. Both questionnaires will use a Likert scale to evaluate aspects of the design process and outcome.

Importance and Relevance to Interior Design

This study's examination of the contribution of writing to self-discovery in the design studio will strengthen our understanding of student learning in the creative process, and provide insight into a new teaching model for the senior capstone course.

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Figure 1: Comparison of Juror Involvement and Writing Process, Fall 2007 and Fall 2008

Fall 2007:

Phase Deliverable:	Juror Involvement:	Writing Process:
Programming and Research	Review at completion of deliverable	n/a
Schematic Design	Review at completion of deliverable	n/a
Design Development	Review at completion of deliverable	n/a
Design Documentation	n/a	Student completion of process book

Fall 2008:

Phase Deliverable:	Juror Involvement:	Writing Process:
Programming and Research	Review 1 week prior to deliverable deadline	Revise project, document through writing section I of process book
Schematic Design	Review 1 week prior to deliverable deadline	Revise project, document through writing section II of process book
Design Development	Review 1 week prior to deliverable deadline	Revise project, document through writing section III of process book
Design Documentation	Invited to attend final presentation	Refinement and completion of ‘Lessons Learned’

Figure 2: Sample Juror Rubric, Fall 2008

Senior Project
Phase I Project Proposal
Juror Worksheet

Student Name: _____
Reviewer Name: _____

To the reviewer: You are reviewing the student project work that includes programming, research and client development. This deliverable represents five categories of work that the student will be compiling in their presentation next week, including: project description and client profile, goals and objectives, programming and research, program documentation, and code analysis. Please review the work that is presented to you, and rate the student work with your comments:

Rating Scale:
1 = the student did not present any work related to this question
2 = the student presented work, which demonstrates a lack of understanding of the skills or tasks required, and requires considerable revision
3 = the work presented is sound, demonstrates understanding of the skills or tasks involved, and requires further development
4 = the work presented is sound, demonstrates thoroughness in thought, and requires minor modification and improvement based on feedback
5 = the work presented is strong, demonstrates comprehensive thinking and application of knowledge, and professionalism in presentation, may require minor modifications based on feedback

Question:	Rating:	Comments:
1.Is the client profile clearly and thoroughly developed?		
2. Are the student's goals and objectives stated, and do they demonstrate relevance and insight into the project description?		
3. Has the student conducted research into the project type		
4. Is the research informing the programming data?		
5. Is the programming data compiled in a spreadsheet correctly? Are the SF numbers represented reasonable and grounded in research?		
6. Has the student evaluated adjacency relationships that represent knowledge gained through research?		
7. Is the code analysis complete and accurate given the research conducted and the individual's best interpretation of the code?		
8. Does the student demonstrate knowledge of codes relevant to their unique project type?		

Figure 3: Sample Process Book Deliverable Requirements

Senior Project
Process Book Required Deliverables:

Each graduating senior in the interior design department completes a senior project in the final studio, and compiles over the course of the semester a book that documents the process and completion of that project. The final book is then kept within the department as a record of that student's work, and as a source of inspiration for future senior studio participants.

The goal of the book is to document and reflect on the learning process in the final studio. Ultimately, the book will be spiral-bound, using 11"x17" pages in landscape format, and must include both graphics and text that illustrate the information outlined in the following table of contents:

Section I: Project Proposal
1. Project Description and Client Profile
2. Goals and Objectives
3. Programming and Research Summary
4. Program Document
5. Code Analysis

Section II: Conceptual Development and Planning
1. Overview of Programmatic Diagrams
2. Overview of Building Analysis
3. Preliminary Conceptual Ideas
4. Final Planning Solution

Section III: Design Solution
1. Statement of Conceptual Intent
2. Design Sketches and Model Studies
3. Conceptual Imagery
4. Final Design Drawings
5. Materials and Finishes
6. Furniture and Furnishings

Section IV: Conclusion
1. Goals and Objectives – Were They Met?
2. Lessons Learned
3. Conclusion

NARRATIVE

Purpose of the Study

> "The act of writing … allows us to manipulate thought in unique ways because our thoughts visible and concrete and allows us to interact with and modify them … writing progresses as an act of discovery – and furthermore, that no other thinking process helps us develop a given train of thought as thoroughly. Scientists, artists, mathematicians, lawyers, engineers – all 'think' with pen to paper …" (Fulwiler 1986, 21-22)

The purpose of this teaching study is to observe the differences in student project outcomes through varying the temporal placement of written self evaluations within the design process and assessing whether student design work will better meet course requirements. The study was developed as a result of noted decline in student project outcomes, wherein the act of written self evaluation following the completion of the design project resulted in a pattern of disengagement from the project outcome. The intent of the study was to explore the contribution that writing and self evaluation could make in fostering student engagement and if that engagement would improve project outcomes.

The process of discovery through self-evaluation is a major learning component to design studio courses. Teaching design students to 'think' with pen to paper through sketching, critiques, and revisions all contribute to this learning objective. However, writing as self evaluation is often left out of the process. Writing has been shown to be an important tool in developing a student's creative process (Danko, et al), however the

application of writing as a tool “not just to share our work, but to improve it before we do” (Booth et al. 2008, 12) must be appropriately timed to maximize its effect on project designs.

Background

In the senior capstone course at Marymount University, students are required to individually develop projects from program to design solution, with professional jurors providing critiques of project work at each deliverable stage. A written component is introduced through the completion of a process book, intended to represent in graphic and written form the evolution of the project outcome.

The course description states that students are expected to think, explore, research, question, create, analyze, synthesize, compile and evaluate information on many levels as part of the learning experience. Stated learning outcomes include the exploration of various design theories, thinking styles, future concepts, and developmental processes in the evolution of the design process; the integration of all elements of interior design into the projects; and the development and refinement of objective evaluation skills through written, graphic and oral presentation techniques. Professional jurors contribute to the learning experience by providing real practice knowledge and assessment and by representing to the students the standards and expectations of performance in professional practice. The process book supports learning outcomes by contributing to the development of objective self evaluation, and by facilitating the integration of juror critiques.

Method and Framework

This study compares the role of written self evaluations and juror assessments across two semesters, measuring the outcomes of student performance using rubrics and questionnaires. As shown in Figure A, in fall 2007, student writing evaluations were completed at the end of the design process. In fall 2008, student writing evaluations were integrated within the design process.

To evaluate the differences in outcomes between the two semesters, four research methods were employed. A content analysis of the student process books identified patterns of student self evaluation within the stated goals and objectives of the project, and written assessments of whether those goals were achieved at the conclusion of the project. Students in fall 2008 were given a questionnaire to evaluate their perceptions of their final design outcomes, their perceptions of the contributions of the professional jurors to their project outcome, and their sense of self engagement within the deliverable stages of the project. A focus group with jurors who participated in both semesters was conducted to assess their perceptions of changes to student project outcomes. And a comparison of juror rubrics was completed to identify differences in assessment ratings of deliverable outcomes between fall 2007 and fall 2008.

Results

Content analysis of student process books focused on two components of the written document: the statement of goals and objectives at the outset of the project and the self assessment at the completion of the project found in the ‘Lessons Learned’ section. The content review identified expressions of pleasure (“I am pleased”, “I am glad”), accomplishment (statements of advanced completion), and pride (statements of

“strongest”, “best”) It also tracked frequency of expressions of regret and disappointment having to do with the project outcome (“I wish I could have … “), having to do with time management (“I wish I had the time for ...”), and expressions of fear or holding back (“I was overwhelmed”)

As seen in Figure B, the content analysis identified a difference between the two semesters studied. The students in both semesters wrote positively about their projects similarly, with the students in fall 2007 showing 13 instances of positive expression, and the students in fall 2008 in 14 instances. This can be explained by the general sense of satisfaction that a student feels upon completion of his or her final project in the undergraduate curriculum, particularly given the independence that the senior capstone course offers. However, the two student groups differ in expressions of regret: student writings in fall 2007 indicate 15 instances of disappointment or regret, whereas the students in fall 2008 express such dissatisfaction only 7 times.

The student questionnaires (see Figure C) distributed to the fall 2008 students measured perceptions of final outcomes and self engagement using a Likert scale. Of a total of 11 students, 7 responded, for a 64% response rate. An analysis of responses supports the question posed in this study, with 100% of respondents agreeing with the statements, “My personal goals for this project were met,” and “Documenting my design process through writing each book section helped keep me focused.” In addition, 6 out of 7 respondents agreed, “I stayed more interested in my senior project than previous semester-long projects,” whereas 71% disagreed with the statement, “I felt progressively more off-track or behind with each passing phase.”

The focus group with four professional jurors provided an opportunity for those who had participated in both semesters to comment on changes and improvements seen. Jurors reviewed the final process books from both semesters and noted that students in fall 2007 wrote more to explain their intent, rather than demonstrating their application of learning objectives. Jurors also commented that the 2007 books, being written after the project completion, were written in past tense, and therefore more subject to revisionist history. The fall 2008 books, it was noted, having been written concurrent with the completion of the project, had an immediacy about them that demonstrated an apparent visible chemistry of the design process.

Jurors noted a difference in the expressions of regret stated in the 'Lessons Learned' component of the book, that the 2007 students identified failures in the mechanics of the design process, often citing lack of time or inability to command tools properly. The fall 2008 students, however, seemed to express disappointment involving the challenges of integrating so much information into their own design processes. In fact, upon further investigation of the content analysis of the books (see Figure B), students in 2007 expressed regret or disappointment regarding their integration of process (understanding of concept, scale, design development) in 7 instances, and disappointment regarding mechanics (time management, mastery of tools) in 9 instances. In contrast, students in 2008 expressed regret regarding their integration of process a total of 17 times, and regarding mechanics only 8 times.

The comparison of juror rubrics proved the most limiting of the research methods employed, due to changes in the rubric from one semester to the next. Three common criteria were identified for each design phase across both rubrics (see Figure D), and

point values were assigned to the qualitative rating scales used. Averages of multiple juror ratings were established, and patterns of improvement from programming to schematic design and to design development were studied. Students in the fall 2007 demonstrated improved ratings from schematic design to design development in 8 out of 15 cases, or 53% of the whole. Students in fall 2008 exhibited more consistent improvement, with 65% of students (or 7 out of 11) showing improved rating scores from schematic design to design development.

Conclusion

The study examined the contribution of writing to self-discovery in the design studio at different times in the design process. Through the reordering of the writing process from the conclusion of the project to throughout the design process, students demonstrated more consistent engagement in their projects, and produced project outcomes that more strongly adhered to the learning outcomes of the course. The students' ability to evaluate their own creative process, and assimilate and incorporate the comments from professional jurors, demonstrates the supportive role that writing can play in the design process. This study's examination of the contribution of writing to self-discovery in the design studio will help strengthen our understanding of student learning in the creative process, and provide insight into a new teaching model for the senior capstone course.

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Figure A: Comparison of Juror Involvement and Writing Process, Fall 2007 and Fall 2008

Fall 2007:

Phase Deliverable:	Juror Involvement:	Writing Process:
Programming and Research	Review at completion of deliverable	n/a
Schematic Design	Review at completion of deliverable	n/a
Design Development	Review at completion of deliverable	n/a
Design Documentation	n/a	Student completion of process book

Fall 2008:

Phase Deliverable:	Juror Involvement:	Writing Process:
Programming and Research	Review 1 week prior to deliverable deadline	Revise project, document through writing section I of process book
Schematic Design	Review 1 week prior to deliverable deadline	Revise project, document through writing section II of process book
Design Development	Review 1 week prior to deliverable deadline	Revise project, document through writing section III of process book
Design Documentation	Invited to attend final presentation	Refinement and completion of ‘Lessons Learned’

Figure B: Comparative Content Analysis, Fall 2007 and Fall 2008 Senior Process Books

Content	Instances in Fall 2007	Instances in Fall 2008
1. Expressions of satisfaction ("I am pleased," etc.)	6	6
2. Expressions of satisfaction of accomplishment, completion (further, deeper, etc.)	4	3
3. Expressions of pride (strongest, best, etc.)	3	5
4. Expressions of regret, disappointment in outcome ("I wish I could have …")	3	4
5. Expressions of regret, disappointment in time management ("I wish I had time to …")	4	3
6. Expressions of reserve, holding back ("I felt overwhelmed," etc.)	8	0

Content: Expression of regret or challenge	Instances in Fall 2007	Instances in Fall 2008
1. Integration of process (concept, scale, proportion, development)	7	17
2. Mechanics (time management, mastery of tools)	9	8

Figure C: Student Questionnaire

IDEC 2009
Margaret T. Konkel
Improving Student Outcomes through Writing in a Senior Capstone Course
Student Questionnaire

Please rate your response to the following questions using the rating scale provided. Mark the appropriate rating, and use the Comments box to expand upon or explain your answer in any way that you think is important.

1. How would you rate your overall satisfaction with the senior capstone course?
_____ Excellent _____ Good _____ Fair _____ Poor _____ Very Poor

Comments:

2. How would you rate your overall experience in completing your senior capstone project?
_____ Excellent _____ Good _____ Fair _____ Poor _____ Very Poor

Comments:

3. My personal goals for this project were met:
____Strongly Disagree ____ Disagree ____ Neither Agree nor Disagree ____ Agree ____ Strongly Agree

Comments:

4. I found the independence of the senior capstone course rewarding:
____Strongly Disagree ____ Disagree ____ Neither Agree nor Disagree ____ Agree ____ Strongly Agree

Comments:

5. I stayed more interested in my senior project than previous semester-long projects
____Strongly Disagree ____ Disagree ____ Neither Agree nor Disagree ____ Agree ____ Strongly Agree

Comments:

6. Documenting my design process through writing each book section helped keep me focused:
____Strongly Disagree ____ Disagree ____ Neither Agree nor Disagree ____ Agree ____ Strongly Agree

Comments:

7. I found the documentation of my project tedious:
____Strongly Disagree ____ Disagree ____ Neither Agree nor Disagree ____ Agree ____ Strongly Agree

Comments:

8. Documenting my work at each phase helped me evaluate my own work prior to the deliverable deadline:
____Strongly Disagree ____ Disagree ____ Neither Agree nor Disagree ____ Agree ____ Strongly Agree

Comments:

9. I found the professional reviewer's feedback generally helpful:
____Strongly Disagree ____ Disagree ____ Neither Agree nor Disagree ____ Agree ____ Strongly Agree

Comments:

10. I was able to incorporate the feedback that I received from the professional reviewers:
____Strongly Disagree ____ Disagree ____ Neither Agree nor Disagree ____ Agree ____ Strongly Agree

Comments:

11. I felt progressively more off-track or behind with each passing phase:
____Strongly Disagree ____ Disagree ____ Neither Agree nor Disagree ____ Agree ____ Strongly Agree

Comments:

12. My final project is the strongest project in my portfolio:
____Strongly Disagree ____ Disagree ____ Neither Agree nor Disagree ____ Agree ____ Strongly Agree

Comments:

Please provide any additional comments below, regarding your experience within the senior capstone course:

Comments:

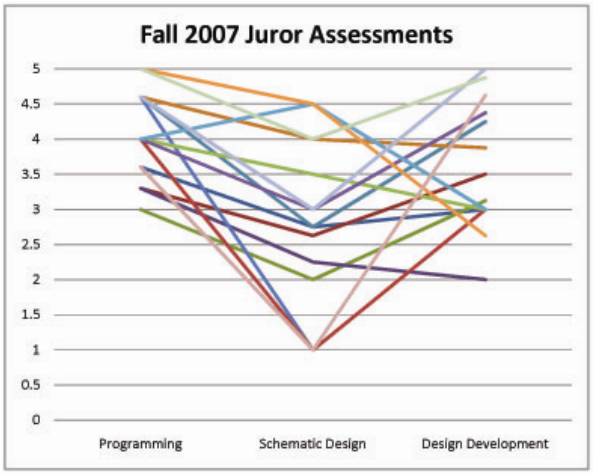
Figure D: Comparison of Juror Rubrics, Fall 2007 and Fall 2008

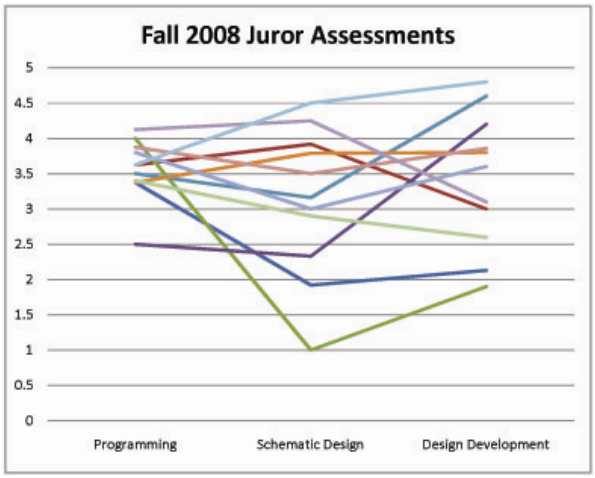
Identified Common Criteria by Phase:

Programming:
A. Program Document: are the numbers in the program document accurate, appropriate?
B. Research: has the student conducted research? Does the program reflect that research?
C. Goals and Objectives: are goals and objectives stated for the project?

Schematic Design:
A. Parti Diagram: does the parti diagram inform the planning solution?
B. Adjacencies: does the planning solution meet adjacency requirements?
C. Schematics: is a preliminary concept explored?

Design Development:
A. Design Intent: is the design intent explored three-dimensionally?
B. Concept: has the concept evolved from schematic design?
C. Development: is the design developed thoroughly?
D. Materials and Finishes: do the materials and finishes shown support the concept?





Light and the Quality of Life in a Long Term Care Facility

Melinda La Garce

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ABSTRACT

Purpose: This study was part of a year long research effort funded by a state department of public health that took place in a 135- bed long term care facility. The purpose of the study, as directed by the state, was to improve care quality in a long term care facility through innovative interventions that alter the prevalence of behavior symptoms of residents that affect others, and to develop and implement an assessment plan that would provide measurable outcomes that could be translatable to the entire long term care community. More specifically, the interventions for this facility were designed to 1) decrease disruptive and negative behaviors common to those with Alzheimer's disease and related dementias, 2) increase positive behaviors for that special population, and 3) increase positive behaviors of normally healthy elderly residents of the facility.

Methodology: Interventions for this study were 1) installing electric daylight lamps and 2) coating wall and ceiling surfaces in a color that would not alter the appearance of the Kelvin temperature of the lamps. A month of baseline assessment of residents' behaviors was made before the interventions were installed. Behavior markers were determined first by those behaviors known to be common to Alzheimer's disease and related dementias, and then refined as needed through systematic behavior observations of residents in this particular facility. Assessments were made by 1)

double blind systematic behavior observations (SBO) of 100 hours of video taped resident behaviors for the baseline study, 2) SBO of 654 hours of video taped behaviors for the comparative study, 3) interviews with caregiving staff, and 4) interviews with family members as appropriate.

Findings: SBO found eight of the eight negative behavior markers were reduced by an average of 83% and seven of the seven positive behavior markers were increased by an average of 90%. Inter-rater reliability across observers was 93%.

Importance of the Topic: The assessment methodology for this study provides measurable outcomes that are translatable to the entire long term care community. The findings of the study provide sufficient evidence to warrant implementation of the interventions throughout the long term care community. Decreasing negative and disruptive behaviors and increasing positive behaviors for those with Alzheimer's disease and dementia, and increasing positive behaviors of normally healthy elderly residents of the facility increases the quality of life for all residents and caregivers, and reduces care and pharmacological costs for families and the state. Beyond the large body of research literature indicating relationships between human behavior and environmental lighting, recent and significant seminal discoveries have been made that make direct linkages from environmental light entering the eye to particular brain functions that, in turn, influence human behaviors (Baker Heart Research Institute: Neurological Research Team, 2002; Goldstein, 2006).

Relevance to Interior Design: The interventions designed for this study fall within the prevue of interior design practice, and the knowledge to specify and implement such interventions are part of the interior design Body of Knowledge.

NARRATIVE

Purpose: The purpose of this experimental research was to study the effects of ambient lighting interventions on disruptive/negative behaviors and positive behaviors of elderly residents exhibiting behaviors common to Alzheimer's disease and related disorders in a long term care facility. This study was part of a year long research effort funded by the Illinois Department of Public Health that took place in a 135- bed long term care facility. Directives from the State were to improve care quality in a long term care facility through innovative interventions that alter the prevalence of behavior symptoms of residents that affect others, and to develop and implement an assessment plan that would provide measurable outcomes that could be translatable to the entire long term care community. More specifically, the interventions for this facility were designed to 1) decrease disruptive and negative behaviors common to those with Alzheimer's disease and related dementias, 2) increase positive behaviors for that special population, and 3) increase positive behaviors of normally healthy elderly residents of the facility. This paper reports the findings of behavior modifications for those with Alzheimer's disease and related dementias.

Background: Neuroscientists and environmental behaviorists now know that the built environment can affect human behaviors and the structural organization and physiological actions of the brain (LaGarce, 2004; McColl and Veitch, 2001; Rea, et al., 2002; Veitch and McColl, 2001). Lighting in the built environment is known to affect hormonal and metabolic balance (LaGarce, 2007; Savaskan, et al., 2002). The photobiological impact of light on the human body is dependent on wavelengths from

the electromagnetic spectrum both visible and invisible, striking the retina of the eye (LaGarce, 2005; Thapan, 2001). This, in turn influences the production of several neurotransmitters in the brain that are believed to affect the entire nervous system, have neuroprotective effects, behavioral consequences, affect mood disorders in adults, adolescents, and children, and affect agitated and disruptive behaviors in dementia patients (Ancoli-Israel, et al., 2003; Figueiro, et al., 2002; LaGarce, 2004; LaGarce, 2002; Lyketos, et al., 1999).

The quality of light in the interior environment is determined by the light source, management of the light that source emits, and the reflectance values of all finish materials in the path of light emitted by the source. Hence, the environment is the luminaire and design of that luminous environment must give very careful consideration to ramifications for affecting the qualities of light that are known to affect human behavior, particularly in special care environments.

Methodology: The lighting interventions designed for this study were 1) installing electric daylight lamps and 2) coating wall and ceiling surfaces in a color that would not alter the appearance of the Kelvin temperature of the lamps. A month of baseline assessment was made by video recording residents' behaviors before the interventions were installed. Behavior markers were determined first by those behaviors known to be common to Alzheimer's disease and related disorders, and then refined as needed through systematic behavior observation of residents in this particular facility. Positive behavior counter-parts were also identified.

Assessment methods included systematic behavior observations made by trained observers from video recordings of participating residents, direct observation by the

principal investigator, and interviews with residents, staff, and family members as appropriate. While direct observation by the principal investigator, and interviews with residents/staff/family members provide good anecdotal information that may become the instigation for further research, validity of scientific behavior research comes from double-blind systematic behavior observation made by trained outside observers. Double blind systematic behavior observations (SBO) were made of 100 hours of video taped resident behaviors for the baseline study, and 654 hours of video taped behaviors for the comparative study,

Illuminance and irradiance light measures were made prior to installation of the interventions (control environment), and near the end of the study with the interventions in place (experimental environment). Light level variances between the control environment and the experimental environment were small (1% average) and were not an intervening condition.

The research methodology and Informed Consent signature documents were reviewed and approved by Southern Illinois University Carbondale's Human Subjects Committee.

Findings: Analysis of systematic behavior observations found the eight disruptive/negative behaviors (lethargic, non-responsive to people, non-responsive to environment, wandering, anxious/fidgeting, combative, inappropriate emotional behavior, and repetitive statements and/or behaviors) were reduced by an average of 83%, and the positive behaviors (alert, responsive to people, responsive to environment, verbalizations appropriate to the situation, calm, emotional behavior appropriate to the situation, and conversational) were increased by an average of 90%. Inter-rater reliability across the systematic behavior observations was 93%.

Conclusions: It appears that the ambient lighting interventions designed for this study, decrease disruptive and negative behaviors and increase positive behaviors of elderly residents with probable Alzheimer's disease and/or related dementias in a long term care facility. The magnitudes of the decrease in negative behaviors and the increase of positive behaviors warrant careful consideration for broadly implementing the prescribed ambient lighting interventions in health care facilities for this special population. Additionally, the assessment methodology for this study provides measurable outcomes that are translatable to the entire long term care community. Decreasing negative and disruptive behaviors and increasing positive behaviors for those with Alzheimer's disease and dementia, and increasing positive behaviors of normally healthy elderly residents of the facility increases the quality of life for all residents and caregivers, and reduces care and pharmacological costs for families and the state.

The findings of this research are consistent with the large body of scientific research literature indicating relationships between human behavior and environmental lighting, past research studies and pilot studies conducted and published by this researcher, and with recent seminal discoveries of direct physiological links of light to eye, to brain, to behaviors (Baker Heart Research Institute Neurological Research Team, 2002; Brainard, 2006; Goldstein, 2006; Provencio, et al.). Broadly based implementation of these ambient lighting interventions with systematic tracking of behavioral effects should be made to further validate the findings.

Potential benefits from broad implementation of the intervention system could include:

. providing an enhancement to the quality of life for individuals with Alzheimer's disease and related disorders and for their caregivers;

. providing an intervention system that can be used by the community;

. prolonging effective home care by family caregivers before institutionalization becomes necessary;

. impacting design criteria for defining Alzheimer's disease and related disorders care units; and

. impacting public policy with regard to setting standardized design guidelines for elder care environments.

Relevance to Interior Design: The interventions designed for this study fall within the prevue of interior design practice, and the knowledge to specify and implement such interventions are part of the interior design Body of Knowledge.

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The Evolution of a Holistic Approach to Design Presentation Graphics.

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ABSTRACT

The aim of this research is to identify the ideas, controversies, and needs concerning graphic presentation in the new millennium and how a new holistic multi-disciplinary approach might contribute to new knowledge in interior design education. The purpose of this paper is to communicate the methods used for effective integration of digital technology, hand graphics, and valuable techniques pulled from other design disciplines to best illustrate design ideas. An ongoing pursuit, the outcomes thus far offer a proposal that may influence design education's approach to technology.

During the past several years, Interior Design students have been migrating to the digital format for most of their project presentations. This shift reflects the industry trend away from traditional rigid-board presentation format, which is the result of technological innovation in hardware and software. Today’s students consider alternative methods, like digital and booklet presentations. “The fundamental changes that computers have brought to mankind are often called an information revolution, or a digital revolution. ...the digitalization of human information and lives is on an irreversible course, proceeding at an ever increasing speed.” (Yu-Tung, 2003). These observations are correct about most other domains, however, in interior design, a paradoxical event has taken place. Since computer aided drawing technology came into wide use by designers and architects in the mid 1990s, the prevalent view that computer modeling

would completely replace all traditional hand graphics has been proven false. In most cases, students are taking an holistic approach to their design presentations, incorporating computer *and* hand techniques and integrating basic page layout methods co opted from graphic design to produce well organized, compelling results. Design educator Carol Faber writes: “The intersection between hand-drawn and digitally manipulated drawing provides artists and designers with innovative techniques of seeing and designing using the tools of technology to expand on existing illustrative and digital processes” (Faber, 2006).Following the holistic approach to presentation graphics, the bond between the hand and computer as inseparable is an accepted axiom. Both are considered of equal importance and necessity.

This research utilizes multiple student presentation studies from the last three years with narrative inquiry to compare a variety of methods used. Interviews with students and faculty will be reviewed, analyzed and reported. A number of student work examples with commentary will be introduced during the presentation.

NARRATIVE

Introduction

As designers, we are conditioned to communicate about our work through visual elements. While our students progress though their studies, we, as educators, have the responsibility of guiding them to understand those elements and become literate and able to communicate in the visual world. This is a step-by-step process for the design student, who should understand visual structure and the organization of elements and principles to generate a visual narrative. During the last few years the methods of teaching visual storytelling integrate components from interior design, architecture, and graphic design making the interior design presentation a hybrid process between these disciplines.

Manual and digital design methods have always had their own set of supporters. There are those defending the “traditional” hand methods of drawing and those that support that 3D computer modeling would replace all hand skills in interior design education. Coming from the same alma mater, we recall some of our professors in the early 1990s making radical predictions about how computers would take over all aspects of the design process, and the mouse would soon render the pencil obsolete. Some of them foretold that we may even forget how to write. That day has yet to come, obviously, and we are now settling into a middle ground where both mediums are used for their respective strengths in interior design presentation. But why didn’t the mouse win out entirely, and why is there a discipline-wide call for more foundational training in manual drawing skills? This paper serves to describe why hand graphics continue to endure in

spite of the computer age, and what the future holds for interior design presentation as it becomes more interdisciplinary, pulling in traditions from graphic design in particular, and cementing an interdisciplinary bond between the two.

Mehrdad Hazdani claims the biggest challenge facing designers today is that “our fascination with digital technology presents not only a process but also poses challenges to the way we design. We must not get trapped in the virtual world but remember to think about the tactile, physical and emotional aspects of design.” (Hazdani 2009, 64)

Examining the one-note model rendering as presentation drawing

Having taught a number of graphics, seminar and portfolio preparation courses, we have been compiling information on the evolution of design presentations within our program. Given a number of design presentation tools, our students have the opportunity to select those that best represent their approach to visual storytelling.

In the very beginning, all of our students are exposed to manual graphics, plans, elevations, sections, and perspectives. This process addresses the issues of line weight and the visual language of structures. We proceed by introducing hand rendering options such as markers, color pencils, watercolor, and the digital methods of AutoCAD, Adobe Photoshop and Google SketchUp, as well as layout program such as Adobe InDesign.

Having been in the field of interior design for almost twenty years, we have seen major changes in practices as CAD applications increase their functionality from 2D drawing to 3D modeling with sophisticated rendering engines that give photo-realistic results.

Clicking the render button in a 3D modeling application like 3D Studio Max, Revit, or Form Z is a quick and easy way to produce a “one-note” color version of a digital model, and while plenty of interior design businesses use them for presentation purposes, they often don’t accomplish the key duties of presentation renderings: to make an idea compelling, and sell that idea. Presentation renderings are supposed to make design ideas compelling and are very different from construction drawings in that they do more than just convey factual information about the designed space. Presentation drawings communicate instead an opinion, or a bias about how the designer wants the viewer to “see” a space. Presentation drawings also get the viewer excited about the space. There is emotion that emanates out of a well-prepared presentation. One-note 3D model renderings lack these attributes even though rendering engine technology has come very far in recent years. Perhaps it’s a matter of time before engineers find a way to mitigate the dead, bland, and spooky look of one-note 3D model renderings, if it is at all possible. But because of the fact that the results of model rendering run counter to the duties of presentation drawings, we prefer to categorize one-note 3D model renderings as information only visuals, or as a tool that illustrates the volume of a space more than a way of perceiving a space. There is something cold dry and sterile in a computer generated drawing that has not yet been manipulated by its creator’s hand.
A popular option to using one-note renderings in our department is the use of hybrid drawings that alternate digital and analogue techniques as a way to imbue energy and vitality into a drawing, while dramatically cutting down on production time. Students switch back and forth between drawing board and laptop beginning with a SketchUp- or Revit-generated base perspective delineated with pen and marker, scanned and

enhanced using Photoshop, and finally printed and highlighted with gouache. Sometimes, instead of using a pencil, students draw using a stylus and Wacom tablet. There is an integration of both modeling program and manual drawing skill. The results of this method have been very successful.

3D model rendering and its impact on brand marketing

According to Wheeler (2003), if a major tenet of brand marketing theory is to create differentiation from the competition, 3D modeling software does just the opposite. From a branding standpoint, the drawback of using 3D model renderings is the indistinguishable sameness in rendering quality. In former years, we could identify the design drawings of a colleague or classmate simply by their signature style marker rendering. For some, their signature style became as much a personal trademark as Dale Chihuly's glass flowers. These days, clicking the render button is a time-efficient, and therefore cost-effective, solution to the need for rendered drawings, yet brand differentiation suffers.

Lack of differentiation poses an obvious problem for design firms in a crowded and globally competitive marketplace, as it does for our students during their hiring process. 3D modeling programs use various photo-realistic rendering engines, Mental Ray being a common one, with only nuanced differences between them. Even an online perusal of businesses that deal specifically with architectural visualization yields a sea of sameness, one portfolio similar to the next. Manual illustration in this case would pose an opportunity for uniqueness.

Our Interior Design students experience a similar issue of differentiation pertaining to their portfolio and how it can stand out amongst all others coming from a variety of other institutions and backgrounds. We encourage the use of hybrid renderings that blend both 3D modeling technology for speed and accuracy, and manual techniques for uniqueness and differentiation.

The interdisciplinary approach to interior design presentation

As design educators, we have written in the past about the evolution of presentation in interior design, covering trends that have died out, endured, revived, and are emerging. From our research, we have identified the best presentations as being “holistic” in that they use whatever tools and technologies are available, exploiting their strengths, and mixing them to get optimal results. One of the more interesting holistic trends we’ve witnessed develop is the increasing interest in graphic design theory. Years ago, graphic layout of presentation boards involved minimal spatial arrangement of mounted drawings and press-type labels, but as graphics software became widely available and printers got larger, interior and graphic design have become akin to one another. In fact, graphic layout and typography are now integral components of interior design education in our program.

Upon entering the department, Adobe InDesign is a required buy for students. With graphic design instruction, students are able to produce beautiful, comprehensive, and compelling presentations that support their ideas. However, without graphic design instruction, the software tends to create the potential for a totally new dimension of dreadful layout: overused special effects, excessive page decoration, all caps, and

redundant typographic attributes that muddy the intended visual message. Adding graphic design techniques to an interior design curriculum is a practical consideration and we anticipate that it will only become more commonplace in the future.

Conclusion

Holistic approach means that a strong and compelling presentation of a space is accomplished through a judicious use of tools, both hand and computer. The energy that's inherent to a mark made by a designer's hand is transferred to a presentation drawing, creating an overall gestalt of vitality and excitement. The rendering engines of SketchUp, 3D Studio Max and Revit, as of yet, cannot duplicate this phenomena. Through our observations, and conversations with students, faculty, and professionals in our environment, we believe that the most effective interior design presentations emerge from the fusion of a number of analogue and digital processes and the amalgamation of concepts from disciplines such as architecture and graphic design. By using the tools and techniques of graphic design, and switching back and forth between analogue and digital, our students can produce a complete graphic presentation that is distinct, accurate, fits the tone of the project, and illustrates the owner's individual style.

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Evidence Based Design Applied to Nursing Home Design

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ABSTRACT

Purpose

A recent grassroots movement called “culture change” emphasizes transformation from medical service-centered care to resident-centered care in long-term care model. Critical to this model is the ability to design nursing home environment based on best available information from credible research and evaluations of projects for improved health and safety of vulnerable residents in order to support the nursing home design beyond anecdotal success stories (Anderzhon & Green, 2007).

This paper intends to discuss nursing home design that is based on evidence. It identified design issues and strategies to be considered to promote the philosophy of the new person-centered care model in nursing home design.

Context

There is a growing social concern with long-term care needs and facilities for the massive number of the aging populations. It is predicted that one in five people in the US is 65 or older and 12 million of them need long-term care by 2050 in nationwide (Alliance for Health Reform, 2008). However, a consensus between older adults is that nursing homes, long-term care facilities for skilled nursing for Medicare and Medicaid reimbursement, are not the places they ever want to be in their later lives.

While there were many theoretical models, the general view is the traditional medical service-centered nursing homes based on the institutional model never became a home for the residents. The new resident-centered care model focuses on deinstitutionalization of the nursing home environment and is currently supported by the Center for Medicaid and Medicare Services and the National Commission for Quality Long-Term Care (Rahman & Schnelle, 2008).

However, there has been a growing criticism that its design should be based on evidence beyond anecdotal success stories (Rahman & Schnelle, 2008). Important is to provide evidence based design to the new care model. There is an increased demand for evidence-based design for nursing homes as well as a growing body of research in response (Calkins & Joseph, 2008). However, this information needs to be disseminated to the design practice since it is not always easily available to designers.

Process

Essential attributes of each “home” and “nursing” were analyzed via literature review since two fundamental purposes of nursing home are creating a home environment and providing nursing assistance. Critical design issues of nursing home based on the attributes of “home” and “nursing” were identified. Design strategies that contribute to the person-centered care model were specified.

Findings and Summary

Design issues that are identified essential attributes of nursing home include personalization of spaces, familiarity, privacy, control over environment, safety, sense of

security, safety, wayfinding, environmental competency for frail adults, sensory stimulation to compensate sensory decrease, healing environment for physical and psychological losses, health & sustainable environment, sensory comprehensibility, and engagement & interaction with community.

This presentation discusses how to incorporate these issues into the new model of person-centered care. It highlights the importance of evidence-based design for especially a vulnerable population and how to bridge between research and design practice.

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NARRATIVE

Purpose

Nursing home culture change is a grassroots movement which started in the late 1990s to transform medical service-centered care to resident-centered care in long-term care model. It is referred as a comprehensive process of fundamental reforms of nursing home culture in the U.S. (Rahman & Schnelle, 2008). It may have various forms and scales but shares a fundamental philosophy: enhancing quality of life for the nursing homes residents.

Critical to this model is the ability to provide successful nursing home environments through evidence-based design. Evidence-based nursing home design means making design decisions based on best available information from credible research and evaluations of projects for improved health and safety of vulnerable residents in order to support nursing home design beyond anecdotal success stories (Anderzhon & Green, 2007).

This paper intends to discuss desirable nursing home design that is based on evidence. It identified design issues and strategies to be considered to promote the philosophy of the new person-centered care model in nursing home design.

Literature Review

Nursing home means long-term care facilities for skilled nursing for Medicare and Medicaid reimbursement (Alliance for Health Reform, 2008). Nursing homes provide 24-hour skilled nursing care for the frail older adults and other individuals who require high-

level of medical care and assistance with activities of daily living (ADL) (Perkins, Hoglund, King & Cohen, 2004).

Due to the massive number of the aging baby boomer generation, there is a growing social concern with long-term care need and facilities for these people in the near future. It is predicted that one in five people in the US is 65 or older and 12 million of them need long-term care by 2050 in nationwide (Alliance for Health Reform, 2008). Despite such need, nursing homes have never become a place where older adults would ever want to be in their later years. In addition, concerns with resident's quality of life in nursing homes continuously exist. The major problem is that the traditional medical service-centered nursing homes based on the institutional model failed to create a home for the residents.

The original purpose of nursing homes was thought as health-care facilities and its model was based on acute-care hospitals as opposed to housing with 24-hour health-care support (Perkins, Hoglund, King & Cohen, 2004). In addition, many old facilities were built to meet only the minimum codes, which doesn't support the life of residents 70% of who are wheelchair-bound and over 50% of who have dementia in many nursing homes (Perkins, Hoglund, King & Cohen, 2004).

The culture change movement originated from the meeting of the Pioneer Network, the leader organization of long-term care professionals, in 1997 to improve the quality of care as well as the quality of life of the nursing home residents. The main focus of the movement is to provide resident-centered care by deinstitutionalizing the traditional long-term care. There have been many successful stories about the culture change movement. Growing for a decade, the new resident-centered care model is

currently supported by the Center for Medicaid and Medicare Services and the National Commission for Quality Long-Term Care (Rahman & Schnelle, 2008).

While the movement has focused on changes to nursing home programs on one hand, there have been numerous theories and attempts to change the design of physical environments on the other hand to accommodate the concept of resident-centered nursing environments. To create resident-centered care and deinstitutionalize the traditional model, the current physical environment of the nursing home model has changed to the household model through the cluster models and the satellite model from the original centralized model (Meltzer, Weaver, Price & Suit, 2008). The interior space use and features have also been modified to meet the philosophy of resident-care by incorporating more residential settings and personal spaces.

However, it is important to provide evidence based design in the new care model beyond anecdotal success stories to protect the vulnerable nursing home residents (Rahman & Schnelle, 2008). A small environmental change can affect the nursing home residents' quality of life so much due to their losses in physical health, sensory process, cognition, and skills of social relationships (Calkins, 2001). Evidence-based design is known as "a process for the conscientious, explicit, and judicious use of current best evidence from research and practice in making critical decision" (Hamilton, 2007). There is an increased demand for evidence-based design for nursing homes as well as a growing body of research in response (Calkins & Joseph, 2008). However, this information needs to be disseminated to the design practice since it is not always easily available to designers.

Process

There are many studies evaluating nursing home quality. However, little attention is paid to carefully defining the dimensions of nursing home quality (Rantz et al., 1999). In this study, the “home” component and the “nursing” component in “nursing home” were separated into two categories to investigate the attributes of each component. Nursing home consists of two fundamental purposes: creating a home environment and providing nursing assistance which includes assistance with ADL and chronic disease management (Rabig & Rabig, 2008). Thus, it is necessary to look at what the essential attributes of these two components are to see what a nursing home is meant to be.

Essential attributes of each “home” and “nursing” are analyzed via literature review by identifying attributes that create home quality and nursing quality. The study reviewed the publications of researchers whose work primarily involves in providing a home environment to older adults who require assistance with ADL and nursing activities in nursing homes. Commonalities of attributes of “home” and “nursing” from the work of these researchers were identified to specify the design issues and strategies to create the attributes of “nursing home” in the person-centered care model.

Findings and Summary

The attributes of “home” consist of privacy, independence/autonomy, control, safety, social interaction, personalization/individuality, and familiarity. The study identified these seven attributes of home from five frameworks including Brummett (1997)’s Home Quality, Cohen and Weisman (1991)’s Therapeutic Goals for Design, Management, & Resident Interaction for People with Physical Impairments as well as

Dementia, Regnier and Pynoos (1992)'s Attributes for Housing Design, Weisman and Calkins (1999)' Therapeutic goals, and Zeisel et al (1999)'s Environment-Behavior Criteria for the Design of Settings for People with Dementia. The commonalities between these frameworks are shown in Table 1.

	Privacy	Independence/ Autonomy	Control	Personalization/ Individuality	Safety	Social Interaction	Familiarity
Brummett	□	□	□		□		□
Cohen & Weisman	□	□	□		□	□	□
Regnier & Pynoos	□	□	□	□	□	□	□
Weisman & Calkins	□	□	□	□	□	□	
Zeisel et al	□	□	□	□		□	

Table 1 Commonalities of Home Attributes

Design implications to promote these seven home attributes include personalization of the spaces for resident's identity, familiarity of spaces via small household model, vernacular design, residential appearance, and presence of personal belongings, private spaces including private bedroom, private bathroom and private porch/balcony, control over environment, and sense of safety and security.

The frameworks to define attributes of "nursing" for nursing homes in the study included fundamental definitions as well as standard classifications of nursing activities and intervention. These consist of the definitions of nursing from the International Council of Nurses (2008A, 2008B) and Royal College of Nursing (2003) and two standard classifications from Nursing Intervention Classification (NIC) (McCloskey, & Bulecheck, 2000) and Nursing Minimum Data Set (MDS) 3.0 for Nursing Homes (Saliba & Buchanan, 2008).

Nursing includes three kinds of activities: promotion of health and recovery, prevention of illness and injury, and the care of ill, disabled, and dying people. This is done in three aspects related to humans: body, mind, and spirit, which means nursing incorporates a physical, psychological as well as spiritual support system. The commonalities of nursing attributes are shown in Table 2.

	Promotion of physical health & recovery	Prevention of physical illness & injury	Promotion of psychological/ emotional health & recovery	Prevention of psychological/ emotional illness	Spiritual support/ Quality of life
International Council of Nurses	□	□	□	□	□
Royal College of Nursing	□	□	□	□	□
NIC	□	□	□	□	□
MDS for Nursing Homes	□	□	□	□	□

Table 2 Commonalities of Nursing Attributes

It is important to note that spirituality is associated with healing and well-being (Benson, 1997; Dossey & Keegan, 2000). Spiritual support of nursing means helping individuals find meaning and purpose of life (Dudley, Smith, & Millison, 1995; Hall, 1997; Martsolf & Mickley,1998; Oldnall, 1996; Smucker, 1996). It is typically done in two ways. One is a sense of connectedness to self (Goldberg, 1998; Meraviglia, 1999; Narayanasamy, 1996; Newshan, 1998; Nolan & Crawford, 1997; ONeill & Kenny, 1998). The other is a sense of connectedness with other objects or nature (Goldberg, 1998; Meraviglia, 1999; ONeill & Kenny, 1998). Considering design features that promotes spirituality isn't a high priority in the current nursing home environments, this information provides many design implications to create better nursing home environments.

Design implications based on the essential attributes of “nursing” for older adults include physical safety, wayfinding, environmental competency such as accessibility to compensate biological aging, sensory stimulation to compensate sensory intensity decrease, spiritual healing environment including personal belongs and spaces, layout allowing resident’s participation in household tasks and hobbies, gardens, and passive views to nature, healthy & sustainable environment, sensory comprehensible environment through familiar sights, sounds, and smells, and engagement & interaction in a home and within the community by a variety of intimate and social spaces, technology allowing internet video calls, and active views to streets and the community.

The new model of person-centered care needs to carefully incorporate these design implications to meet the essential qualities of both “home” and “nursing”. It is important to practice evidence-based design for vulnerable nursing home residents since small environmental changes can impact their quality of life tremendously. Nursing homes are dwelling places first before the work environment where nursing services and assistance are provided (Culter, Kane, Degenholtz, Miller, & Grant, 2006). By promoting design features of home attributes and especially spiritual nursing, the new person-centered nursing care model will be able to increase the quality of life in nursing homes.

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Digital Study Modeling as a Design Exploration Tool

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ABSTRACT

This teaching forum is to present a pedagogical experience that was obtained in a digital presentation course in the second year of Interior Design education, where students were exposed with various digital presentation tools. The digital study modeling project aimed to introduce 3D modeling as a presentation tool and design exploration tool. Among many different 3D modeling and presentation techniques, this teaching forum focuses on clay modeling because of the several strengths it has. Digital clay modeling can present a photorealistic level presentation, takes much less time compared to other rendering techniques, and needs little to no experience in the rendering tool 3D Studio Max.

Three dimensional models are used in many areas because they can present complex information effectively (Bustos, Keim, Saupe, & Schreck, 2007), and the Interior Design field is not an exception. Many interior design activities are digitally done now, including modeling. Three dimensional modeling and its presentation are important skills that interior design students should learn in order to be prepared for the field (Lee, 2007). It is also true that the advancements of 3D programs contributed to the improvement in the quality of student presentations (Song, 2007).

NARRATIVE

This presentation will focus on pedagogical experiences that were obtained from a digital presentation course in the second year of Interior Design education, where students were exposed with various digital presentation tools such as AutoCAD, 3D Studio Max, PhotoShop, and Sketchup. Most students in class did not have previous experience with these programs, and this class is the first course where students learn 3D computer programs in the curriculum.

The 3D visualization and display technology has advanced rapidly in the recent years and has affected interior designers and interior design education in various aspects. Interior designers today can offer more accurate simulations of space using digital 3D visualization tools, and it facilitates the communication between designers and clients. From the very early stage of the design process, interior designers can create 3D images and walk-through animations to communicate their design ideas more clearly. Today's clients are familiar with 3D presentations from their daily lives such as medical 3D imaging, computer games such as the Wii and online shopping that offers 3D views. Clients will expect to see 3D images to envision their future space in the form of photorealistic digital presentations instead of 2D images (Goldberg, 2002). In fact, it is difficult for people who are not trained in the architectural or design field to understand 2-D paraline drawings, because those drawings are not necessarily comprehensible intuitively (Onstott, 2005; Lee, 2007).

In interior design education, many programs have incorporated digital 3D visualizations in their curriculum to prepare future interior designers. Three dimensional models are used in many areas because they can present complex information effectively (Bustos, Keim, Saupe, & Schreck, 2007), and the Interior Design field is not an exception. Many interior design activities are digitally done now, including modeling. Three dimensional modeling and its presentation are important skills that interior design students should learn in order to be prepared for the field (Lee, 2007). It is also true that the advancements of 3D programs contributed to the improvement in the quality of student presentations (Song, 2007).

Even though three dimensional modeling offers many benefits to interior designers and has been utilized very often in interior design projects, it has been used more as a presentation tool rather than a design exploration tool. In addition, 3D presentation in interior design education is often limited to presentations for small spaces or scenes due to technical constraints that most computer equipments have. However, it is important to teach students how to explore designs because design exploration plays a significant role in creating new ideas (Iordanova, 2007). Digital study modeling will help students think volumetrically and enable them to do 3D modeling generation and presentation more easily in less time.

Among many 3D visualization techniques, this presentation will focus on clay modeling. This digital study modeling project aimed to introduce 3D modeling not only as a presentation tool but also as a design exploration tool. Students can learn how to use

various programs to develop a study model for an interior design project. Digital clay modeling can create a photorealistic presentation, takes much less time compared to other rendering techniques, and needs little to no experience in the rendering tool 3D Studio Max.

Through this digital study modeling, students will be able to explore designs more effectively. Students learn digital clay modeling through an interior design project in this class. They develop a digital model using the Google Sketchup program, which is easy to learn and use. Students explore the space while they create the 3D model and examine design options and constraints. After the modeling is finished, the digital model is exported to another program that offers photorealistic rendering features such as 3ds max (Figure 1). In 3ds max, students can set up different camera views or generate walkthrough animations (Figure 2). The photorealistic rendering engine such as 3ds max helps students generate photorealistic presentations, and it reveals details for students to make the image presentable. When design decisions are made, the final presentation can be rendered using 3ds max with appropriate lighting simulations (Figure 3). The final presentations with lighting simulations add reality to the three dimensional presentations (Figure 4 & 5).

Based on feedback from students and experiences in studios, it is concluded that this digital modeling tool can have many strengths to be used as a design exploration tool. However, students had difficulties at times because they needed to learn and use many different computer programs in class, and it took time until they got familiar with different

tools and used them effectively. Students use this tool in advanced classes in the program for bigger and more advanced interior design projects.

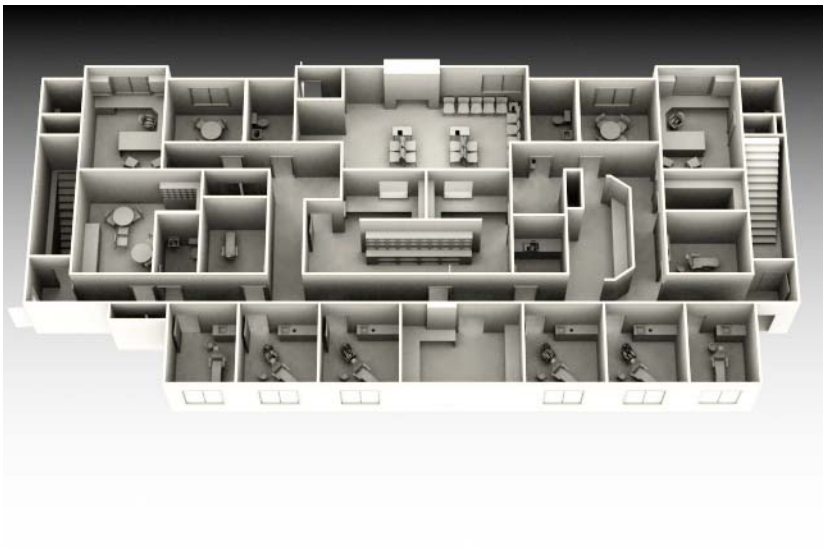

Figure 1. Dental Clinic: A Rendered Clay Model (SketchUp and 3ds Max)

Figure 2. Dental Clinic: A Close-up view

Figure 3. Dental Clinic: A Rendered image (3ds Max)

Figure 4. A Corporate Design (3ds Max)

Figure 5. A Japanese Restaurant (3ds Max)

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Meaning of Dwelling Attributes for Cross-cultural Temporary Residents

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ABSTRACT

As the world grows smaller due to economic globalization, there is an increasing number of international visitors temporarily residing in foreign countries. Residential environments vary from one culture to another, and these cross-cultural, temporary residents bring their housing culture with them (Rapoport, 1969). Consequently, it is assumed that they attach different meanings to dwelling attributes because of their cultural background. Though housing studies have extensively used an holistic approach to study the meaning of dwelling as a whole, relatively little attention has been paid to the meaning attached to specific dwelling features used in everyday activities. Thus, given the increasing number and diversity of cross-cultural temporary residents and the limited amount of research about their relationships with housing attributes, the present study examined meanings of dwelling attributes for cross-cultural temporary residents. It focused on temporary Korean residents in a Midwestern city in the U.S.

In order to discover the underlying latent meanings as well as any manifest meanings of housing features, Gutman's means-end theory (1982) was utilized because its primary methodology was laddering interview. Laddering interview provides a useful technique for getting below the surface in order to reveal people's underlying motivations. A qualitative case study was employed using in-depth laddering interviews

with ten Korean housewives who temporarily resided in the apartment complexes in the Midwestern city. Based on the measurement and analysis of the means-end theory, individual ladders, implication matrices, and hierarchical value maps were constructed to examine linkages of housing attributes with consequences and personal values.

The results revealed that of the seven housing attributes mentioned by more than 50% of respondents, only two attributes: ‘surrounding nature’ and ‘architecture’ were associated with positive meanings. The other five attributes: ‘carpeted floor’, ‘interior lighting’, ‘noises’, ‘bathroom’, and ‘entryway’ were linked to negative meanings (Table 1). The consequences and values of the two satisfactory attributes (Table 2) and the five unsatisfactory attributes (Table 3) showed manifest and latent meanings for each. Hierarchical value maps showed all relevant relations and dominant perceptual orientations for each attribute (Figure 1 & 2).

The findings showed that negative or positive meanings were determined by how their underlying values and needs were achieved through the housing attributes. The highest numbers of unachieved values were ‘psychological/physical comfort’, ’clean’, and ‘healthy living’, indicating that their housing attributes didn’t effectively satisfy their fundamental needs. Among the 5 negative attributes, 4 attributes: ‘carpeted floor’, ‘interior lighting’, ‘entryway’, and ‘bathroom’ were cultural attributes, representing that the concept of culture, a high-level of meaning (Rapoport, 1988), influences the low-level of manifest meanings and medium-level of latent functions. In this study, the means-end chain theory was useful in examining how the physical attributes of housing gain personal meanings from cultural background for cross-cultural temporary residents.

The present study adds to housing professionals, architects, and interior designers' understanding of cultural differences in the meanings of dwelling attributes and helps them to effectively work on ill-defined housing problems related to different culture groups.

NARRATIVE

Purpose

As the world grows smaller due to economic globalization, there is an increasing number of international visitors temporarily residing in foreign countries. They bring their unique housing culture with them due to differences in residential environments from one culture to another (Rapoport, 1969). Consequently, dwelling attributes in their new residential environments could be perceived and used differently, and offer different meanings while they adapt (Coolen, 2006; Heft, 2001).

In housing studies, however, little is known about residential experiences of these cross-cultural temporary residents in the host country. Given the increasing numbers and diversity of cross-cultural temporary residents and the limited research about their residential experiences, the present study explored meanings of dwelling attributes for cross-cultural temporary residents in the host country. By examining the case of Korean temporary residents in a Midwestern city in the U.S., this study attempted to obtain insight into not only perceptual and behavioral relationship between cross-cultural temporary residents and their new dwelling attributes in the host country, but also what underlying values and needs are associated.

Theoretical Framework

Studies exploring the meaning of dwelling generally focused on holistic view of dwelling. However, considering that people perceive dwellings not only holistically but also in terms of specific dwelling attributes (Coolen, 2005), the meaning of dwelling should be studied from the relations between a dweller and specific dwelling features as

well. Since culture affects how people perceive and use their dwelling, it provides backgrounds for the relationships between a dweller and the features of dwelling, and influence meanings of their dwelling attributes (Coolen & Ozaki, 2004; Rapoport, 2001).

Rapoport (1988) suggests three levels of meaning in the built environment. *High-level* meanings which are related to philosophical systems; *middle-level* meanings which are called latent functions; *lower-level,* everyday meanings, which are called manifest functions. According to Rapoport (1988), manifest and latent functions are related to specific features of dwelling, and lower-level everyday meanings are essential for understanding the built environment.

In exploring the meanings of dwelling for cross-cultural temporary residents, this study utilized Gutman's means-end theory (1982) which is widely used in market research. Based on the assumption that a product is a user's means to obtain a desired end, the means-end theory represents how physical attributes of products have personal meaning for users. The theory consists of hierarchically interconnected levels of abstraction: attributes, consequences, values (Reynolds & Gutman, 1984; Reynolds & Perkins, 1987). Attributes are the first level of meaning which represents products' physical characteristics. The second level of meaning is consequences which reflect tangible or intangible personal meanings derived from attributes. The final level**,** personal values, are preferred states of being, major goals, needs people try to achieve. The pattern of associations from attributes to consequences and from consequences to personal values characterizes a special type of knowledge structure called a means-end chain (Gutman, 1982).

As the present study focused on how temporary residents who brought with them

their own housing culture interact with the physical features of their new residence and attach personal meanings to them, specific dwelling features in their residential environment were investigated, rather than the holistic view of meaning of dwelling. By exploring consequences and values related to specific dwelling attributes using means-end approach, three different levels of meanings were investigated.

Methodology

As the laddering interview, the primary methodology of means-end theory, provides a useful way for discovering underlying motivation, a qualitative case study was employed. For the in-depth laddering interviews, ten Korean housewives were recruited through purposive sampling strategy. Their length of residence in the U.S. ranged from about six to eighteen months with the total planned time of one to two years.

In order to measure the means-end chain (Reynolds & Gutman, 1999) for this study, data were analyzed as following phases: (1) Eliciting attributes; (2) Constructing individual means-end chains using laddering interviews; (3) Selection of attributes; (4) Aggregation and analysis.

Eliciting attributes. The first step in measuring meanings concerned the elicitation of satisfactory and unsatisfactory dwelling attributes. The totals of nine satisfactory and ten unsatisfactory attributes were stated.

Constructing individual means-end chains using laddering interviews. To develop with the means-end chains of the respondents, the interviewer asked a series of questions about why respondents felt specific attributes satisfactory or unsatisfactory. Through this procedure, physical dwelling attributes were connected to more abstract

meanings at the consequence and personal value levels.

Selection of attributes. Dwelling attributes mentioned by more than 50% of respondents were selected for further analysis of means-end chains (Coolen, 2005). The seven attributes were identified: surrounding nature', 'architecture' 'carpeted floor', 'interior lighting', 'noises', 'bathroom,' and 'entryway'

Aggregation and analysis. Data analysis comprised of content analysis of interviews and codification; implication matrix quantifying relationships between elements; hierarchical value map; and determination of dominant perceptual orientations (Reynolds & Gutman, 1988).

Findings

Among the seven dwelling attributes which were mentioned by more than 50% of respondents, two attributes- 'surrounding nature' and 'architecture' were considered as positive meanings (satisfactory). The other five attributes - 'carpeted floor', 'interior lighting', 'noises', 'bathroom', and 'entryway' were linked to negative meanings (unsatisfactory) (See Table 1).

Meanings of Satisfactory Attributes (See Table 2& Figure 1)

Surrounding nature. The central meaning of 'surrounding nature' was the consequence of 'enjoying view' which was found to facilitate their values 'relaxation', 'happiness', and 'unity with nature'. Other consequences of 'surrounding nature' were 'exotic feeling', 'healthy living', 'purifying body and mind', and 'enjoying nature and outdoor life' which helped to achieve their values of 'excitement', 'quality of life', 'relaxation', and 'enjoy life' respectively.

Architecture. The central meaning of ‘architecture’ was the value ‘traditional beliefs’ in relation to the architectural attribute of ‘building orientation’ facing south. Enough ‘daylight’ and ‘thermal comfort’ were also strong consequences related to ‘building orientation’ as well. Other consequences associated with ‘architecture’ were ‘attractive appearance’, ‘close to ground’, ‘stability and safety’, ‘view of nature’, ‘eco-friendly’ which in turn, are related to values ‘enjoy life’, ‘health living’, ‘unity with nature’, ‘physical comfort’, ‘environmental concern’, and ‘quality of life’.

Meanings of Unsatisfactory Attributes (See Table 3 & Figure 2)

Carpeted floor. ‘Carpeted floor’ offered most numbers of strong meanings. Several prevailing consequences and related values were revealed. ‘Unpleasant to touch’ which was connected to two other consequences ‘desire to modify’ and ‘wearing slippers’ to achieve the value ‘physical comfort’, was the most central consequence. ‘Unhygienic’ and ‘causing allergy’ were strong consequences which were found to hinder the value ‘healthy living’. ‘Hard to keep clean’ and ‘vacuuming more often’ were consequences which were related to their value ‘clean’. ‘Feeling uncomfortable’ was strong consequence which hindered the value ‘psychological comfort’. Consequences including ‘hard to adapt’ and ‘missing On-dol’ were linked to the value ‘cultural familiarity’.

Interior lighting. The most central meaning of interior lighting was ‘too dark’ which was connected to all other consequences. ‘Being frustrated’ derived from ‘too dark’ was found to obstruct the value ‘psychological comfort’. “Hard to adapt’, ‘inadequate for reading’, ‘trying to fix dark lighting’ were also found to be consequences which were connected to their values ‘cultural familiarity’, ‘functionality’, and ‘safety’ respectively.

Noises. ‘Being irritable’ was the central meaning which was found to hinder achieving their value ‘psychological comfort’. ‘Becoming sensitive about making noises’ and ‘careful not to make noises’ in order to pursue ‘relationship with others’ and ‘privacy’ were also main meanings of ‘noises’. ‘Controlling children’ was the consequence derived from ‘becoming sensitive about making noises’ and found to limit the value ‘freedom’ for children.

Bathroom. The dominant meanings were the value ‘clean’ derived from two opposite consequences ‘feeling of uncleanness’ and ‘more refreshing’. ‘Inconvenient to clean’ due to ‘absence of floor drain’ was also the central consequence which was not supportive for ‘customs and habits’. ‘Getting more adapted’ and ‘more refreshing’ were connected each other and shown to facilitate ‘physical comfort’.

Entryway. The central meaning was the consequence ‘trouble in organizing shoes’ which hindered the value ‘functionality’. ‘No support for life style’ and ‘inconvenient’ were connected each other and shown to hinder the value ‘quality of life’. ‘Cluttered with shoes’ was consequence resulting in obstacles for ‘aesthetics’ and ‘clean’ home, and ‘unhygienic’ was consequence hindering ‘healthy living’.

Conclusions

By using means-end chain theory in this study, meanings of dwelling features were identified in terms of satisfactory and unsatisfactory attributes, consequences, and values. The findings of the study showed that Korean temporary residents were overwhelmingly perceived their dwelling attributes as negative meanings. It was revealed that their fundamental values in their lives were not effectively fulfilled in their current dwelling, although they should be met effectively to pursue subsequent needs

for social and personal development (Maslow, 1943).

The findings of this study also indicated that culture as a high-level of meaning (Rapoport, 1988) influences low-level of everyday meanings and medium-level of latent functions. This explains that cultural aspect of residential environment is an important factor for assigning meanings to dwelling attributes for cross-cultural temporary residents.

The findings of the study can help architects, interior designers, facility managers, marketers, and housing professionals understand the differences in meanings of dwelling attributes and effectively solve unclear housing problems related to different culture groups.

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Appendix1

Table 1: Frequently mentioned housing attributes

Housing Attributes		Number of mentions (%) (N=10)
Satisfactory	Surrounding nature	10 (100%)
	Architecture	6 (60%)
Unsatisfactory	Carpeted floor	9 (90%)
	Interior lighting	9 (90%)
	Noises	9 (90%)
	Bathroom	9 (90%)
	Entryway	6 (60%)

Appendix 2

Table 2: Consequences and values for satisfactory attributes

Attributes (Number of mentions)	Consequences (Number of mentions)	Values (Number of mentions)
Surrounding nature (10) • Fresh air (3) • Living creatures (2)	Satisfied with view of nature(5) Exotic/surreal (2) Healthy living (2) Purifying body and mind (2) Enjoying outdoor life (1) Enjoying nature(1)	Relaxation (4) Enjoying life (2) Quality of life (2) Unity with Nature (2) Happiness (2) Excitement (2)
Total	6 consequences (13 mentions)	6 values (14 mentions)
Architecture *(6)* • Building orientation (3) • Low-rise building (2) • Building layout (1) • Clean, new building (1)	Need for daylight (3) Need for thermal comfort (2) Attractive (1) Living close to the earth (1) Stability and safety (1) View of nature (1) Eco-friendly (1)	Traditional beliefs (3) Physical comfort (2) Enjoy life(2) Quality of life(2) Environmental concern (1) Healthy living (1) Unity with nature (1) Safety (1)
Total	7 consequences (10 mentions)	8 values (13 mentions)

Appendix 3

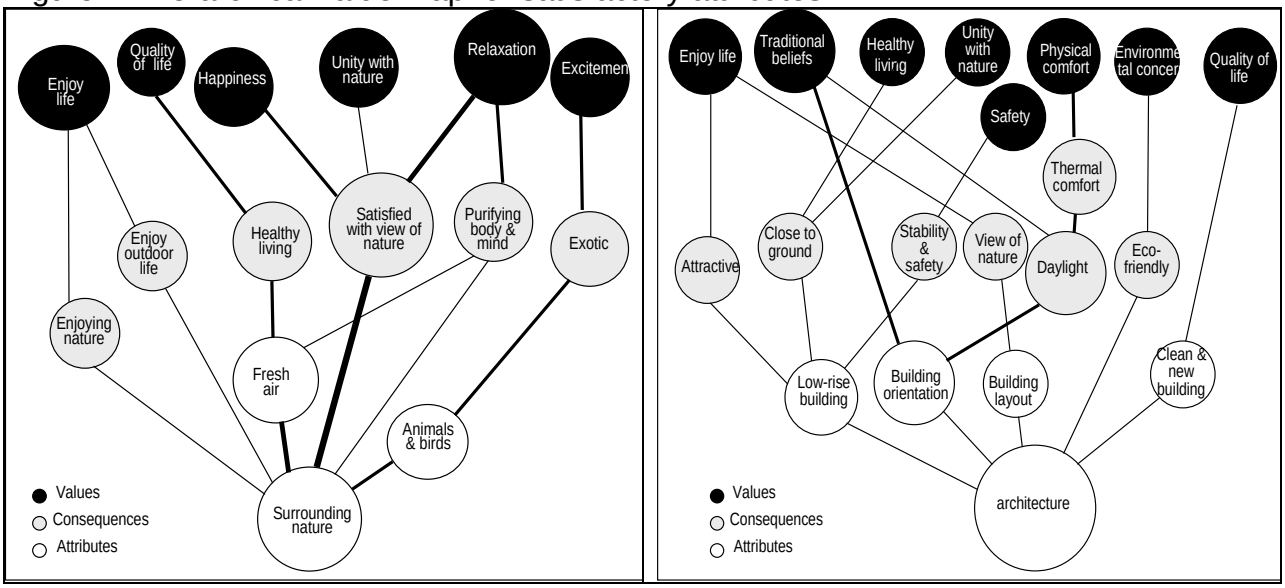
Table 3: Consequences and values for unsatisfactory attributes

Attributes (Number of mentions)	Consequences (Number of mentions)	Values (Number of mentions)
Carpeted floor(9) • Dirt and dust (3)	Unpleasant to touch (7) Unhygienic (5) Uncomfortable (5) Desire to modify (4) Hard to keep clean (4) Causing allergy (4) Difficulty in adapting (3) Wearing slippers (3) Vacuum more often (2) Missing *On-dol* (2) Prefer to vacuuming (1) Wish to clean thoroughly (1)	Healthy living (9) Physical comfort (8) Clean (6) Psychological comfort (5) Familiarity (3) Attachment to Korean housing aspects (2) Convenience (1)
Total	12 consequences (41 mentions)	8 values (34 mentions)
Interior lighting (9) • No ceiling light (6)	Too dark (9) Being frustrated (6) Difficulty in adapting (5) Desire to make room brighter (4) Trying to fix (4) Inadequate for reading (3) Bad for eyes (1)	Psychological comfort (7) Familiarity (6) In control (5) Functional (3) Physical Comfort (3) Safety (2) Quality of life (1) Healthy living (1)
Total	7 consequences (32 mentions)	8 values (27 mentions)
Noise (9) • Noise from neighbors (7) • Squeaks (3) • Noise from HVAC (2)	Sensitive about making noises (4) Being irritable (4) Controlling children (3) Missing home in Korea (2) Careful not to make noises (2) Bad impression (1) Being distracted (1) Lack of privacy (1)	Psychological comfort (4) Relationship with others (3) Privacy (3) Freedom (3) Identity (2) Quietness (1) Quality of life (1)
Total	8 consequences (18 mentions)	7 values (17 mentions)

Attributes (Number of mentions)	Consequences (Number of mentions)	Values (Number of mentions)
Bathroom (9) • No floor drain (8) • Fixed showerhead (1)	Unhappy with cleaning (5) Wish to clean spotlessly with water (5) Becoming more comfortable (3) More refreshing(3) Feeling of uncleanness (2) Difficulty in adapting (1) Inconvenient (1) Wish to change, but give in (1)	Clean(8) Customs and habits (5) Physical Comfort (3) Functional (2) Familiarity (1) Temporary residence (1)
Total	8 consequences (21 mentions)	6 values (20 mentions)
Entryway (6) • No shoes amenities (6)	Trouble in organizing shoes (4) No support for lifestyle (3) Unhygienic (2) Inconvenient (2) Look awkward (1) Cluttered with full of shoes (1)	Functional (4) Quality of life (3) Aesthetics (2) Healthy living (2) Clean (1)
Total	6 consequences (12 mentions)	5 values (12 mentions)

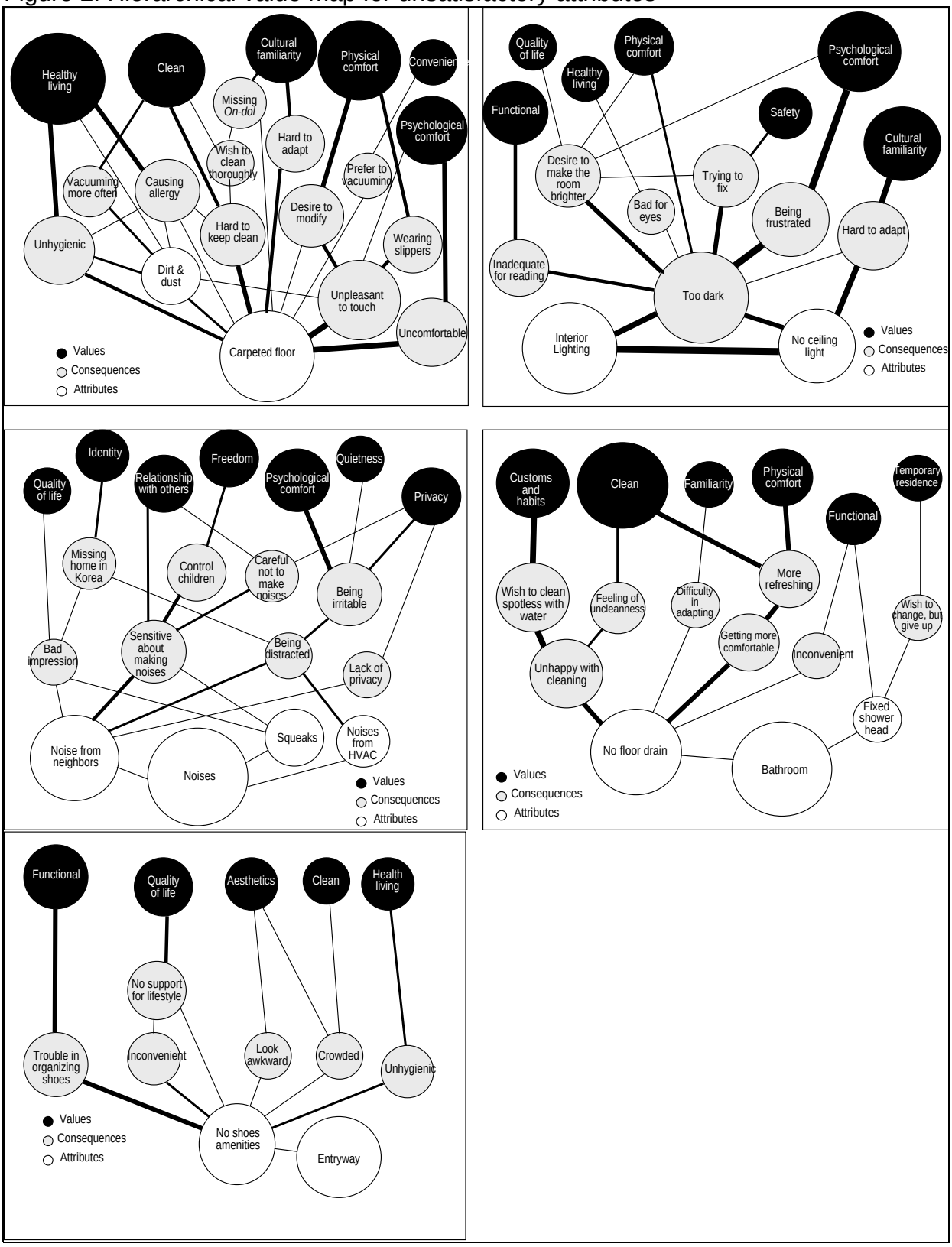
Appendix 4

Figure 1: Hierarchical value map for satisfactory attributes



Appendix 5

Figure 2: Hierarchical value map for unsatisfactory attributes



Exploring Critical Thinking for History of Space Design Education

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ABSTRACT

History is one of the core courses taught in the interior design curriculum. Various teaching methods and pedagogy have been discussed in previous research and addressed the importance of integrating history with the process of critical thinking and studio projects (Drab, 1998; Jenning, 1998; King, 1998). Several approaches explored in this perspective included descriptive analysis, thematic study, multiculturalism and diversity. Multiculturalism especially is an important issue when teaching history to non-western students considering the fact that most of the history textbooks are dominantly focused on western development of culture and history.

The purpose of this presentation is to discuss how non-western students perceive western history of space, the way they interpret and develop critical thinking, and to explore appropriate teaching methods. A case study was conducted to thirty-five sophomore level Space Design major students at MyongJi University in South Korea for one semester during the course of ‘History of Space Design.’ The class consisted of 4 parts: 1) Lecture with slide presentation and description with keywords for each

historical segment in the areas of social and political events, art in general, and space design. 2) Students choose specific issues of most interest from each segment and explore more in depth throughout the week. 3) Group discussion in the following week. 4) Students develop one particular or several methods of their interpretation and approach utilizing preferred media selection and write journal throughout the semester.

The results of this case study revealed some notable issues: 1) Students pay more attention to the space design issues parallel to their familiarity about specific issues of western history in general. 2) Students explained that comparison and identification of cultural differences in relation to their existing knowledge of history strengthened their awareness of their own historical and cultural background. 3) Recognition of design as major social force influenced their critical and analytical thinking in perceiving history and applying to their studio projects. 4) Writing journals has helped students not only to identify their major tools of approaching history but to enhance broader perception of future career aspiration in the areas of journalism, curator, illustrator, coordinator, etc. Student examples and specific teaching strategies are introduced in the presentation and the issues of developing critical thinking in the context of history of space is also discussed.

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NARRATIVE

Purpose

History is one of the core courses taught in the space design curriculum. Various teaching methods and pedagogy have been discussed in previous research and addressed the importance of integrating history with the process of critical thinking and studio projects. Several approaches explored in this perspective included descriptive analysis, thematic study, multiculturalism and diversity. Multiculturalism especially is an important issue when teaching history to students with non-western background considering the fact that most of the history textbooks are dominantly focused on western development of culture and history. The purpose of this presentation is to discuss how non-western students perceive western history of space, the way they interpret and develop critical thinking and to explore appropriate teaching methods within the framework of instructional theories.

Review of Literature

A review of previous history class of interior design reported that linear and chronological structure and boundaries of history limited to interior design are not effective for creative thinking process (Beecher, 1998). Western European-oriented perspective of current textbooks was found to create prejudice and an awareness of

multiculturalism was recommended to encompass diversity (Drab, 1998). A thematic study was one of the most frequently-used approaches to promote critical thinking and broader perspectives of interior design history in a social and cultural context (Patton & Zinkhan, 1998). Also, application of history into studio-based projects and development of teaching methods were explored as a tool for articulation of historical interpretation (King, 1998; Temple, 1998).

In regards to teaching methods in the interior design education, the importance of learning styles and instructional theories were addressed in recent studies as an effort to incorporate learner differences into curriculum (Lim & Guerin, 2006; Nussbaumer & Guerin, 2000; Watson & Thompson, 2001). Although it was argued that there is no particular dominant learning style of interior design students, several studies reported that interior design students are more likely to be intuitive and risk-taking, and prefer self-paced environment rather than team works. Also, it was found that there is a relationship between learning styles and instructional methods that affect learning outcome where there is no difference in its effectiveness between different instructional methods such as traditional non-visual or three-dimensional computer-assisted.

This study attempts to explore the application of instructional theories to promote

critical thinking in non-studio classroom setting and learning styles are not focused as a theoretical framework. But, the characteristics of interior design students' preferred learning styles and instructional strategies revealed in previous studies were applied in designing teaching methods and experiment.

Methodology

A case study was conducted to thirty-five sophomore level Space Design major students at MyongJi University in South Korea for one semester during the course of 'History of Space Design.' The length of the class was three hours for each week and the instructional model was designed based on the theories of cognitive learning process, concept learning instructional design, and instructional system design (Gagne, R., Briggs, L., & Wagner, W., 1988; Merrill, D., Tennyson, R., & Posey, L., 1992). The class consisted of 4 parts: 1) Concept Learning, 2) Experiment, 3) Evaluation, and 4) Performance. In the concept learning process, lecture was given with slide presentation and chronological description with keywords for each historical segment in the areas of social and political events, art in general, and space design. To explore more in-depth about the knowledge provided from concept learning, students selected specific issues of most interest throughout the week experimenting with one or various methods. A group discussion in the following week was organized to share and evaluate their

approach to critical thinking and effectiveness of their experiments. Through these processes, students wrote journals throughout the semester with one particular or several combinations of preferred methods of their interpretation and approach for final projects. Analysis was conducted from the results of the final project of the students focusing on critical thinking process, use of media, and methods of application in writing journals.

Summary of Results

The results of this study revealed some notable issues and student examples of major findings are introduced in the presentation. In the first stage of concept learning where they obtained basic knowledge about the history of space design, it was found that the students pay more attention as an initial approach to the space design issues parallel to their familiarity about specific issues of western history in general. Current popular culture was found to affect the most among other factors. Also, students explained that comparison and identification of cultural differences in relation to their existing knowledge of history strengthened their awareness of their own historical and cultural background. Major tools that the students used for critical thinking at this stage were descriptive methods utilizing keywords, symbols, and chronological mapping.

Issues selected for individual experiment as a next step included cultural identity,

gender differences, exploration of styles in comparison with past and present and personal experiences of space in daily lives, and classification of space development based on five senses through history. Procedural process was adopted through interchange of experiment, group discussion, and evaluation. In this stage, students used their most skillful and familiar tools related to their major such as drawing, scale model, and application to studio projects. However, various other methods of cartoons, synopsis, illustration, and cover story of magazines were also used. Students reported that they found to use these methods repeatedly and consistently in other subject areas. This means that students develop their own preferred methods when approaching to new learning tasks and that space design major students do not necessarily use visual or three-dimensional tools for critical thinking.

In the final step of performance, students collected all the information they explored into a format of journal through problem-solving process and gave presentation as a final project. Students' self-evaluation of the journals indicated that recognition of design as major social force influenced their critical and analytical thinking and eventually application to their studio projects. In contrast with the experimental process for the tools they used, generally-accepted presentation media such as Office PowerPoint and animation were dominant regardless of their selected issues or

approach.

The findings of this case study suggest that different perspectives of history and culture in general need to be considered in teaching space design history for the students with non-western cultural background. For the use of tools utilized during each phase of the learning processes, appropriate methods that match the characteristics of learning tasks and instructional strategies are recommended. Writing journals helped students not only to identify their major tools of approaching history but to enhance broader perception of future career aspiration in the areas of journalism, curator, illustrator, coordinator, etc.

Comparison of the students' approach to history in other academic fields and retention studies of how the students' perception of history of space through cognitive learning processes affect their approach to studio projects are recommended for future studies. Also, investigation of learning styles as a factor to determine different use of tools found in the experimental process of this study will help develop effective teaching strategies and demonstrate previous research on these issues.

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Interaction between Vernacular Culture and Classic Culture through Popular Culture: A Study of Ornamentation in Chinese Traditional Buildings

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ABSTRACT

The study focuses on the interaction between the folk culture and popular culture in architectural ornaments found in interior and exterior of Chinese traditional buildings. In the studies of traditional classic art forms, a linear historical model is usually employed to focus on the stylistic evolution over time. This model, however, cannot be successfully applied to the study of vernacular styles that have greater diversity over space than in time. By connecting the parallel developments of the more traditional classic style and the more diverse vernacular styles in their interactions through popular applications, the authors avoided the historiographic problem and obtained more comprehensive understanding of the rather complicated phenomena of architectural ornaments.

The authors conducted fieldwork in three places in China from 2005 to 2007 (Figure 1). They are Beijing, Chengde of Hebei Province, and Yulin of Shaanxi Province. The dynamic changes and development in traditional building in these three locations are typical in China today. The classic style ornaments in the Forbidden City or the Mountain Resort is comparable to fine art; the popular application of the classic styles in new residential and commercial projects in Beijing and Chengde are comparable to popular art; and the work of the folks in Yulin can be seen as vernacular. In the popular application of the classic style, as shown in examples in Chengde, many of the

compositional conventions were broken as demanded by the clients. The resulting style is less classic and can be seen as a popular application of classic styles. In the process of negotiation in the design process, the selection of the motifs was also skewed away from the traditional Confucian values to more extravagant materialism. The processes are very complicated and very interesting. This is comparable to the origin of *sushi* style architectural painting as the result of the interaction between the folk style and classic style. See Figure1, 2 and 3.

Based on the fieldwork of Yulin of Shaanxi Province, Chengde of Hebei Province, and Beijing area, the authors found out that the popular art is not art. It is a channel through which fine art or folk art flows from designers to consumers. The process has become complicated. This conceptual framework can be used to examine the Chinese traditional architectural ornaments. The understanding of how a great cultural tradition adapts to the social and economic development in the time of rapid globalization may contribute to a global effort to preserve the cultural diversity and sustainability of our world.

NARRATIVE

Culture is more complex than it sounds in people's conversation. The generic term such as "Chinese culture" is an over-generalized convenient shortcut. In the study of architectural ornaments, authors find that the so-called Chinese culture should at least be divided into three sub-categories: the classic, the popular, and the vernacular. Classic culture, sometime defined as high culture, includes classic art, standard science and technology, as well as moral systems. Vernacular culture is made and organized by people of a local community. Popular culture changes constantly and occurs uniquely in place and time. It happens between classic culture and vernacular culture. It is seen as a commercial culture or mass produced for mass consumption.

Culture consists of the appreciation of what is sometimes called Art. "Thinking of art as any medium through which a culture reaches for perfection, or limiting art of a culture's achievements in materials-either way we face the first of the problems that engage us here. Basically, "art" means making (Glassie 1989:42)." When people study a culture, one study its art. Any kind of art of architectural ornaments is a component of its related culture, including Chinese architectural ornaments.

Vernacular architectural ornaments have been in their specific styles to fit the local people's life and meet their social needs. Once the social and economic condition changes, the builders will rethink the architectural concept. The creative artisans may invent radically new forms or motifs to meet new requirements. This new style then may hold for a period of time until new changes take place in the future. This is very similar to what Glassie says about vernacular architecture (1989:219). In comparison, classic traditional architectural ornaments are more stable in styles.

About popular art, scholars tried to see it in connection with fine art and folk art: “Popular art is not art. It is a channel through which fine art or folk art flows from designers to consumers. The process has become complicated (Glassie 1989:234).” This conceptual framework can be used to examine the Chinese traditional architectural ornaments as we experienced in our field work in northern China.

The dynamic changes and development in traditional building the authors found in their fieldwork are typical in China today. The classic style ornaments in the Forbidden City and the Mountain Resort is comparable to fine art; the popular application of the classic styles in new residential and commercial projects in Beijing and Chengde are comparable to popular art; and the work of the folks in Yulin (Fig.1) can be seen as vernacular. In the popular application of the classic style, as shown in examples in Chengde (Fig. 2), many of the compositional conventions were broken as demanded by the clients. The resulting style is less classic and can be seen as a popular application of classic styles. In the process of negotiation in the design process, the selection of the motifs was also skewed away from the traditional Confucian values to more extravagant materialism. The processes are very complicated and very interesting.

When the conceptual model of the interactive classic and vernacular styles mediated by popular applications is used in the analysis of architectural ornaments, one can avoid the problem of using a linear historical method that cannot cover the great diversity of the vernacular style across space more than time. When people can connect the parallel developments of the more traditional classic style and the more diverse vernacular styles in their interactions through popular applications, one will obtain more

comprehensive understanding of the rather complicated phenomena of Chinese architectural ornaments.

When architectural ornaments in China are concerned, people would naturally think about the flamboyant decorative paintings and elaborate carvings of the imperial buildings, such as the architectural ornaments in the Forbidden City of Beijing. As the capital of China for more than a thousand years, Beijing contains privileged imperial classic architecture. The Forbidden City, occupying the former imperial palace of the Qing dynasty, is a national treasure to the Chinese people, since it represents Chinese traditional culture at the highest level. Therefore, everything that belongs to the museum is attentively protected. Architectural ornaments are no exception.

Treatises in architectural history have established chronological stylistic evolutions and produced an impression that the development of the Chinese architectural ornaments follows a linear pattern since its origin in ancient time hundreds of years ago. It would be an over-simplification, however, to assume that the Chinese architectural ornaments are the same across China's broad geographic territories and they only change along the axis of time. Local variations are evident everywhere.

The interaction between the vernacular tradition and the imperial style can be better illustrated in the case of Suzhou style decorative painting applied on building structures. In the history of the architectural decorative painting, the Suzhou style is one of the three major painting styles. In the Qing dynasty, Emperor Qianlong visited the city of Suzhou in southeast China, and he fell in love with the elegant and peaceful private gardens there. Emperor Qing Long brought many Suzhou artisans back to Beijing and built gardens for his leisure time. The vernacular Suzhou painting style was thus used in

imperial gardens (Zhang 1985:295 & He 1999:5). Since the vernacular Suzhou style was removed from its original context, its application in the imperial garden may be seen as an action of the popular culture initiated by the Emperor Qianlong who was indeed the leader of the popular culture of his time when the Manchu ethnic group was in the process of self-assimilation with the Chinese culture. When the style was refined and fully incorporated into the imperial architectural standard, it was promoted to a classic status and entered the high culture. From this example, we can see that the art of the high culture has its root in the vernacular culture. Through movement in the popular culture of its time, a form of vernacular art can be transformed into classic art of the high culture.

Because of its use in the imperial gardens, the Suzhou style decorative painting became popular among commoners in Beijing and northern China. It entered once again into the popular culture. But this time it flows from imperial garden to the houses of the commoners, from the high culture to the folk culture. When the imperial artistic style found home in the local community, the original root of folk art found soil. The artistic communication became meaningful again within the local community. It may again be seen as vernacular. When the contemporary architectural historians look at the Beijing courtyard houses as a vernacular style, few have noticed the transformations the Suzhou painting style had experienced. It was in such context, recently the Suzhou style decorative painting that had been preserved in the high culture found its new clients in the new courtyard houses and restaurants in Beijing (Fig. 3).

This example indicates that in the popular applications of either the classic style or the vernacular style, the two styles can interact. In this example of the Suzhou style,

an important cultural interaction between the northern style and southern style and between official classic style and vernacular style was realized. The transformation and development of the Suzhou style decorative painting demonstrate that the dynamic and transient popular culture defined by social, economical, and political factors have played the key role in the interactions of the art form at different levels.

Finding and Conclusion

The dazzling development in architectural ornaments are created by different craftsmen and appreciated by a diverse population in the dynamic and transient social and economic development in China. It can be argued that the design process and performances of the ornaments are dynamic and vary from place to place and from person to person. The cultural fusion has been made possible by the increased mobility of the artisans and their knowledge about other contemporary cultures. Being members of the society, the artisans are influenced by political events, limited and driven by social and economic powers beyond their control. They participate in the current social and economic development professionally. They practice under the influence of the popular culture. While they guard the classic tradition of the ancient palaces, they serve in the building industry to build new residential and commercial projects that employ traditional styles. In these projects, they try hard to create architectural ornaments according to their imperial standard and at the same time to creatively accommodate new demands of a new time. On one hand, they are proud of being the representative of the authentic Chinese tradition, and on the other hand, they enjoy the freedom of creation. This actually pushed the classic style and the vernacular tradition into the domain of popular

art. The interaction of classic and vernacular styles mediated by popular applications has created great diversity of the vernacular styles over space and they can only be explained by using a model of interaction and transformation of cultures.

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Figure 1. Examples of architectural ornaments in Yulin in the local vernacular tradition.

Figure 2. Examples of classic architectural ornaments (above) and popular applications of the classic ornaments in Chengde.

Figure 3. Traditional Sushi style decorative painting (above) and its applications in newly constructed courtyard houses in Beijing.

Beyond Surface : Why Limit Yourself to 1 Power of 10?

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ABSTRACT

Designers who conceive interiors should not shy away from making big statements with their work. Linking outward, ideas about design have the power to change the world and ways that humans act within it, as suggested by design luminaries Ray and Charles Eames. In the context of where we have been as a profession, the time has come to shift the paradigm about what it means to be an interior designer, much as the redefinition of the profession in the Eames' time called us to consider microscopic and cosmic implications of design. We stand poised for change because of cultural circumstances that shift the studious designer to the veneered television superstar. In this cultural reappropriation, we assert that the message clearly is that ANYONE can design and that a design (and often fabrication) takes place well within an hour-long episode on television, embellishing the surface, but not exploring beyond it.

Drawing inspiration for the future from the Eames, rather than leaving them cryogenically encapsulated in the past, we value their forward-thinking, holistic design approach, perhaps best expressed in their 1977 film, *Powers of 10*. The Eames suggest design emanates outward and inward from human touch and sense to the universe and to the galaxy of molecules that comprise the material qualities of design. As a discipline, we should follow the Eames' example and investigate interior design not

from a single power, but rather from a multitude of powers: why only scratch the interior surface, revealing only one part of the picture when we can provide a panorama of experiences from which students learn far outside and deep within – and including – the interior?

As faculty, we teach students to be better citizens of the world so that they may connect more completely with the human beings who inhabitant, work, and celebrate around and within the human environment. So often we limit ourselves in not considering the possibilities that lie outside the architectural envelope or materially embedded within, remaining safely on the surface between, without considering the social and cultural impacts of what we do on people and the world. Taking our cue from the Eames to look both inward and outward, we attempted a re-centering of our profession through a second year studio "shelter" project.

Tethered through the dual concepts of shelter as **protection** and **action**, students in the studio investigated and manifested a bus shelter and an emergency relief shelter. We encouraged students to think of how they could change the world through individual work and collective enterprise, becoming self-aware about racism, disparities in class, public transportation, disaster relief, team dynamics, community, communication, and themselves. Inherently a people- rather than system-centered local project, we encouraged students to expand learning from this locality to apply it to other places and circumstances, much like the Eames. In our case study, we provide commentary and analysis as to where interior design could be now and where it might go, freed from the constraints of a narrow definition of interior space making.

NARRATIVE

Images from the “Powers of 10” by Ray + Charles Eames (1977) : http://www.powersof10.com

The profession of interior design balances precariously in today’s unstable economic climate. Most often equated as a luxury service, not unlike a pedicure or massage, design is one of the first items to be wiped off companies’ and individuals’ to-do lists during a period of financial cutbacks. In recent months, Gensler, one of the world’s largest and most respected interior design firms, laid off 10 percent of its workforce for lack of contracts (*Building Design*, 9 February 2009). In lieu of hiring designers with limited breadth in their knowledge of design, Billy Clark, director of a headhunting firm for the design industry, reports that firms seek: “catch-all employees who can wear multiple hats and fulfill various needs” (*Architectural Record*, 17 November 2008). We see the shifting economy signaling a new era in the future of the design profession, one in which practitioners, academics, and students must move beyond the tunnel vision of what constitutes an “interiors” project. Thus, in training

future designers, we must embed ideas about versatility and adaptability in their work, thereby enabling them to view interior design more holistically.

In moving beyond a traditional view of interiors as surface treatment, we suggest that young designers conceive of themselves as agents for change on many scales rather than as designers who work solely on high-end interiors. Here we examine a new model for engaging our students within a profession perceived by society as serving the upper class and ignoring the lower. In a time when design students seek internships and positions where there are none to be had we propose a new concept for interior design: one that values service over surface.

Linking outward, ideas about design have the power to change the world and ways that humans act within it, as suggested by design luminaries Ray and Charles Eames. In the context of where we have been as a profession, the time has come to shift the paradigm about what it means to be an interior designer, much as the redefinition of the profession in the Eames' time called us to consider microscopic and cosmic implications of design.

Drawing inspiration for the future from the Eames, rather than leaving them cryogenically encapsulated in the past, we value their forward-thinking, holistic design approach, perhaps best expressed in their 1977 film, *Powers of 10*. The Eames suggest design emanates outward and inward from human touch and sense to the universe and to the galaxy of molecules that comprise the material qualities of design. As a discipline, we should follow the Eames' example and investigate interior design not from a single power, but rather from a multitude of powers: why only scratch the interior surface, revealing only one part of the picture when we can provide a panorama of

experiences from which students learn far outside and deep within – and including – the interior?

As faculty, we teach students to be better citizens of the world so that they may connect more completely with the human beings who inhabitant, work, and celebrate around and within the human environment. So often we limit ourselves in not considering the possibilities that lie outside the architectural envelope or materially embedded within, remaining safely on the surface between, without considering the social and cultural impacts of what we do on people and the world. Taking our cue from the Eames to look both inward and outward, we attempted a re-centering of our profession through a second year studio "shelter" project.

Tethered through the dual concepts of shelter as **protection** and **action**, students in the studio investigated and manifested a bus shelter. We encouraged students to think of how they could change the world through individual work and collective enterprise, becoming self-aware about racism, disparities in class, public transportation, disaster relief, team dynamics, community, communication, and themselves. Inherently a people- rather than system-centered local project, we encouraged students to expand learning from this locality to apply it to other places and circumstances, much like the Eames. In our case study, we provide commentary and analysis as to where interior design could be now and where it might go, freed from the constraints of a narrow definition of interior space making. But first, the project…

In creating the bus shelter for their city students were able to explore design not only as a two-dimensional graphic or in miniature with cardboard, but through a full-scale prototype. In the process, not only did they uncover talents using hammers and

table saws they were not aware of having, but they also became intimately familiar with the principles and elements of design in three dimensions via their own creation.

1^{-1} : unity

1^{-10} : balance

1^{-100} : form

1^{-1000} : hierarchy

$1^{-10,000}$: scale

$1^{-100,000}$: repetition

$1^{-1,000,000}$: gradation

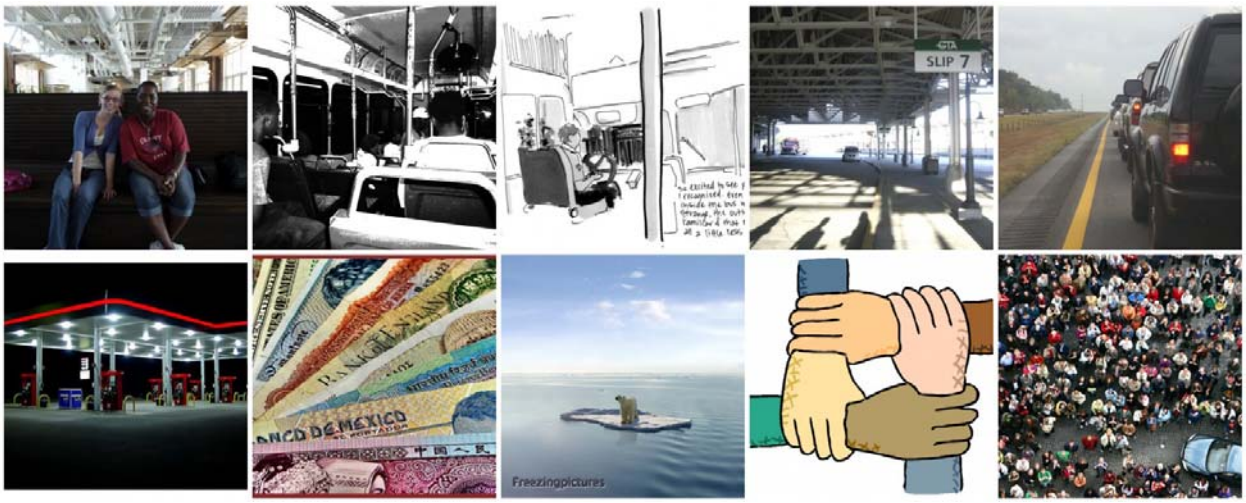
$1^{-10,000,000}$: proportion

$1^{-100,000,000}$: color

$1^{-1,000,000,000}$: contrast

But a bus shelter is more than the sum of its parts. Rather than stop with an explanation of this detailed design, historically the strength of the interiors profession, we go back to remind you (as we did the students) to understand design work in the various scales emanating outward from the artifact and space – but starting instead with

the client, the bus rider, to remind us all that design, fundamentally, touches humans and is shaped by human interaction. Throughout the ten-week project, we reminded students that with each power of 10, they needed to situate their work always thinking of the next greater context. We invite you to do the same.



1^{1} : bus rider

1^{10} : bus riders in greensboro

1^{100} : users of public transportation

1^{1000} : regional transportation networks

$1^{10,000}$: interstate system

$1^{100,000}$: national dependence on oil + gas price crisis

$1^{1,000,000}$: global economy

$1^{10,000,000}$: global warming

$1^{100,000,000}$: sustaining relationships

$1^{1,000,000,000}$: world as a communion of subjects

With each of these powers of 10, students came time and time again to the notion of the world defined as a series of relationships among humans…and thus the

final power of 10 re-linked us to the first – the users of the bus shelter as people in communion with the students who designed for them. Considering sustainability, the global economy, a national dependence on oil and the gas crisis, national, regional, and local transportation, all surround the client for the bus shelter and all provide the context for the stroke of the pencil, the snap of the ruler guide in CAD, and the construction of the sketch models – steps in the design process that led to the final design. Now that we have reached outward to the scale of the world, where does the student fit in this consideration of the billionth power…or the 6 billion people on earth? We offer this model and invite you to apply it in your own teaching, research, and service.

$1^{1,000,000,000}$: universe

$1^{100,000,000}$: world

$1^{10,000,000}$: united states

$1^{1,000,000}$: north carolina

$1^{100,000}$: triad region

$1^{10,000}$: greensboro

1^{1000} : university of north carolina at greensboro

1^{100} : department of interior architecture

1^{10} : second year studio

1^{1} : student

Design has the power to change the world and the way humans act within it. In an era where design is portrayed as a novelty and where people have become conditioned to instant “solutions” to design challenges, we advocate that design, rightly or wrongly, is a thoughtful and engaging enterprise, to be taken seriously as a way to affect and resolve issues of social justice. We assert that designers (interior, graphic, product, architect, planner…all designers) have a responsibility to serve their community, both locally and globally by connecting their work outward from the smallest of details to the universe. While this sounds ambitious, we recognize that interior designers – those who dwell in the most intimate places that humans inhabit, those who deal in the minutiae of details, those who work one on one with clients – must look up from their power of 10 and recognize that they, individually and collectively, stand uniquely qualified to forge gateways to allied professions and the human populace far beyond the details of their own work. When this happens, we believe, like we experienced with our students, that the simple act of making shelter moves from an enterprise that focuses inward and instead shifts to a design opportunity that stands poised to transform at many scales. Such a spirit of exploration and engagement in our own profession, and a commitment to turn our work outward, would bring tremendous energy and authority to a field of expertise so often undervalued by others.

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A Graphically-Based Methodological Route to Design Theory

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ABSTRACT

The central theme of this paper is the cross-cultural importance of theory to the practice of design and the challenges posed by the sharing of theoretical insight across the formidable hurtles of cultural perspective and language. It introduces a graphically-based methodology intended to more thoroughly integrate theory into the day-to-day design process, a multi-step paradigm abbreviated P.A.Th.Way.S.: Problem definition, Analysis (defining goals and objectives), Theory identification, "Ways" of addressing goals (i.e., "concepts") and Solution refinement.

The public tends to envision design as a primarily intuitive undertaking, a mysterious "black box" process. Although design certainly has its purely expressive, creative dimensions, virtually every project is also wrapped around a core of more deliberate, purposeful and "transparent" intentions. This "glass box" conception of design takes a more rational approach, with project goals intricately laced to solution concepts, by means of well defined and persuasively substantiated beliefs—the designer's *theory.* Design theory helps explain and defend the logical linkages between project goals and solution concepts that are intended to satisfy them. But, these theoretical positions are not always easily communicated. The ability to identify, formulate, adapt and apply theory—especially as a means of linking solution efforts back to intended outcomes-- must be established early and reinforced often during the

designer's formative years.

The paper offers a tool to help designers and design students come to terms with theory in the design process. It first assists students in defining theory in relation to two other abstract notions-- design "objectives" and design "concepts." Secondly, it illustrates the use and value of symbolic representation as a highly practical means of clarifying complex ideas—in this case, theoretical constructs—and communicating them effectively across barriers of culture and written language. Along the way, it provides a useful overview of formal design processes, especially the family of "pattern summary" methods pioneered in the sciences by Norwood Hanson and later popularized by Christopher Alexander.

Ultimately it identifies an additional verbal and visual strategy for developing, applying and communicating theory. In so doing, it would provide academics, students and, eventually, practitioners with an important means of fully realizing the design community's unique niche in education and society at large.

NARRATIVE

Background

This paper introduces a methodology for more thoroughly integrating theory into the day-to-day design process, a so-called P.A.Th.Way.S.[1] method. As many have observed, the public often views design as a primarily intuitive process, a "black box" approach to design. In reality, though, sound design decisions require a deliberate, logical problem-solving process. Goals must be intricately laced to solution concepts by a network of theory, a framework of well defined and persuasively substantiated beliefs. As Eidson[2] describes it, "design theory provides the language and connections necessary to link knowledge and ideas about design concepts with the practice of designing." This ability to identify, formulate, adapt and apply a sound structure of beliefs (theory)—especially as a means of linking solution efforts to intended outcomes--must be established early. Needless to say, the burden of fostering these aims falls heavily on design education.

The Ebb and Flow of "Theory" in Design

In general discussion, "theoretical" issues are often viewed as being the polar opposites of "practical" considerations, expressed in familiar comments such as, "That may be true in 'theory' but not in practice." With regard to design, there has, at times, been some justification of such denigrations of theory. In the '80s and '90s, for

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[1] An acronym summarizing its major steps: P. (Problem definition), A. (Analysis of design requirements), Th. (Theory exploration), Way (general ways of [concepts for] solving problems using theory to translate link goals and solutions) and S. (final Solutions).

[2] Eidson, P.L., (1986). Critical thinking: elements of design theory, *Journal of Interior Design Education and Research* 12:3 (1986): 19.

example, the term was regularly subverted by the "critical theorists" as a label for vague, largely unsubstantiated entreaties about design, but only loosely (if at all) related to designing. Williams observes that such musings were often "long on assertions of taste, short on theory[3]." Similarly, Lavin, in her essay on "The Uses and Abuses of Theory,"[4] notes that, "It is precisely theory's use as an architectural commodity—through which power relationships are manipulated to effect change on the superficial level of word and image rather than on the substantive level of elemental structure and condition—that is irresponsible both in theory and in practice." It is little wonder that design "theory" has come to be viewed as the exact opposite of "practical," "purposeful" problem-solving.

However, even in design, this lapse would have to be considered the exception to the rule. In the sciences, theory generally represents the practitioner's very best explanation of how things work. And, the design professions can look with similar pride to the human / environment movement of the '60s and '70s, when the application of behavioral science research and theory did much to enhance the impact of design on users of the built environment. But, if applied theory is to be a permanent foundation upon which practical design decisions are based, designers and design educators may have to devote a great deal more attention to its form, formulation and refinement.

For starters, designers would do well to reexamine the structure of theory as cultivated in the sciences. Reynolds[5] outlines three common categories of scientific

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[3] Williams, Richard J., "Rethinking Architecture?" *Art History* 22:1(1999): 134.
[4] Lavin, Sylvia, "The uses and abuses of theory," *Progressive Architecture* 71:8 (1990): 179.
[5] Reynolds, Paul Davidson, *A Primer in Theory Construction*. New York, NY: Macmillan Company, 1971.

theory: 1) knowledge as a set of well-supported empirical generalizations or "laws" (the "set-of-laws" form of theory, 2) an interrelated set of definitions, axioms and propositions (the "axiomatic" form) and 3) a set of descriptions of causal processes (the "causal process" form). He also summarizes the expectations of scientific theory: 1) provide a method of organizing and categorizing information, 2) provide a means of predicting future events and outcomes, 3) provide useful explanations of past events, 4) provide a general understanding of what causes events and, sometimes, 5) provide a certain degree control over events.

Compared to the sciences, design's body of theory is weak in the rigor of its observational support and the soundness of its empirical generalizations. The development of a comprehensive applied theory will require years of dedicated observation, description and explanation of observed phenomena, logical inference, statistical validation, plus the tests of time. But, as Hanson[6] notes, these are worthy aims. Even preliminary, unsubstantiated observations form the potential foundations for later, more empirically defensible insight. Student designers need to be nurtured toward a new respect for this brand of reasoned potential from disciplines. The very reason to return theory to the design studio and classroom as soon as possible, is to start students down the path of more theory formulation and application, as soon as possible.

Methodological Precedents to the Application of Theory

Unfortunately, few of these efforts have embraced the role of theory. The steps of most popular paradigms can be discretely divided into one of two major and distinct

[6] Hanson, Norwood Russell, "A Picture Theory of Theory Meaning," in *The Nature and Function of Scientific Theories*, ed. Robert G. Colodny (Pittsburgh, PA: University of Pittsburgh Press, 1970): 237.

parts, analysis and synthesis. Analysis, is the "divergent" phase, focusing on investigation to expand the designer's knowledge of a design problem and the analysis of findings to give clear definition to its requirements. The second phase, synthesis, is the "convergent" part of the process, focusing on the identification and refinement of concepts suitable for satisfying project intentions. Between the two phases is what some describe as the "creative leap." When addressed at all, this leap is often discussed in terms of cultivated creativity or enhanced visualization. Archer,[7] cited applied theory as an important bridge between problems and solutions, suggesting design must "establish the relationships (internal or specific laws) connecting varying states of the properties with varying degrees of fulfillment of their respective goals," a reference to theoretical cause/effect relationships, but one without elaboration.

The "P.A.Th.Way.S." Model

It was the search for more systematic methods of integrating theory into the academic (or professional) design studio led to the so-called "P.A.Th.Way.S." method. The "P.A.Th.Way.S." paradigm begins and ends rather conventionally. As with many paradigms, it leads off with definition of "**problems**" (P) and the investigation and "analysis" of **requirements** (A). At the other end of the process the paradigm concludes with the identification of general **concepts** (or "Ways") and finally with the narrowing of these options down to specific concrete "**solutions**" (S). The method's unique contribution is it's positioning of "**theory**" (Th) to bridge the gap between requirements and solution concepts.

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[7] Archer, L. Bruce. "An Overview of the Structure of the Design Process," in *Emerging Methods in Environmental Design and Planning,* ed. Gary T. Moore (Cambridge, MA: MIT Press, 1970): 297.

The resulting five-step paradigm (see Figure 1) brings several benefits to the design studio experience. First, it follows fairly closely the major steps used in other design method paradigms. Secondly, unlike most paradigms, it inserts theory as an inherent and central part of the design process. Finally, despite its centrality, the sequential presentation of objectives (the Analysis step), theories and concepts (the "Way" step), provides contextual clarification of the unique form, function and procedural contributions of each.

Figure 1—Example of Graphically Summarized Theoretical Building Block

Problem	Analysis	Theory	Concept	Solution(s)
A. Office workers feel their workstations are too open to others.	A.1 Workers should feel they are the "owners" of their own workspaces.	A.1.1 "CONTROL" [1] Spatial "ownership" is strongly related to an occupant's sense of having certain unique opportunities to exercise control.	A.1.1.1 Movable "Screens" give occupants varying degrees of adjustment for "control" of spatial variety privacy, security.	A.1.1.1.1 Photochromic glass in sliding doors allows a variety of fine-tuning of transparency and visual privacy. .

"Control" Theory—Miller and Schlitt[1] suggest that the ability to exercise a degree of control over territoriality, personal space, socialization, privacy, etc., may be more important than a threshold level of any one of them.

[1]Miller, Stuart and Schlitt, Judith K. (1985). *Interior Space: Design Concepts for Personal Needs*. New York: Prager Publishers.

The P.A.Th.Way.S. method defines "theory" as a set of evidence-based statements or principles devised to explain particular phenomena. It relies heavily on Reynolds' previously mentioned *A primer in Theory Construction*. Theory statements are developed around Reynolds' "causal process" form, framed as "If-Then" statements, i.e., **if** particular actions are taken, **then** certain responses are likely to occur. For convenient

reference, each theory statement is given a name, for example: *"Continuity-Based Hierarchy"-- When trying to find their way through a building, users interpret the arrangement of spatial elements (such as lighting and finish materials) as symbols of common routes. In unfamiliar spaces, if lighting is placed to appear as a "continuous string," routes associated with them are generally interpreted more important, i.e., major circulation routes.*

In use, P.A.Th.Way.S. is a working tool based on note cards or a computer database. It works best at a micro-scale. Individual observations can be thought of as "molecular" theory, basic theoretical building blocks. When combined and recombined they construct more complex portrayals of design phenomena. It is intended that the five main parameters (problems, requirements, theories, concepts and final solutions) be arrayed in five side-by-side columns. Sources of insight must, of course, be documented.

A final element of the P.A.TH.WAY.S. record is a concise graphic summary of the theory as a symbol. The resulting text and symbol combinations are clearly a subtle variation of other more familiar "pattern language" records.[8] The design literature is well seeded with many diverse discussions and examples of this rich method. Of particular significance to this paper, however, are the earlier and less well known pioneering works on pictorial pattern summary of scientific theory by Hanson,[9] which serve as a reminder

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[8] Alexander, Christopher. *Notes on the Synthesis of Form.* Cambridge, MA: Harvard University Press, 1964; Allen, Edward. *Architectural Detailing: Function, Constructability, Aesthetics.* New York, NY: John Wiley & Sons, 1993.

[9] Hanson, Norwood Russell, *Patterns of Discovery: An Inquiry Into the Conceptual Foundations of Science* (Cambridge, UK: University Press, 1961); Hanson, Norwood Russell, "A Picture Theory of Theory Meaning." In *The Nature and Function of Scientific*

that there may be far more connecting design and science than either community suspects.

The columnar of the steps encourages a rather “free address” approach to the system. Although its focus is theory, the method encourages (actually depends on) equal attention to each of its five parameters. Most arrays start with problem statements and work progressively from left to right. However, the value of the columnar layout is twofold: 1) theories (or even problems) may be developed “backwards,” by asking a series of “why?” questions about a seemingly desirable solution in order to more clearly define the underlying intentions, 2) the adjacency of the five segments helps ensure that the form of each segment conforms to its own function and form.

Conclusion

Theory is often criticized as being “impractical.” But, to the contrary, in its most refined quasi-scientific form, it documents the designer’s best understanding of the probable workings and impact of their work. The P.A.Th.Way.S. method provides young designers with a simple, useful model of the design process that encourages daily reflection of purposeful theory.

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Health and Well-Being in Infant Incubators

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ABSTRACT

The quality of our interior environments is compromised by the unintended consequences of an industrial age. Substances such as persistent bioaccumulative toxins, volatile organic compounds, and phthalates known to be harmful to human health are ubiquitous not only in our day-to-day environments but also in healthcare environments, their focus on health and wellness notwithstanding (Wilson-Orr, Archer, MacMillan-York, Macisaac, & Reid, 2007). The purpose of this study was to investigate whether a highly controlled healthcare environment, an infant incubator, also might contain harmful substances despite its intent to support and protect vulnerable newborn infants. Because all interior design practitioners specify interior materials, developing a working knowledge of harmful chemicals typically found in environments including healthcare raises designers' awareness and understanding of these substances. As a profession bound to protect the health, safety, and welfare of the public, knowledge of the dangers and responsibilities, perhaps even liabilities, of substances and materials is critical to the public and to the profession. This knowledge begins not in practice, but in education, as beginning designers learn about materials and begin making responsible, informed choices in the design and development of interior environments. Thus, interior design educators must become aware of the nature of chemicals and substances found in interior environments. This study extends the relevance of existing reports

documenting the effects of chemicals on health and well-being (e.g., “New Harvard study”, 2005; Swan, Main, Liu, Stewart, Kruse, Calafat, et al., 2005) by acknowledging their pervasive existence even in protective environments such as infant incubators.

Viewed as an initial step into a larger inquiry, a single incubator was borrowed from a school of medicine that was proximate to the testing facility. The incubator which was 8 years old but in regular use by the facility, was placed in a controlled environmental chamber, operated, and its air measured periodically across a 24 hour period. The results revealed 20 individual chemicals emitting into the air within and surrounding the incubator. These chemicals ranged from fragrance in a cleaning solution that dissipated rapidly to substances with either a constant or increasing presence that may be affected by the heated incubator environment. Although the effects of some of the substances are unknown, others present in the incubator air are suspected developmental or neurotoxicants and others such as formaldehyde and acetaldehyde are known human carcinogens and strong upper respiratory and mucosal irritants. These findings are particularly pertinent to preterm infants who often suffer respiratory ailments assumed to be the consequence of untimely birth.

The results of this study are not intended to undermine any particular manufacturer of products used in the care and treatment of the preterm infant, but to explore whether materials that are harmful to human and environmental health and typical of interior environments also might exist in the nearest environment of the preterm infant, the infant incubator. The data from this preliminary investigation raise a concern regarding

materials used in interior environments, even those portended to be safe, and indicate that further study is warranted.

NARRATIVE

Health and Well-Being in Infant Incubators

At the end of the 20th century, innumerous materials, substances, and goods existed that enabled modes of transportation, improved health and hygiene, provided conveniences of homes and businesses, and advanced information technologies. Yet now, in the early years of the 21st century, serious questions are being raised and concerns investigated regarding the negative consequences of these accomplishments, including the release of toxic materials into the air, soil, and water, production of dangerous materials, deposits of valuable materials after a useful life into material graves, regulations articulating lawful and unlawful amounts of pollution, and erosion of diversity among species and cultures (McDonough & Braungart, 2002). As interior designers charged to protect the health, safety, and welfare of the public, knowledge of the dangers and responsibilities, perhaps even liabilities, of products and materials is critical to the public and to the profession.

This study extends the relevance of existing reports documenting the effects on health and well-being of materials typical of interior spaces by measuring substances in a healthcare environment, specifically, in an incubator, the nearest environment of the preterm infant. Knowing the presence of harmful chemicals in an incubator, intended to be the *safest* environment, is important particularly for the care and treatment of the infant occupant, but also to interior designers who, regardless of area of expertise, all specify materials for interior environments. The objectives of this study are to reveal the types and levels of pollutants in the air of the infant incubator, identify their potential

sources, and articulate the significant health effects that may occur as a consequence of the presence of particular substances in the incubator.

Air Quality

Three broad categories of chemicals known to harm human health are persistent bioaccumulative toxins (PBTs), volatile organic compounds (VOCs), and phthalates. These families of chemicals cause conditions that may be short term such as eye irritation, chronic such as an allergy, or terminal such as cancer. Importantly, these chemicals may be absorbed through the skin, inhaled, or ingested.

PBTs accumulate in fatty tissue and not only magnify up the food chain, but also cross generations (BodyBurden, 2005; Persistent bioaccumulative and toxic, 2002). A breast-feeding mother, e.g., may transfer PBTs to a newborn infant. These substances which convey easily from air, land, or water, are pervasive in the environment. Polyvinyl chloride (PVC), for example, is a PBT used in flooring, wall-covering, and any number of products valued for moisture resistance such as the cover of a mattress pad in an infant incubator.

Some PBTs such as PVC are also volatile organic compounds (VOCs), substances that are measured as organic gasses (Sources of indoor air pollution-VOC, 2004). Formaldehyde is a common VOC found in pressed wood products such as that used in cabinetry (Sources of indoor air pollution-formaldehyde, 2004). Urethane is another common VOC that off-gasses from foam padding sometimes used in foam mattresses.

Recently, attention has focused on phthalates, a family of chemicals used to soften plastics that are reported to suppress the immune system, damage organs and the nervous system, and impair the reproductive health of infant boys (New Harvard study, 2005; Swan, Main, Liu, Stewart, Kruse, Calafat, et al., 2005). In healthcare, phthalates are found in medical devices and equipment including naso-gastric tubes, catheters, and intravenous bags and tubing (PVC devices containing plasticizer, 2002).

PBTs, VOCs, and phthalates are pervasive in interior environments. Thus, the air in healthcare environments such as the neonatal intensive care unit (NICU) and the infant incubator which harbor many vinyl products also is expected to contain chemicals that are harmful to human health. Incubators have the potential to be among the most polluted because not only are they closed and controlled environments, they also are heated and filled with softened vinyl products including diapers, mattress pads, toys, and pacifiers. Revealing the quality of the air that vulnerable infants are inhaling is informative in an empirical sense, but also may provide some insight into their recovery and developmental outcomes. Many investigators, for example, have studied the development of the respiratory system of preterm infants, believed to be compromised not only by preterm birth but various other medical conditions (e.g., Bolt, van Weissenbruch, Lafeber, Delemarre-van de Waal, 2001; Dammann, Leviton, Bartels, & Dammann, 2004). Importantly, the air quality of the infant incubator may be a contributor to the sequelae of lung development in preterm infants.

Methodology

A contract was formed with an independent, third-party laboratory recognized nationally for testing and certifying the air quality of products, materials, and equipment. The lab arranged to borrow an incubator from a nearby medical school for testing. The incubator was selected for convenience – it was an older model though one that was still in use. It was currently unoccupied, could be easily transported from the medical facility to the laboratory which were located in the same city, and was manufactured by one of the three major suppliers of specialized healthcare products. The incubator was tested in an intermediate sized testing chamber where the walls are polished to a mirror-like finish to minimize contaminant absorption. Supply air to the chamber was stripped of VOCs and other contaminants and maintained at a temperature of 23ºC with relative humidity at 50%. The air exchange rate was 1 air change per hour. The incubator was operated during the testing period at 37.5ºC with no induced humidification, and the air was sampled during the 1st, 4th, and 24th hours of operation. The incubator was tested with a foam mattress and vinyl cover.

Aldehydes such as formaldehyde were measured using gas chromatography or high performance liquid chromatography with ultraviolet detection. VOCs were measured using gas chromatography with mass spectrometric detection. Individual VOCs were quantified using an indoor air database which contains the mass spectral characteristics of over 75,000 compounds. The database is compiled of information collected from Air Quality Sciences, the U.S. EPA, the National Institutes of Health, and the National Institute of Standards and Technology. Phthlates were measured using a mass spectrometric analysis.

Results

The results revealed 20 individual chemicals emitting into the air within and surrounding the incubator (see Table 1). The data indicated that chemicals found in the first hour of operation were likely related to cleaning agents. Those VOCs appeared to go away after the initial operation of the unit (at 4 hours; see Table 2). Those chemicals found 24 hours after the startup of the incubator were potential indicators of plastics and associated materials. Most noticeable in the data was the constant presence of two probable human carcinogens and strong upper respiratory and mucosal irritants, formaldehyde and acetaldehyde. Both chemicals were present at levels exceeding the chronic reference exposure levels for adults recommended by the state of California for indoor environment exposure. They were roughly twice the recommended level.

Conclusions

Overall the data showed the presence of a number of developmental, respiratory, and carcinogenic irritants and toxins in the incubator air, originating from the operation of the unit. Although the levels of most were low in this older, used incubator, it raises the concern of more fully understanding what levels might be associated with newly manufactured units, how these chemical levels will change with time, and how the levels could be reduced with proper conditioning of the unit prior to use. It also highlights the opportunity to identify the construction materials contributing to these chemicals and finding safer alternatives. The base of the incubator, for example, is constructed typically of pressed wood products such as MDF which is then covered with a (plastic)

laminate. Laminates are associated with VOCs and MDF typically contains formaldehyde. The significant presence of formaldehyde and acetaldehyde, both of which are strong upper respiratory irritants and asthma triggers, indicates potential concern not only for the infant in the incubator, but also the staff in a room with multiple operating incubators. The overall chemical air levels resulting from the operation of numerous units in a room could result in irritating and unacceptable indoor environments.

The purpose of this study was not to undermine any particular manufacturer of products used in the care and treatment of the preterm infant, but to explore whether materials that are harmful to human and environmental health and typical of day-to-day environments might also exist in the nearest environment of the preterm infant, the infant incubator. Importantly, this test was of a single incubator, one selected for convenience and availability, and was intended as an exploratory investigation. While the results indicate clearly that further study is warranted, the data from this preliminary investigation raise a concern regarding materials used in interior environments, even those portended to be safe.

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TABLE 1

MEASURED VOLATILE CHEMICALS
FROM OPERATING INFANT INCUBATOR

ug/m^3 (air concentrations)

COMPOUND IDENTIFIED	ELAPSED EXPOSURE HOUR		
	1st Hour of Operation	Following 4 Hours of Operation	Following 24 Hours of Operation
1-Hexanol, 2-ethyl			2.5
2H-1-Benzopyran-2-one	2.3		
2-Propanol, 1-(2-methoxypropoxy)		2.1	
Acetaldehyde	7.4	3.0	8.6
Benzaldehyde		3.6	
Benzyl Benzoate	3.1		
Cinnamaldehyde, (E)	2.9		
Cyclohexane, methyl	4.2		
Cyclohexanone	5.3	6.7	24.5
Formaldehyde	26.8	31.9	36.8
Hexanal		2.6	
Hexane, 3-methyl	4.5		
Limonene (Dipentene; 1-Methyl-4-(1-methylethyl)cyclohexene)			9.2
o-Hydroxybiphenyl ([1,1-Biphenyl]-2-ol)			6.3
O-Methylhydroxylamine	2.1	2.3	2.1
Pentadecane			
Phenol, 2-methoxy-4-(2-propenyl)(Eugenol)	4.4		
Propanal	11.4	2.3	14.4
Toluene (Methylbenzene)	4.1		
TXIB (2,2,4-Trimethyl-1,3-pentanediol diisobutyrate			5.6

TABLE 2

EMISSION RATES OF VOLATILE CHEMICALS FROM OPERATING INFANT INCUBATOR
µg/unit • hour

COMPOUND IDENTIFIED	ELAPSED EXPOSURE HOUR		
	1st Hour of Operation	Following 4 Hours of Operation	Following 24 Hours of Operation
1-Hexanol, 2-ethyl			13.7
2H-1-Benzopyran-2-one	12.6		
2-Propanol, 1-(2-methoxypropoxy)		11.5	
Acetaldehyde	40.4	16.4	47.0
Benzaldehyde		19.7	
Benzyl Benzoate	16.9		
Cinnamaldehyde, (E)	15.8		
Cyclohexane, methyl	23.0		
Cyclohexanone	29.0	36.6	134
Formaldehyde	146	174	201
Hexanal		14.2	
Hexane, 3-methyl	24.6		
Limonene (Dipentene; 1-Methyl-4-(1-methylethyl)cyclohexene)			50.3
o-Hydroxybiphenyl ([1,1-Biphenyl]-2-ol)			34.4
O-Methylhydroxylamine	11.5	12.6	11.5
Pentadecane			
Phenol, 2-methoxy-4-(2-propenyl)(Eugenol)	24.0		
Propanal	62.3	12.6	78.7
Toluene (Methylbenzene)	22.4		
TXIB (2,2,4-Trimethyl-1,3-pentanediol diisobutyrate			30.6

Comparison of CIDA *Professional Standards* and NAAB *Conditions*

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ABSTRACT

Purpose

The purpose of this study is to inform the discussion about interior design and architecture education regarding their specialized and shared knowledge areas. Content of formalized education, as established by accreditation requirements, will be compared and contrasted to differentiate the specialized knowledge of each discipline. The findings of this study will add definition to that discussion.

Education is the initial step in the career cycle process of the interior designer that takes them from education to entry-level practice (Guerin & Martin, 2001). Formal interior design education is accredited by the Council for Interior Design Accreditation (CIDA; formerly FIDER); formal architecture education is accredited by the National Architectural Accrediting Board (NAAB). Both are recognized in the United States and Canada.

As a profession, interior design has a documented body of knowledge (BOK), which defines its professional boundaries (Guerin & Martin, 2001; Poldma, 2008). Like every profession, interior design's BOK has abstract knowledge that is unique to its practice and other knowledge that it shares or has gleaned from other professions (Abbott, 1988). However, this shared knowledge has created a challenge. Right to practice issues and advocacy for regulation by the interior design profession has

heightened efforts by the American Institute of Architects (AIA), the Institute for Justice, and others to claim that interior design does not possess specialized knowledge and is, therefore, not a unique profession (AIA, 2008; Carpenter, 2006). An analysis of formalized education requirements will differentiate interior design's specialized knowledge from architecture's.

Method

An examination of the educational content requirements for graduating interior design and architecture students was conducted of the CIDA 2009 *Professional Standards* and the NAAB 2004 *Conditions of Accreditation*. Using content analysis, "Performance Criteria" of NAAB's *Conditions* were aligned with the "Indicators" of CIDA's *Standards*. Knowledge content was then categorized as shared, parallel but equal, or specialized for each profession. To minimize bias, the two researchers, one a certified interior designer, the other a registered architect, conducted the initial content analysis independently using a pre-determined method of categorization prior to comparing findings.

Importance of the Topic

Understanding the specialized knowledge areas contained within the CIDA and NAAB accreditation requirements will inform the current discussion among interior designers, architects, legislators, code officials, and the public. Findings of this study found that both interior design and architecture accredited educational content include specialized knowledge, as well as shared and parallel knowledge. Categorization of these types of knowledge illuminates to what degree and how these professions differ from an educational standpoint.

Relevance to Interior Design

Application by interior design of its specialized knowledge is evidenced through the profession's responsibility to protect the public's life, health, safety, and welfare as an outcome of the interior environments it creates. The current lack of clarity regarding specialized versus parallel or shared knowledge, via formal education, hampers the discussion and diminishes the public's ability to identify interior design as a unique profession. Findings from this study minimize the ambiguity surrounding the content of interior design and architecture education requirements, substantiating the interior design profession's claim that it is unique from architecture.

NARRATIVE

Purpose

This investigation studied interior design and architecture education with respect to their specialized and shared knowledge areas. Education, formalized via accreditation requirements is available to both disciplines. Knowledge areas within discipline-specific, accreditation requirements content were identified and then compared and contrasted to differentiate the specialized, parallel, and shared knowledge. The findings of this study could contribute to the dialog about what makes interior design a profession, unique from architecture.

Background

Education is the initial step in the career cycle for interior designers taking them to entry-level practice (Guerin & Martin, 2001). Formal interior design academic programs are accredited by the Council for Interior Design Accreditation (CIDA, 2008; formerly FIDER). Similarly, the Boyer and Mitgang (1996) report established a blueprint for architectural education, building on an earlier Boyer (1990) report regarding scholarship.

Formal architecture education is accredited by the National Architectural Accrediting Board (NAAB, 2004). Both are recognized in the United States and Canada. A confounding factor of the analysis of accreditation requirements may be the level of education on which accreditation is focused, culminating in a bachelor's degree (typically four- or five-year undergraduate programs) for interior design (CIDA, n.d.) and either five-year undergraduate programs or "4+2," "3+," and less commonly, professional doctorates for architecture (NAAB, n.d.).

As a profession, interior design has a documented body of knowledge (BOK), which defines its professional boundaries (Guerin & Martin, 2001; Poldma, 2008). Like every profession, interior design's BOK includes abstract knowledge that is unique to its practice and other knowledge that it shares with or has gleaned from other professions (Abbott, 1988).

Shared knowledge for interior design education and practice has created challenges. Right to practice issues and advocacy for regulation by the interior design profession have heightened efforts by the American Institute of Architects (AIA), the Institute for Justice, and others to claim that interior design does not possess specialized knowledge and is, therefore, not a unique profession (AIA, 2008; Carpenter, 2006). An analysis of formalized education via accreditation requirements could differentiate interior design's specialized knowledge from that of architecture.

Method

An examination of the educational content requirements for graduating interior design and architecture students was conducted utilizing the CIDA 2009 *Professional Standards* and the NAAB 2004 *Conditions of Accreditation*. Using content analysis, "Performance Criteria" of NAAB's *Conditions* were aligned with the "Indicators" of CIDA's *Standards*, respectively. The specific two-step process to rank knowledge area levels and then the content analysis is detailed below. To minimize bias, the two researchers, one a certified interior designer (CID), the other a registered architect (RA), conducted the initial content analysis independently using a pre-determined method of categorization prior to comparing findings. Guidelines for analysis were determined prior

to comparison of independent findings, occurring in-person to increase reliability of findings (Sommer & Sommer, 1997).

Knowledge Area Ranking

For the first step, knowledge levels had to be examined as several "levels" of knowledge area qualifiers are used by both CIDA and NAAB; however, they are not consistently termed. To create equity between them, the researchers collaboratively determined, after separate initial review, the following levels of knowledge area qualifiers:

- Lowest level: CIDA level "aware" had no NAAB equal; therefore, it was equated with the level "understanding."
- Median level: for both CIDA and NAAB "understanding" was a common label, and was retained through the analysis.
- Upper level: terms "apply," "ability," and "able" were used by CIDA; "ability" was used by NAAB.

The second step in ranking knowledge area levels regarded CIDA's "should" and "must" terms. For the purpose of this evaluation, CIDA's "should" was reviewed as parallel to NAAB's "understanding," the median level of knowledge. Also, CIDA's "must" term was considered parallel to NAAB's "ability," and were both indicative of the upper level of knowledge.

Content Analysis of Accreditation Requirements

Where knowledge area content was documented was also examined. CIDA's Indicators intermix knowledge areas with other conditions of accreditation (e.g., "Standard I. 1: Mission, Goals, and Curriculum"). Therefore, for parity and to enable a

parallel comparison, the researchers included NAAB's "Introduction to the Program" and the "Conditions of Accreditation" into the content analysis. Distinguishing information by the area in which it was documented was considered secondary; omitting it could skew the findings. Next, the CID examined the CIDA Indicators and then "matched" them to the NAAB Performance Criteria, using keyword identification in both; the RA conducted the analysis in the reverse order.

In September 2008, the researchers met to discuss preliminary findings from their independent content analysis. The RA had devised two tables, one using CIDA *Standards* as the organizing table, matching the NAAB *Conditions* to it, and vice versa. The CID had devised one table using the CIDA standards as the organizing table. It was decided to use the latter ordering system for the comparison, given the purpose of the study.

An important aspect of the content analysis was to determine how to categorize accreditation requirements. Through comparison of independently conducted analysis, requirements for assimilation of knowledge areas coalesced naturally into three distinct knowledge area level categories:

1. *Specialized*: readily apparent that the requirement is unique to one entity or the other, no carryover. An example is "urban design" within NAAB, and "color theory" within CIDA.
2. *Parallel/equal but different*: there was some corresponding nature between the requirements of the entities, but the object/subject of the knowledge area varied; these requirements also identified specialized knowledge. An example is "contributions of interior design to contemporary society" within CIDA versus

"need for architects to provide leadership in the building design and construction process and on issues of growth, development, and aesthetics in their communities" within NAAB.

3. *Specialized to a degree*: there were also requirements that were identified as unique regarding the level of knowledge ascertained or degree of application mandated by the requirement; these knowledge areas could also be somewhat parallel. An example is CIDA's "apply the elements, principles, and theories of design to two-dimensional design solutions" and NAAB's "understanding of the fundamentals of visual perception and the principles and systems of order that inform two- and three-dimensional design, architectural composition, and urban design." Each requirement's keywords were identified and discussed to the point of consensus, typical of content analysis protocol. Issues that arose regarding the accreditation instruments themselves were also catalogued for future examination.

Findings

The first category, *specialized* knowledge, as prescribed by CIDA-accreditation was examined. The researchers determined that knowledge areas, unique to interior design included: "exposure to a variety of business, organizational, and familial structures;" "provides exposure to the role and value of life-long learning;" "identify movements and periods of interior design and furniture;" "identify stylistic movements and periods of art;" "interaction of light and color and the impact they have on one another and interior environments;" and "interface of furniture with distribution and construction systems."

Next, the researchers examined *specialized* knowledge areas of NAAB-accredited education, which were found to include: “national traditions and the local regional heritage in architecture, landscape design and urban design, including the vernacular tradition; basic principles and appropriate application and performance of building envelope materials and assemblies;” “fundamentals of building cost, life-cycle cost, and construction estimating;” and “provide leadership in the building design and construction process and on issues of growth, development, and aesthetics in their communities.”

Findings relative to the other two levels of knowledge (*parallel/equal but different* and *specialized to a degree*) were also analyzed. The researchers identified several cases where CIDA requires a higher level of knowledge attainment than NAAB. An example would be CIDA’s Indicator, “demonstrates understanding of laws, codes, standards, and guidelines that impact fire and life safety…” as compared to NAAB’s Performance Criteria, “understanding of the architect’s responsibility as determined by registration law, building codes and regulations,…and accessibility laws.” With other knowledge area comparisons the opposite is true. Additionally, many knowledge areas required by CIDA and NAAB differ significantly, yet, keywords contained in the *Standards* and *Conditions* are the same thus complicating objective interpretation. It is beyond the limit of this narrative to discuss keyword interpretations, but the researchers are dedicated to expanding their analysis to investigate these additional aspects of accreditation requirements.

Importance of the Topic

Understanding the specialized knowledge areas contained within the CIDA- and NAAB-accreditation requirements will inform the current discussion among interior

designers, architects, legislators, code officials, and the public. This study determined that both interior design and architecture accredited education requirements includes specialized knowledge, as well as shared and parallel knowledge. Categorization of these types of knowledge illuminates to what degree and how these professions differ from an educational standpoint. Further exploration of the findings could contribute to defining future interior design curriculum, clarifying interior design's role in protecting the public and establishing regulatory aspects of the profession.

Relevance to Interior Design

Application by interior design of its specialized knowledge is evidenced through the profession's responsibility to protect the public's life, health, safety, and welfare as an outcome of the interior environments it creates. The current lack of clarity regarding specialized versus parallel or shared knowledge hampers the discussion and diminishes the public's ability to identify interior design as a unique profession. Findings from this study (partially addressed in this narrative), could minimize this ambiguity.

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Gay Until Proven Straight: Perception and Experiences of Male Interior Designers

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ABSTRACT

The purpose of this paper is to explore how sexual orientation might influence the experience of male interior design students and professionals. Researchers hypothesized that male interior designers face continuous stereotyping regarding their sexual orientation, and that this in turn may affect their attitudes towards their career, relationships with colleagues and clients, design perspectives, and self-comfort.

Several researchers (Friskopp, 1996; Winfield, 2005) have studied the experience of gay men working “straight jobs,” and the impact homophobia and heterosexism may have in the workplace. However, very little research has been conducted regarding the experience of men (both gay and straight) in careers that are stereotypically “gay jobs.” This study was developed to address this gap.

In 2008, surveys were distributed to male interior design students and male interior design/interior architecture practitioners across the USA. Although the surveys varied slightly for the two sample populations, the topics addressed were consistent. The surveys included 28 questions for students and 30 questions for practitioners. Participants also had the opportunity to provide additional comments and volunteer for follow-up phone interviews.

A list of 300 male interior design/interior architecture practitioners was compiled by targeting professional organizations in both small and large U.S. cities in a variety of geographic regions. Fifty-one practitioners responded to the survey. Male interior design students were contacted through the IDEC “listserve.” Educators were asked to forward an internet link to the questionnaire to their male students. One-hundred-sixteen students responded.

The first ten questions of the survey addressed demographics. Regarding sexual orientation, 60.8% of male practitioners identified as gay, 33.3% straight, and 5.9% were unsure, while 44.7% of male students identified as gay, 50% straight, 2.6% bisexual, and 1.7% were unsure. The remainder of the survey probed issues of sexual stereotyping, masculine identity, verbal abuse, advantages/disadvantages of sexual orientation, relationships with colleagues (clients, contractors, consultants, other students, professors), self-confidence, and happiness with career choice.

The presentation and expanded narrative report on all findings and discuss differences between respondents based on their sexual orientation. Survey responses generally supported the researchers' initial assumptions regarding sexual orientation and stereotypes related to the interior design profession. For example, the majority of respondents believed that most people in our society think gay men make the best interior designers. However, outside of the workplace, many men—both gay and straight, practitioners and students—regularly lie about their major or career to avoid being verbally teased/abused or stereotyped as gay.

These and the other findings from this study serve to quantify and bring to light the complexity of this important and unexplored issue. It is the researchers' hope that sharing these findings will provoke meaningful discussion among interior design educators regarding sexual identity and stereotyping in our profession. The fruits of such discussion might reveal opportunities for dismantling invalid stereotypes that may be hindering who chooses to practice interior design and ultimately, the public's perception of our profession.

NARRATIVE

Given the minority of men studying interior design and misperceptions of male designers, there is a need to examine sexual identity and stereotyping in the industry. While several researchers (Friskopp, 1996; Winfield, 2005) have studied the experience of gay men working “straight jobs,” and the impact homophobia may have in the workplace, very little research has focused on the experience of men (gay and straight) in careers that are stereotypically “gay jobs.” This study was developed to address this gap.

An approach to qualifying the experience of both gay and straight men in interior design is the Interpersonal Diversity Disclosure Model (Clair, Beatty, & MacLean, 2005). Based on Goffman’s Stigma Theory (1963), this model focuses on the decision to disclose invisible stigmatized identities and the dynamics involved with this decision. According to Clair et al (2005), individual differences (e.g. identity development and personal motives) in combination with contextual conditions (e.g. work climate and professional norms) play a role in whether an individual discloses a stigmatized social identity. According to Creed’s research, disclosure decisions are balanced on “the tensions of wanting the benefits of disclosure and fearing its possible costs” (Creed, 2006, p. 379). The present study explores the relationship between stated individual differences and contextual conditions as they relate to the issues of sexual identity and the interior design profession.

In the world of interior design, one can argue there are multiple invisible stigmas present. For instance, gay men must deal with the stigma of homosexuality in a world

that continues to discriminate on the basis of sexual orientation. Yet, straight men could consider heterosexuality a stigma based on the societal view that homosexuality correlates to creativity thus making gay men superior designers. Additionally, heterosexual men could be concerned that others may stereotype them as “gay” and consequently consider the field itself a stigma. These conflicting social identities (e.g., “I am a heterosexual” vs. “I am an interior designer”) could produce cognitive dissonance, and as a result, not only influence the decision to disclose sexual orientation and career or major, but also effect relationships with colleagues and the quality of work produced.

METHOD

Participants. An email list of 300 male interior design/interior architecture practitioners was compiled by searching membership lists for professional organizations (ASID and IIDA), in both small and large U.S. cities in all geographic regions of the United States. These practitioners were sent an email enlisting their support in the study and asking them to follow a link to the questionnaire. Fifty-one practitioners responded to this survey.

Male interior design students were contacted through the Interior Design Educators Council (IDEC) “listserv.” Approximately 600 educators were asked to forward an internet link to the questionnaire to their male students. One-hundred-sixteen students completed the survey.

Materials. Although the wording of the surveys varied slightly for the two sample populations, the topics addressed were consistent. Participants also had the opportunity to provide additional comments and volunteer for telephone interviews.

The first ten questions of the survey collected demographic data (Table 1). Regarding sexual orientation, 60.8% of male practitioners identified as gay, 33.3% straight, and 5.9% were unsure, while 44.7% of male students identified as gay, 50% straight, 2.6% bisexual, and 1.7% were unsure. The remainder of the survey probed issues of sexual stereotyping, masculinity, verbal abuse, perceived advantages of sexual orientation, relationships with colleagues, self-confidence, and happiness with career choice.

RESULTS

A significant majority of practitioners (80.4%) and students (85.3%) reported that most people stereotype male interior designers as gay. Similarly, 70.6% of practitioners and 80.2% of students reported that people make assumptions about their sexual identity because of their career or major. Sexual identity appears to play a role in these perceived stereotypes: Gay and bisexual respondents were more likely than their heterosexual counterparts to indicate that they are stereotyped as homosexual because of their career (Table 2). A practitioner stated, “I’ve resolved myself to the fact that some people make assumptions about interior designers and are ignorant about the actual job description.”

Other survey responses also appear to correlate with sexual identity. For example, when responding to the statement, “Other people believe that gay men make the best interior designers,” gay and straight respondents have divergent views. Gay students and practitioners are more strongly in agreement with the statement than are straight students and practitioners (Table 2).

Approximately one-third of practitioners (31.4%) and students (34.5%) have experienced verbal abuse or teasing because of their career choice. This finding was confirmed when 29.4% of practitioners and 33.6% of students reported that friends have "poked fun of them" because of their career choice. Responses to both statements revealed that students endure a bit more teasing than practitioners. Also, straight students experience more teasing than gay students (Table 2).

Even with the teasing experienced by male interior designers, many find their sexual identity to be an advantage in the field. Students (66.4%) view their sexual identity slightly more advantageous than practitioners do (54.9%). Gay respondents see their sexual identity as more advantageous in the industry than do their straight counterparts (Table 2).

Sexual identity did not play a role in selection of career/major among respondents, but gay practitioners viewed more relationship between their sexual identity and career than straight practitioners (Table 2). While most practitioners and students indicated that their sexual identity did not influence their design perspective, 33.3% of practitioners and 38.8% of students reported that their sexual identity did. Gay practitioners thought their sexual identity influences their design perspective more than straight practitioners do. Overall, gay respondents believed that gay men had more freedom to try new design ideas while their straight counterparts disagreed with this statement (Table 2).

Most practitioners (74%) and students (86%) do not feel discriminated against by clients or faculty because of their sexual identity. These findings might suggest faculty are more supportive or neutral to sexual identity than clients. However, gay

practitioners and students reported that clients/faculty treat them differently because of their sexual identity more than their straight counterparts do (Table 2). Overall, practitioners and students felt supported by the women in their field. However, straight respondents feel less supported by women than their gay counterparts (Table 2).

Most respondents indicated that they have not made deliberate design decisions to avoid being thought of as “gay” or “too gay.” However, a student stated, “I have never consciously made design decisions, because I am gay, but believe my personal design aesthetic is influenced by my personality, which in turn is influenced by my sexuality.” Approximately one-third of respondents have “emphasized their masculinity” to professional contacts or other students so as not to be perceived as gay. More often than gay students, straight students emphasize their masculinity to avoid stereotyping. However, gay practitioners emphasize their masculinity slightly more than straight practitioners (Table 2). It appears that outside perceptions of sexual identity were important to respondents, a sentiment shared by 31.4% of practitioners and 40.5% of students. Straight students were especially concerned with how others perceived them (Table 2).

One-third of students (33.6%) admitted lying about or qualifying their major to avoid sexual stereotyping. A student stated that he usually gauges how conservative the person he is talking to might be. “Interior design” is for liberals and “architecture” is for conservatives. Professionals felt less compelled to misrepresent (15.7%). Straight students lied more than any other group (Table 2).

In spite of these facts, over 90% of practitioners and students stated they were very comfortable with their career choice. This finding was reinforced when 96.1% of the

practitioners (96.1%) and students (87.1%) responded that they rarely or never considered changing their career/major because of others' perceptions. Over 93% of practitioners and students reported that they were confident in their interior design abilities, demonstrating a strong resilience of practitioners and students in spite of the potential obstacles presented by sexual identity and stereotypes in the profession. A practitioner stated, "I was even on a job site outside San Francisco where the contractor actually had a pink hard hat that was specifically for the visiting interior designers to wear. The (construction superintendent) told me every week that I didn't have to wear it, but I always did."

Discussion

Survey responses predominately supported the researchers' initial assumptions regarding sexual identity and stereotypes related to the interior design profession. For example, the majority of respondents reported that most people in our society think gay men make better interior designers. However, outside of the workplace, many men lie about their major/career to avoid verbal harassment and potential stereotypes. Gay men viewed more of an affinity between their career and sexual identity than straight men. Based on survey results, straight students are more affected by negative internal and external forces than any other group.

The survey quantifies and illustrates the complexity of this important and unexplored issue. It is the researchers' hope that sharing the findings will provoke meaningful discussion among design educators. Such discussion might reveal opportunities for dismantling invalid stereotypes that may negatively affect one's choice to practice interior design and, ultimately, the public's perception of our profession.

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Table 1
Demographics

	Practitioners	Students
Age Range	22-66	19-49
Median Age	38	24
Sexual Identity		
Homosexual	60.8	44.7
Heterosexual	33.3	50
Bisexual		2.6
Unsure	5.9	1.7
Geographical Region		
Northeast	29.4	15.5
Midwest	5.9	24.1
South/Southeast	39.2	35.3
Southwest/West/Northwest	23.5	11.2
International		2.6
Unreported		6.9
Firm Size		
Small	21.57	
Medium	17.64	
Large	54.9	
Type of Practice		
Commercial	68.6	
Residential	9.8	
Other	21.6	

Table 2

Average Likert Scores on Key Survey Questions by Group

	Practitioners		Students	
Survey Question	Gay	Straight	Gay	Straight
My sexual identity played a role in choosing my career/major.	1.68	1.12	1.47	1.26
I am more comfortable with my masculinity than most men.	3.94	3.88	4	4.1
I have experienced verbal abuse or teasing because of my career/major.	2.03	2	1.72	2.45
My sexual identity influences my design perspective.	2.39	1.47	2	2.31
My sexual identity is an advantage in this industry.	2.71	2.17	3.06	2.67
People make assumptions about my sexual identity because of my career/major.	3.35	2.29	3.57	3.14
Clients/faculty members treat me differently because of my sexual identity.	2.55	1.59	1.62	1.48
I have made deliberate design decisions to avoid being thought of as “gay” or “too gay.”	1.65	1.29	1.32	1.66
Other people believe that gay men make the best interior designers.	3.42	2.76	3.51	2.98
My friends have poked fun of me because of my career/major.	1.81	1.82	1.53	2.29
Gay men have more freedom to try new ideas in design.	2.94	1.59	2.38	1.79
I have emphasized my masculinity so as not to be perceived as gay.	2.13	1.82	1.6	2.2
I feel supported by the women in my career/progam.	3.84	3.71	4.4	4.22
Outside perceptions of my sexual identity are important to me.	2.16	1.82	2.26	2.36
Most people think I’m straight.	2.81	4.29	2.83	4.16

I sometimes lie about or qualify my career/major so as not to be perceived as gay.	1.52	1.53	1.79	2.17

The Allure of Interior Decorating for Women in the United States, 1880-1920

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ABSTRACT

Purpose

This presentation explores the allure of interior decorating for women as presented in selected American print media between 1880 and 1920. Writers used various themes to entice women to the field. One of the most common and necessary was that Interior decoration fulfilled a traditional feminine role. This was critical during a time when gender roles defined women's lives and occupations. Literature also presented other significant advantages not found in other pursuits as well as the work and experiences of female decorators.

Framework

Evidence from American newspapers, books, and magazines will be discussed within a framework of women's changing societal roles and other factors, such as positive aspects of decorating. Print media used several prominent themes to promote interior decoration as an occupation for women and enumerate its benefits. One of the most significant and constant centered on concepts of ideal womanhood in which women were regard as keepers of family, moral purity, and correct standards. In that role, they were to create homes that met cultural mandates of refuge and positive influences. These concepts were retained even as the women's movement and others argued that women should bring their feminine qualities into the workplace and that work outside the home benefitted women. Because gender roles and economic forces

defined women's occupations, literature usually enveloped discussions of women's jobs with the language of women's roles.

Discussion

During the 1880s, literature pronounced interior decorating a woman's profession because it was a traditional female role for which women were better suited than men. Women were thought to possess a natural aptitude for decoration, evident in their homemaking skills and artistic instincts. Decorating also celebrated a woman's innate creative and nurturing character. Female decorators maintained their cultural mandate of keepers of high standards by bringing female qualities, such as morality, to the workplace and served a spirit of reform by uplifting taste.

Additionally, interior decoration offered women significant advantages sometimes not available in other occupations. Readily accessible, it did not require extensive schooling and could be practiced almost anywhere. In most jobs, women usually received lower pay than men and had little chance for advancement, but decoration offered the ambitious, diligent woman upward mobility and potential for a higher salary. Despite writers' repeated admonitions, interior decorating was easy to enter. Anyone, who possessed taste or not, could hang a shingle, contact a few friends, and begin decorating. Other allurements included creative challenges, aesthetic expression, beautiful surroundings, and shopping. To further enhance its claims, literature also highlighted female decorators' work, ideas, and experiences while emphasizing their training and unique abilities to create beautiful, tasteful homes and other spaces.

Importance and Relevance to Interior Design

The presentation intends to give a broader historical perspective to interior design's struggle for identity and women's entrance into interior decoration. Some themes used to entice women into practice between 1880 and 1920 still affect interior design. The field remains dominated by women and often is tied to the home. Many think it easy to enter and that work consists mainly pleasant surroundings and shopping.

NARRATIVE

"Interior Decoration, as a profession for woman, is perhaps the one of all others to which she brings the greatest number of qualifications, simply in the fact that she is a woman."[i]

Between 1880 and 1920, print media used various themes to create an alluring picture of interior decoration to entice women into it. Writers hailed decorating as a woman's profession where practitioners could use their innate abilities and exert positive feminine influences. Additional attractions ranged from good salaries and growth opportunities to pleasant surroundings and shopping. One of the most constant themes was that interior decorating fulfilled a traditional feminine role, which was critically important in a time when gender roles defined women's lives and occupations.

FRAMEWORK

The presentation explores the allure of interior decorating for women as presented in selected American print media between 1880 and 1920 within a framework of women's changing societal roles. Other factors, such as feminine abilities and positive attributes of the field, are covered. Primary sources include newspapers, magazines, and books, which promoted interior decoration as an occupation for women, enumerated its benefits, and showcased female decorators and their work.

Some evidence exists of women practicing decoration outside the home in as early as 1860s,[ii] but it was not until the 1880s and later that literature began frequently linking them with decoration as an occupation. Many factors contributed to this change, including growth of print media,[iii] art movements, and more important, changing perceptions of women's roles and work outside the home.

BACKGROUND

From early 19th onward, notions of ideal womanhood, along with the cult of domesticity, created lofty images and specific roles for women. They were viewed as keepers of family, moral purity, and correct standards during a time of significant change resulting from industrialization. Along with these cultural mandates, women were thought inherently suited to create and decorate homes that were refuges from the outside world and positively affected the inhabitants. This strong emphasis upon home, family, and culturally perceived abilities made work outside of home unacceptable, except in cases of need, class, or spinsterhood.[iv]

Shortly after the mid nineteenth century, women's natures and roles became the focus of intense discussions and arguments in the United States and Europe. Some, especially in the women's movement, seized this as an opportunity to advance new ideas. One was that women should bring their roles of keepers of morality outside the home, ostensibly in social reform or charity work. Another was that an occupation benefitted women--they did not have to marry just to support themselves, and their employment was advantageous to their husbands, if they married. At the same time, the Aesthetic and Arts and Crafts Movements brought attention to decoration, houses, and women. The Aesthetic Movement focused on interior decoration as an art and mainly included women as givers of decorating advice. In contrast, Arts and Crafts, through guilds and other groups, actively sought to assist women in using their artistic skills to earn an income. However, women, family, and home remained inextricably linked. Most still thought it unacceptable for women to work outside the home, especially married ones with children.[v]

Economic forces and gender roles defined tasks and occupations in second half of the nineteenth century onwards. Despite the fact that American literature declared that women were enjoying unparalleled freedom of choice in the marketplace, the reality for the most was that culturally conceived gender roles and abilities limited not only job choices, but also salaries and opportunities for advancement. Some jobs were not open to them, and women could only enter others because they accepted lower pay, performed more menial tasks, or settled for little progress.[vi]

DISCUSSION

Period literature promoted decoration for women by "cloaking [it] . . . with the aura of woman's sphere." Writings described interior decoration as an occupation, like teaching, that suited cultural constructs of female roles and capabilities. Women were most often linked to the decoration of houses in descriptions and designations like house decorator.[vii] Since women already performed a feminine role in decorating homes, this created a respectable, natural transition to the market place.

Based upon these concepts, beginning in the 1880s, writers pronounced decorating a woman's profession. "I do not know a more womanly calling than this," said a woman in the *Boston Globe* in 1885. Wheeler wrote optimistically in 1895, "There is no profession that . . . seems so natural and appropriate a one for women," and they had "claimed it as a feminine field." By 1910s, writers proclaimed that female decorators dominated the field because of their talent, expertise, and training. Literature constantly insisted that women were better suited for decorating than men were because women possessed a natural aptitude, evident in their homemaking abilities and tasteful instincts. And decorating also celebrated a woman's innate creative and nurturing

character. Women “are essentially fitted for this work and instinctively have better ideas of colors and design than men” became a common appeal.[viii]

Decorating was an opportunity for women to bring feminine qualities, including taste and morality, from the home to male-dominated workplace. Thus, they continued their cultural mandate of keepers of moral purity and high standards. Who better than women could address the “need of lifting the American people to a higher plane of artistic appreciation,” declared Robert Pope.[ix]

Since women lived in and decorated houses designed by men, they could bring a spirit of service and reform, first to the home and then to other interiors. As Wheeler affirmed, “In domestic architecture a woman’s experience is . . . essential.” This familiarity also better enabled them to understand the needs of and relate to their female clients, another constant theme. Many regarded interior decoration as significant because environments positively or negatively influenced inhabitants. “It is impossible to overestimate the importance of her work in the art as it is impossible to overestimate importance of beautiful and tasteful surroundings in real life,” insisted Willard.[x]

Furthermore, interior decoration offered advantages often not found in other occupations. It was accessible, as Willard pointed out, “Hundreds of women whose environment and opportunities prevent them from entering more popular or more familiar fields may find their true place among the interior decorators.” One could practice almost anywhere and for anyone. Nor did decorating require extensive schooling. Many women had some art training, the principles of which they adapted to decorating in various tasks such as mural painting. Literature unequivocally insisted that education and training were necessary, but despite repeated admonitions, interior

decorating remained easy to enter. Anyone, who possessed taste and flair or not and training or not, could hang a shingle, contact friends, and begin decorating. But, as writers also pointed out, this was not without costs and failures.[xi]

Additionally, interior decoration could offer the ambitious, diligent woman upward mobility, opportunities for growth, and potential for a higher salary. As a female decorator confirmed, “To the woman whose training is complemented with business sense the calling of decorator offers delightful employment, large returns, and ever-increasing opportunities for development.” Nevertheless, impediments existed. Some women had to open their own businesses because firms would not hire them, but this, too, had benefits such as independence. But as Hubert told readers, “Decoration is a business which needs no capital beyond taste and tact in dealing with people.”[xii]

Other allurements included creative challenges, aesthetic expression, beautiful surroundings, and shopping. To many, decorating “called up visions of charming studios, of unlimited shopping expeditions, of leisure hours in pleasant surroundings among beautiful things, of contact only with people who knew and loved beautiful things, and who, incidentally, were willing to pay for other people’s knowing and loving them.” And, finally, “Few occupations are better adapted to a woman’s taste; few offer a greater scope of originality and in none will the true artist more rapidly advance.”[xiii]

By the 1890s, literature presented the work, training, and unique ability of female decorators to create beautiful, tasteful homes and other spaces. Willard praised several female decorating firms in New York City, including Wheeler’s Associated Artists. She thought they had brought interior decoration “to what was formerly considered an impossible degree of excellence, [and] . . . these brave women have made a wide path

in this new field." *Good Housekeeping* described the work of Mrs. Alice Davidge, who had "studied for more than ten years before she attempted to decorate a single house" as possessing "breadth, simplicity, character, and artistic quality." *The Craftsman* believed that "the very unusual work done by the firm of Muchmore and Lewis . . . shows a great originality and exquisite appreciation of the real needs of the ideal American home."[xiv]

CONCLUSION

Between 1880 and 1920, literature used various themes to connect interior decoration with women and entice them to the field. Today, the media and name have changed, but some of these themes still affect public perception of interior design, which still offers unique opportunities but is less gendered. Many consider it a woman's field that is tied to the home. They believe interior design is easy to enter, requires little training, and the work, which occurs in beautiful surroundings, mainly consists of shopping.

Endnotes

(Chicago Manual of Style)

[i] Celeste Weed Allbright, “Interior Decoration,” in *Vocations for the Trained Woman* (Boston, MA: Women’s Education and Industrial Union, 1910): 119.

[ii] The earliest reference to a woman decorator found so far is in Virginia Penny, *The Employments of Women: A Cyclopaedia of Woman’s Work* (Boston: Walker, Wise & Co., 1863), 486. The earliest reference to an interior decorator is a male in “The Forrest Case on Trial, *New York Times*, January 14, 1852, 4.

[iii] The late nineteenth century witnessed unprecedented growth of print media. Newspapers and magazines courted women readers through women’s pages, fashion news, and advice columns. Thomas J. Schlereth, *Victorian America: Transformations of Everyday Life 1876-1915* (New York: Harper Perennial, 1991), 177-200.

[iv] Susan M. Cruea, “The Changing Ideals of Womanhood During the Nineteenth-Century Woman Movement,” *ATQ* 19, no. 3 (2005): 187-90; Sheila M. Rothman, *Woman’s Proper Place: A History of Changing Ideals and Practices, 1870 to the Present* (New York: Basic Books, Inc, 1978), 21-26.

[v] This was called “the Woman Question” at the time. Philip G. Hubert, Jr., “Occupations for Women,” in *The Woman’s Book* (New York: Charles Scribner’s Sons, 1894), 3; Rothman, *Woman’s Proper Place*, 42-48; Cruea, “Changing Ideals,”190-93; Frances E. Willard, *Occupations for Women* (New York: The Success Company, 1897): 251; and Catherine W. Zipf, *Professional Pursuits: Women and the Arts and Crafts Movement* (Knoxville: University of Tennessee Press, 2007), 81-87

[vi] Julia Kirk Blackwelder, *Now Hiring: The Feminization of Work in the United States, 1900-1950* (College Station, TX: Texas A&M University Press, 1997), 11-35 and 62-95; Rothman, *Woman's Proper Place,* 13-62; and Penina Migdal Glazer and Miriam Slater, *Unequal Colleagues: The Entrance of Women into the Professions, 1890-1940* (New Brunswick, NJ: Rutgers University Press 1987), 219-222.

[vii] Cruea, "Changing Ideals," 194. Terms for the practitioner included decorator, interior decorator, house furnisher, and house decorator.

[viii] "The Woman's Hour: House Decorating as a Profession," *The Boston Daily Globe*, July 5, 1885, 13; Candace Wheeler, "Interior Decoration as a Profession for Women, Part I," *The Outlook*, April 6, 1895, 559; Candace Wheeler, "Interior Decoration as a Profession for Women, Part II," *The Outlook*, April 20, 1895, 649; "Woman Interior Decorators," *Christian Science Monitor*, February 23, 1912, 6;

"Women Making Their Way as Interior Decorators," *Christian Science Monitor* (July 25, 1914): 12.

[ix] Robert Anderson Pope, "A Woman's Profession," *House and Garden,* January 1907, 12. Pope includes many themes of women and decoration.

[x] "Starting as A House Decorator," *Washington Post*, May 22, 1910, MT6 and Willard, *Occupations*, 250.

[xi] Willard, Ibid, 255.

[xii] "Decorator's Task Not Easy," *Washington Post*, November 28, 1909, M9 and Hubert, "Occupations," 16.

[xiii] "Decorator's Task," Ibid and Willard, Ibid.

[xiv] Willard, *Occupations*, 251-52; Louise Forsslund, “Women’s Influence in House Decoration,” *Good Housekeeping*, May, 1906,197; and 199, and “Pioneer Work of Women in Tasteful and Economical Interior Decoration,” *The Craftsman*, December 1907, 354.

GOVERNMENT INITIATIVES, GREEN HOMES, AND GREEN MATERIALS: KEY DRIVERS OF GREEN BUILDING CONSTRUCTION?

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ABSTRACT

McGraw-Hill Construction (MHC) reports that green building construction in the United States is expanding rapidly and is expected to be worth $60 billion by 2010, representing 10% of all commercial construction starts (“Green Building by the Numbers”). Construction industry consultant FMI Corporation has identified three factors as primary drivers behind this trend: “an unprecedented level of government initiatives, heightened demand for green residential construction and improvements in sustainable materials” (“2008 U.S. Markets Construction Overview” 10).

This study investigated how these three factors may be contributing to the growth of green building within the United States. Toward accomplishing its research goals, this study analyzed the growth of green building construction in the U.S. from 2000 - 2008. The USGBC’s LEED (Leadership in Energy and Environmental Design) rating system has become the accepted benchmark for assessing green buildings in the United States since the introduction of this standard in 2000. Therefore, this study uses USGBC-provided raw data on nearly 16,000 LEED certified and registered projects to identify significant characteristics and trends in the growth of green building construction within the U.S. since 2000, by geographical location, LEED rating system, project type, and owner type (“LEED Project List – PUBLIC 8 5 08”).

This study then analyzes each of the three factors in question over the same time period and assesses the manner and degree to which each factor has impacted the growth of green building. In attempting to qualify and quantify these impacts, this study relies upon a thorough survey of the existing literature and upon original research. To evaluate governmental initiatives at the federal, state and local levels this study primarily relies upon ongoing research being conducted independently by both the USGBC and the American Institute of Architects (AIA). To evaluate green residential construction this study relies upon a variety of sources, including data from USGBC, the Energy Star program of the U.S. Environmental Protection Agency (EPA), the National Association of Home Builders (NAHB) and research conducted by MHC and other industry consultants. To evaluate green building materials and products this study relies on numerous information sources including public and private standards developers, publishers of green product directories, trade associations, and product manufacturers.

This study is based on research conducted for a master's thesis. The overall goals of the thesis and this study are to identify and validate key trends, factors, and related public and private strategies that are successfully driving green building in order to promote and encourage broader adoption of such measures and to further accelerate implementation of sustainable strategies in building design, construction and operation. Such strategies are quickly become mainstream "best practices" for interior designers. Therefore the findings and implications of this study are directly relevant to current and future interior design professional practice and education.

Narrative

This study considered the growth of green building in the United States from 2000-2008, and impacts on that growth resulting from governmental initiatives, demand for green homes and improvements in green building materials. The following research questions were addressed:

1. Where and how is green building construction growing in the U.S.?
2. What are governmental initiatives, and who's implementing them?
3. What is the demand for green homes?
4. How has the green building materials market improved?

Literature Review

A review of the peer-review literature and scholarly articles revealed few relevant studies. A 2006 AIA report surveyed the state of "ecological literacy" in architectural schools, and observed differing approaches between architects who equate sustainability with high-performance building, ignoring what AIA views as a "holistic" design challenge – an exercise in "form, space, and image" (Gould and Hosey 15-16). In a 2007 essay design educator Jane Nichols acknowledges "we in the built environment disciplines get it! We've forced our suppliers to get with it. While consistently advancing our knowledge and improving upon our practice, we lead by our example" ("A Hearty Economy and Healthy Ecology Can Co-exist" 7). But simultaneously she argues, "acquiring knowledge is less important than making a paradigmatic change in our thought processes and in our approach to the built environment" (9).

Beyond scholarly articles this study has relied upon research and reports published by governmental agencies, non-profit associations, and industry consultants.

Methodology

Various methodologies were used to explore the green building trend within the U.S. and factors contributing to its growth. Introduced in 2000, USGBC's LEED Rating System is now the "nationally accepted benchmark for the design, construction and operation of high performance green buildings" ("LEED Rating Systems"). Unpublished USGBC data on 16,000+ LEED projects served to measure green building growth ("LEED Project List – PUBLIC 8 5 08").

Information regarding governmental initiatives was taken from two 2008 AIA *white papers* (Rainwater, AIA "Green Incentives"), and online databases from USGBC ("Public Policy Search", "LEED Initiatives in Government and Schools") and AIA ("State Legislative Tracking").

Gathering and analyzing information concerning demand for green homes was problematic. No comprehensive data source presently exists to serve as an objective measure of the green home market. Secondary sources were used such as McGraw-Hill Construction ("Green Outlook 2009: Trends Driving Change").

Measuring improvements in green building materials was a difficult task. Little information was found on the state of green materials in 2000. The GreenSpec Directory (Wilson et al.) provided information on current green materials.

Findings:

Growth of Green Building in the United States

McGraw-Hill estimates the total green building market, including nonresidential and residential sectors, was valued at $10 billion in 2005, or 2% of all new construction starts by value. In 2008 it was estimated at $36 - $49 billion, or 8% to 11% of new starts. By 2013 the total green building market will be valued at $96-$140 billion, equal to 16% to 23% of new starts by value (“Green Outlook 2009: Trends Driving Change” 2). See Figure 1.:

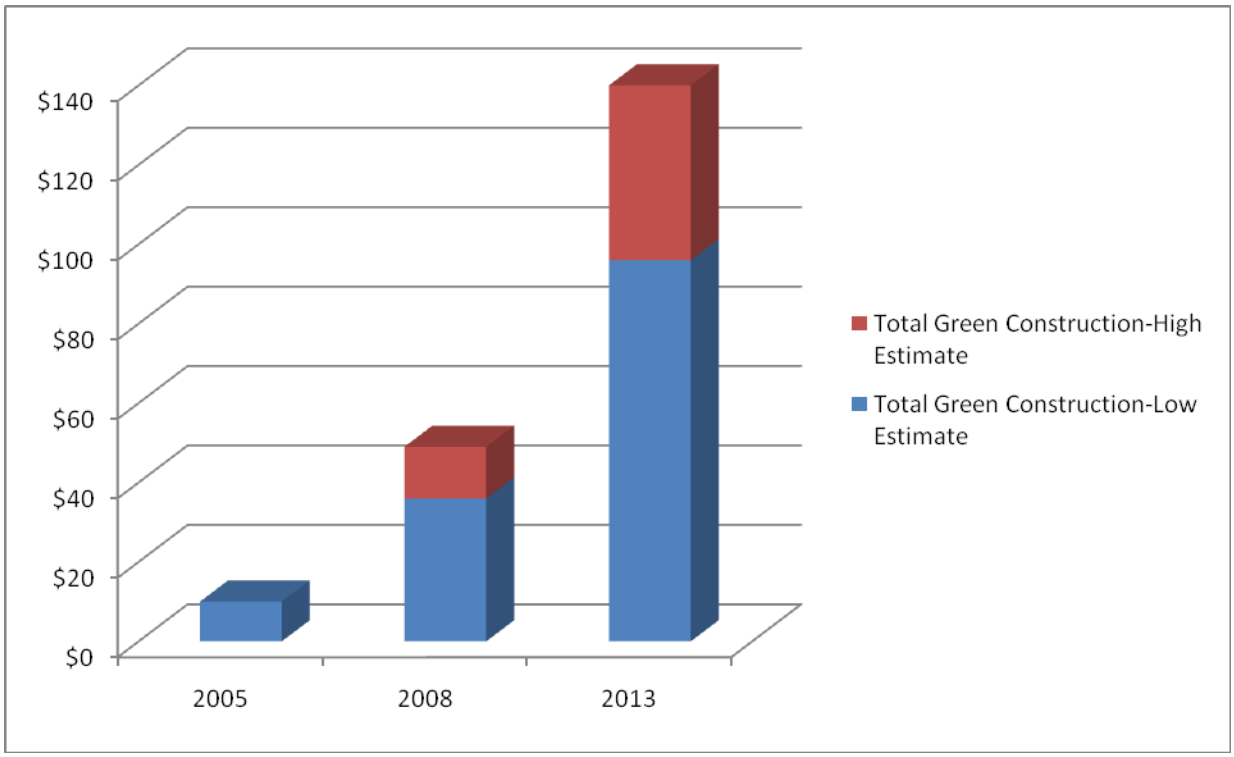

Fig. 1. Estimated Value (Billions) Total U.S. Green Construction 2005 – 2013
Source: McGraw-Hill Construction. Green Outlook 2009: Trends Driving Change. New York, NY: McGraw-Hill Construction, 2008. Page 2.

The USGBC began assessing green buildings with the March, 2000 introduction of LEED-NC. Per the USGBC as of February 2009 a total 17,725 building projects worldwide applied for LEED certification, representing 5+ billion square feet of commercial space. ("Green Building by the Numbers"). See Figure 2. below:

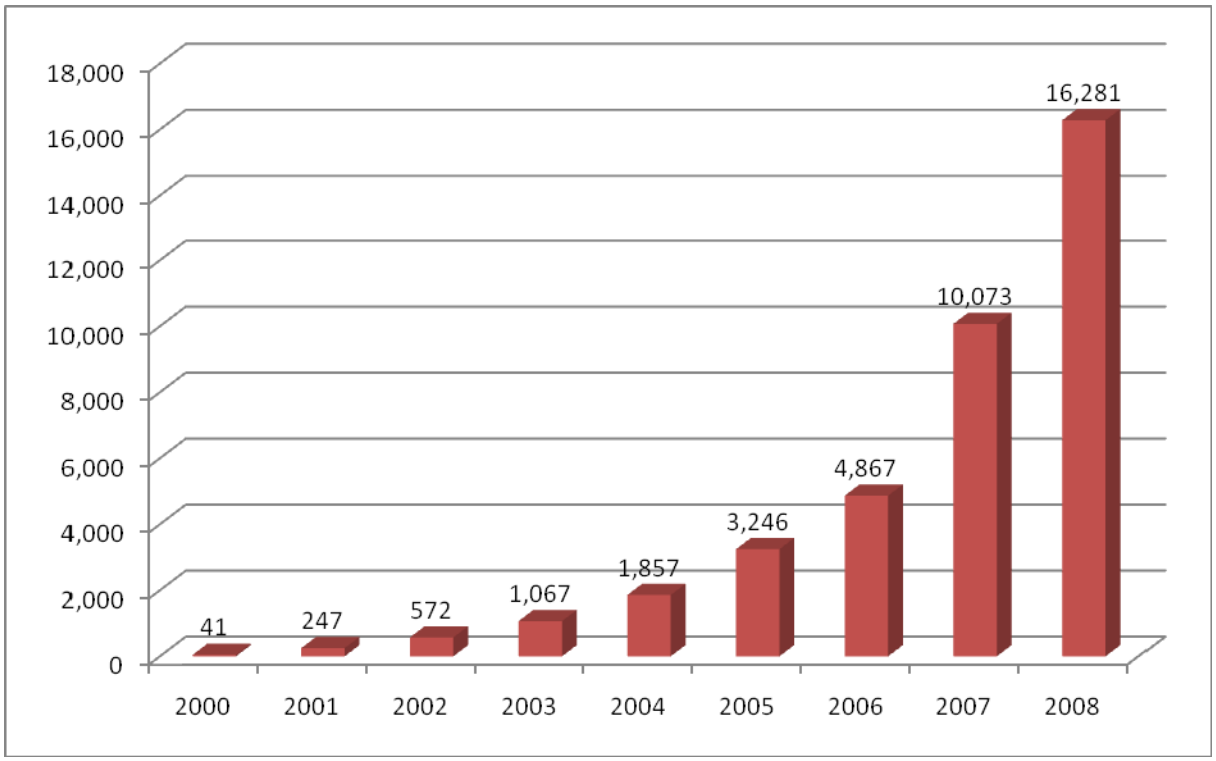

Fig. 2. LEED Projects Cumulatively by Year, United States, 2000-2008
Source: U.S. Green Building Council. Unpublished data. LEED Project List – PUBLIC (8 5 08). 5 Aug 08. 20 Aug. 08

Per analysis of LEED projects by rating system, project type and owner type, the most LEED projects are new construction, owned by Profit-Organizations. Multi-use represents 44%; commercial office 23% of the total. Government projects total 26%: 13% local, 8% state, and 5% federally owned.

Per Figure 3. as of August 2008, LEED-NC (New Construction) represented 60% of all LEED projects, LEED-EB (Existing Building) 12%, and both LEED-CS (Core & Shell) and LEED-CI (Commercial Interiors) 11% of the total.

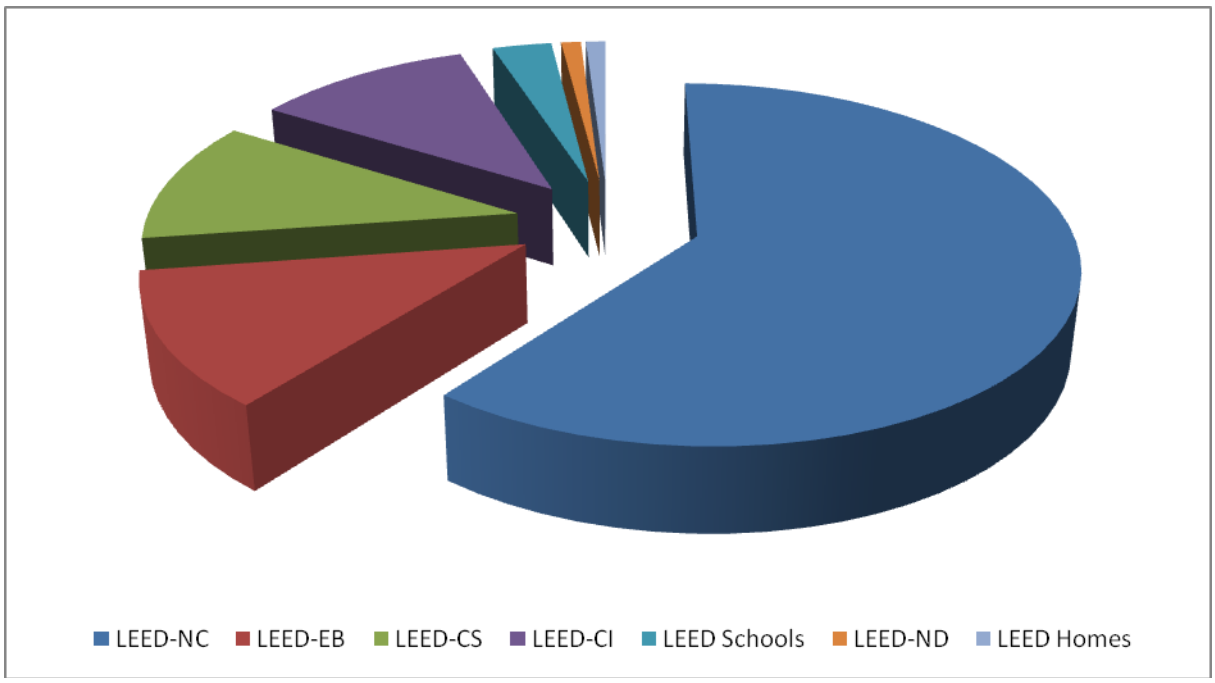

Fig.3. LEED Projects by Project Rating System, 2000-2008 Cumulative
Source: U.S. Green Building Council. Unpublished data LEED Project List – PUBLIC (8 5 08). 5 Aug 08. 20 Aug. 08

Per Figure 4. as of August 2008, 46% of LEED projects were owned by “Profit Organizations” and 16% “Non-Profit Organizations”. State, Local, and Federal Government-owned projects equaled 26% of the total, making governments the second largest owner of LEED projects.

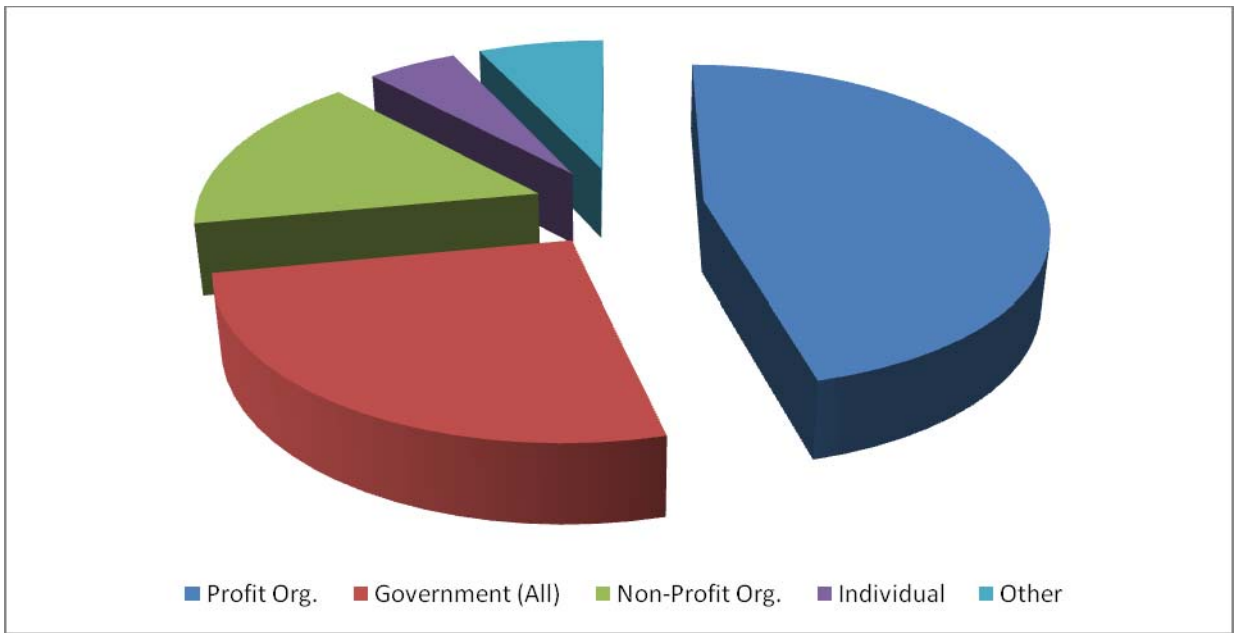

Fig. 4. LEED Projects by Owner Type Cumulatively, 2000 – 2008
Source: U.S. Green Building Council. Unpublished data LEED Project List – PUBLIC (8 5 08). 5 Aug 08. 20 Aug. 08

Figures 5.-7. below show LEED projects by state for 2000, 2004 and 2008. Starting in Oregon and Washington, green building gained popularity on the east coast but quickly dominated by California. By 2003 Pennsylvania, Michigan, Texas and New York had taken interest.

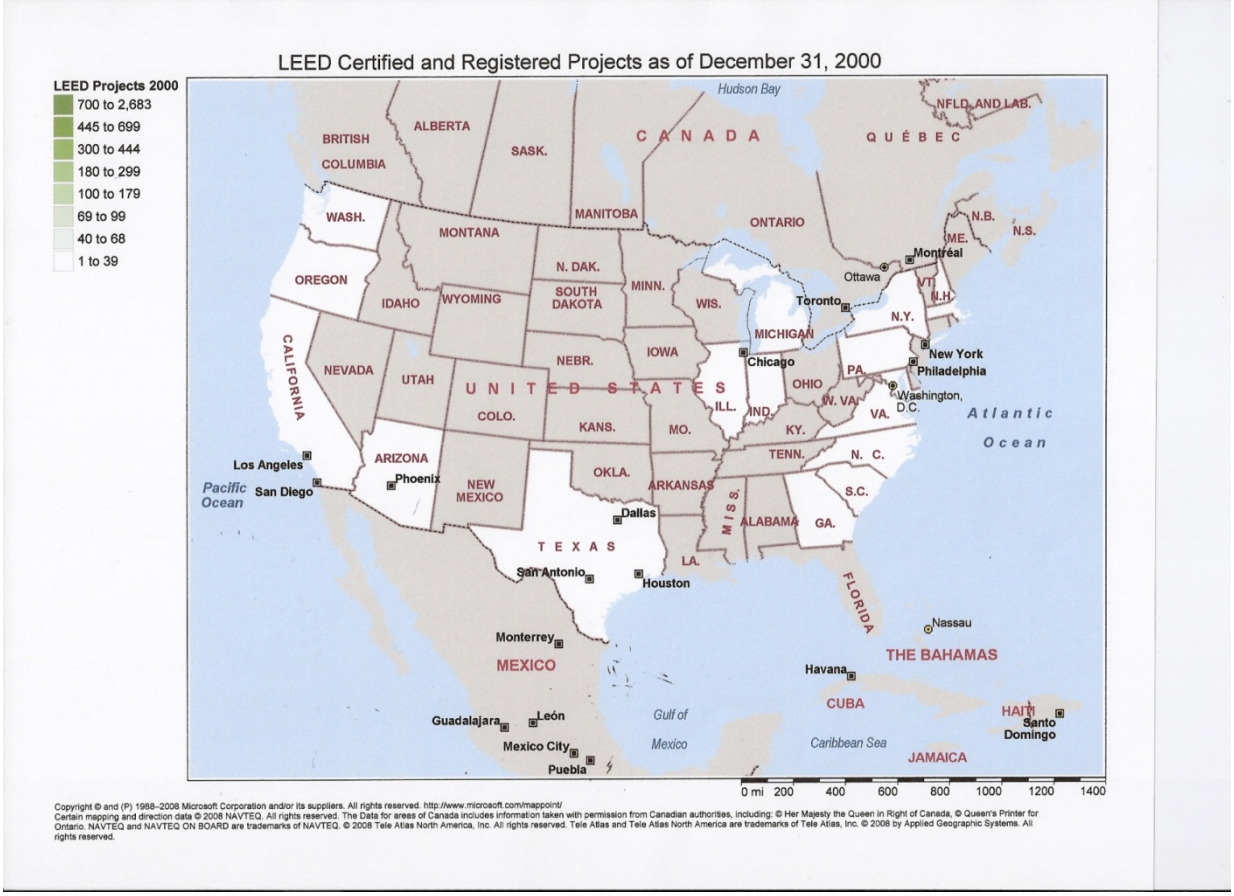

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Fig. 5. LEED Certified and Registered Projects as of December 31, 2000
Source: U.S. Green Building Council. Unpublished data LEED Project List – PUBLIC (8 5 08). 5 Aug 08. 20 Aug. 08

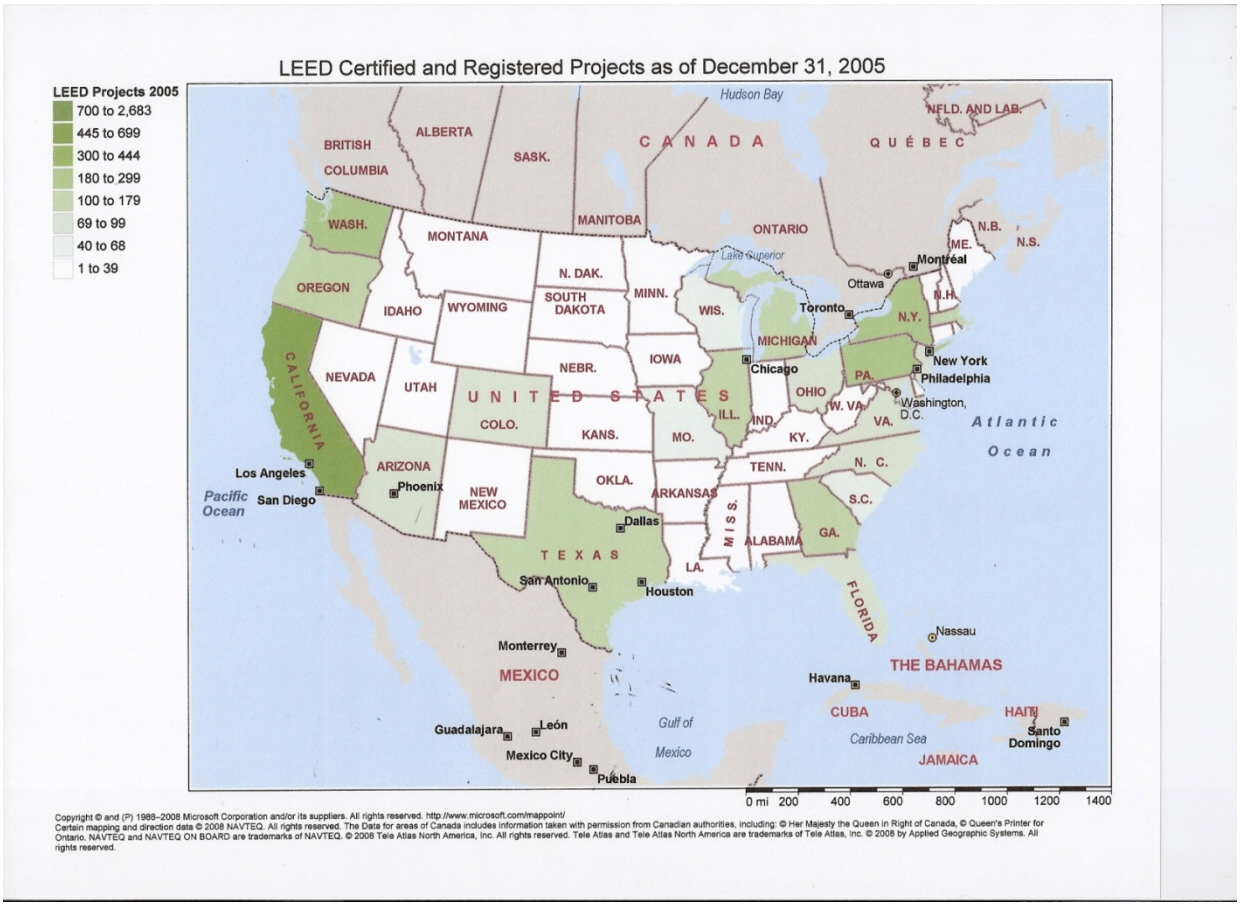

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Fig. 6. LEED Certified and Registered Projects as of December 31, 2005
Source: U.S. Green Building Council. Unpublished data LEED Project List – PUBLIC (8 5 08). 5 Aug 08. 20 Aug. 08

From 2004-2006 this trend accelerates rapidly as many U.S. cities built green, including most eastern seaboard states from Massachusetts to Florida, plus Texas, Illinois, Arizona, Colorado, Michigan, New Mexico, and Nevada. The major threshold years for the explosion in green building are 2007, with doubling of LEED projects, and 2008 with an estimated 60% increase. This substantial uptick occurred as the economy and building sector slowed. By 2008 there were LEED projects in all 50 states.

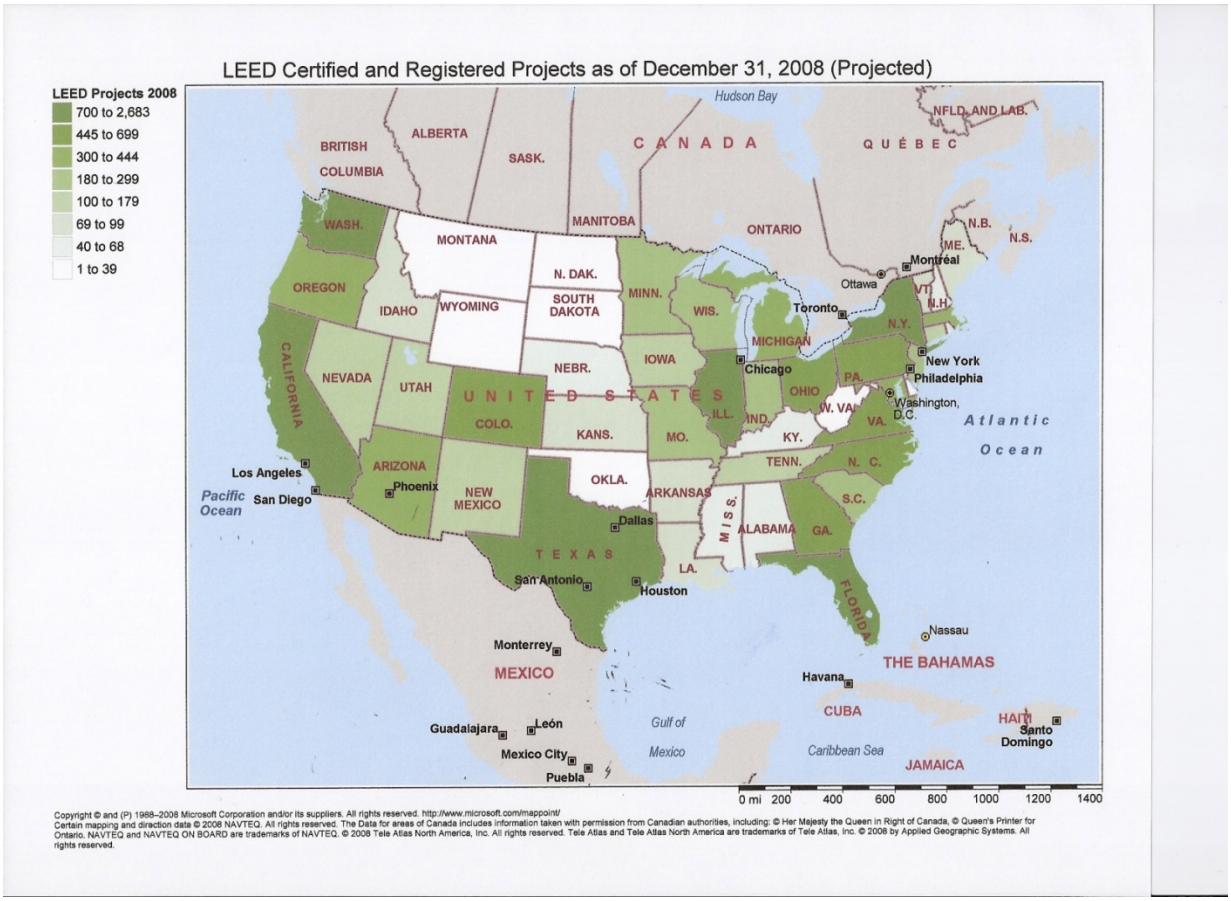

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Fig. 7. LEED Certified and Registered Projects as of December 31, 2008 (Projected) Source: U.S. Green Building Council. Unpublished data LEED Project List – PUBLIC (8 5 08). 5 Aug 08. 20 Aug. 08

Development of Governmental Initiatives

According to US Green Building Council, as of February 1, 2009:

> Various LEED initiatives including legislation, executive orders, resolutions, ordinances, policies, and incentives are found in 44 states, including 186 localities (122 cities, 34 counties, and 30 towns), 31 state governments, 12 federal agencies or departments, 15 public school jurisdictions and 39 institutions of higher education across the United States. (“LEED Initiatives in Governments and Schools”)

Governmental initiatives can be voluntary measures such as tax credits and expedited permitting, or mandatory regulations including building or zoning codes. They can apply to government-owned buildings only, or to both public and private construction, residential or commercial.

Local Governments

As of August, 2008, local government-owned/occupied facilities represented 13% of LEED projects (USGBC: “LEED Project List – PUBLIC 8 5 08”). An AIA study defined green building program as “a law or regulation that mandates or offers incentives for the construction of green buildings within a community” (9). Local governments typically adopt a mix of policy tools appropriate for its unique problems. No single green incentive or mandate is the best tool for every locale. The most effective initiatives are implemented as a coordinated set of policies integrated within all areas of government services impacting the built environment rather than a single focus effort, such as reducing municipal waste or encouraging energy efficiency. Green building programs often involve substantial private sector involvement. Successful green building programs are operating in Portland, Seattle, San Francisco, Los Angeles, Scottsdale, Chicago, Atlanta, Washington, DC, Baltimore, New York, and Boston.

State Governments

As of August, 2008, 31 state governments have implemented LEED (“LEED Project List – PUBLIC 8 5 08). State government-owned/occupied facilities represented 8% of LEED projects (“LEED Project List – PUBLIC 8 5 08).

State level milestones include:

- 2008, California: the first to pass a state-wide mandatory green building code, attempting to coordinate green building code requirements already in place in 75 municipal jurisdictions.
- 2007, Boston: implements the first mandatory green zoning code.
- 2006, Nevada: unprecedented green tax abatement legislation passed, then substantially amended in 2007 due to excessive revenue losses!
- 2005, Washington, Rhode Island, Arizona: require LEED certification for all new state-government buildings.

Federal Government

As of August, 2008, federal government-owned facilities was 6% of LEED projects, the smallest segment of any owner-type (USGBC: “LEED Project List – PUBLIC 8 5 08). The American Recovery and Reinvestment Act of 2009 provides billions of dollars for green building, retrofitting, energy efficiency and renewable energy projects. (USGBC: “President Signs Economic Recovery Bill”).

Notable previous federal initiatives include:

- Energy Policy Act of 2005 providing alternative energy investments
- Federal Trade Commission’s (FTC) appliance labeling program
- EPA/DOE’s Energy Star’s energy-efficiency program for homes and commercial buildings

- 2006 “Federal Leadership in High Performance and Sustainable Buildings Memorandum of Understanding”, voluntary agreement among 21 federal agencies

The Demand for Green Residential Construction

Per Figure 8., MHC estimates in 2005 the residential green market was $3 billion, or 2% of all residential construction by value, and the 2008 market at 6% to 10% of new starts, equaling a $12-$20 billion marketplace. By 2013 residential green building will be 12% to 20% of new construction starts, equaling a $40-$70 billion market (“Green Outlook 2009: Trends Driving Change” 2).

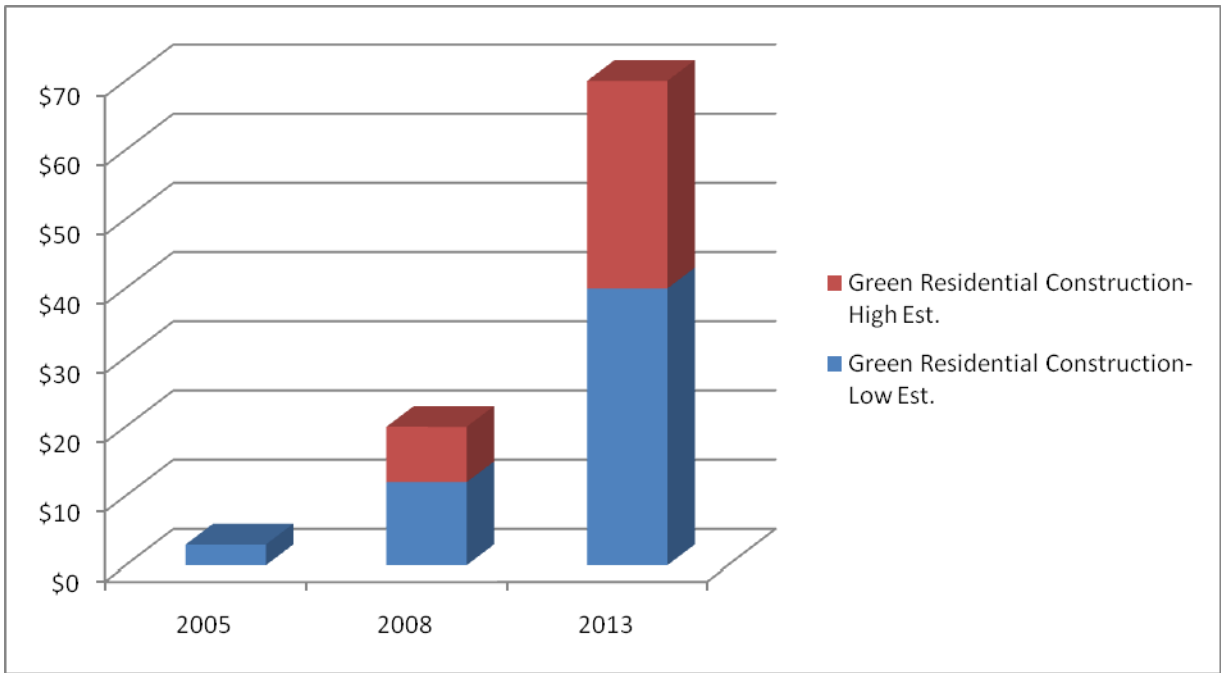

Fig. 8. Estimated Value (Billions) U.S. Green Residential Construction 2005 – 2013
Source: McGraw-Hill Construction. Green Outlook 2009: Trends Driving Change. New York, NY: McGraw-Hill Construction, 2008. Page 2.

Presently there is no common agreement on the definition of “green home” for new construction or renovation, nor an accepted national green residential building standard for a benchmark. A single, comprehensive, objective data source on green homes is also lacking.

Improvements in Green Building Materials

Per the USGBC the market for green building products/services was $7 billion in 2005, estimated at $12+ billion in 2007, and now projected at $30-$40 billion by 2010 (“Green Building by the Numbers”). The GreenSpec Directory, the most comprehensive source available for green building materials/finishes/furnishings lists product descriptions for over 2,100 green products in 23 categories (Wilson et al.).This year the directory, in its seventh year, added over 230 new products.

Since the mid-1990’s a number of governmental agencies and private organizations have been certifying green products by product type, based on proprietary criteria. Muddling the picture is the ongoing problem of “greenwash” or unsubstantiated green marketing claims by product manufacturers. At this time there is no comprehensive standard for “a green product”. BuildingGreen’s editors concluded:

> The Holy Grail of the green building movement would be a database in which the life-cycle environmental impacts of different materials were fully quantified and the impacts weighted so that a designer could easily see which material was better from an environmental standpoint. (“The Challenges in Defining What is Green”)

Conclusions and Implications of Research

1. Industry/government acceptance of LEED in 2000 was a watershed event, enabling rapid growth of the overall trend.
2. Recent development of LEED standards for homes, schools and healthcare will similarly impact growth of these segments.
3. A downturn in new construction has created interest in renovation and energy-efficient retrofits of existing buildings. Recent federal funding and incentives will facilitate this new trend.
4. Governmental incentives and mandates are having a significant impact on the rapid growth of green building by achieving increasingly higher levels of building performance as available technology and reduced costs allow, driving privately owned commercial development to the forefront.
5. Popular and widespread voluntary incentives, such as tax credits, are beginning to be augmented by mandated green building and zoning codes.
6. Haphazard implementation of local green development incentives and regulations will compel implementation of state-wide codes to rationalize green development.
7. Knowledgeable homebuyers/owners are increasingly asking for green homes features to improve energy and water efficiency, lower operating costs, and create a healthier interior environment for their families.
8. A lack of consensus standards for green homes has hampered the development of that market segment. However, standards recently adopted by the U.S. Green

Building Council and the National Association of Home Builders will accelerate that trend.

9. Availability and quality of green building products have improved with increasing demand for green buildings and advances in manufacturing technology.
10. An absence of comprehensive, multi-criteria standards makes green product comparison, evaluation and selection difficult.

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VICTORIAN TASTE:

The Development of Popular Cultural Taste Through Advice Books

Ann M. Nichols

Northern Virginia Community College

ABSTRACT

The Victorian era, encompassing most of the nineteenth century, was the beginning of the *modern era*. Profound changes were taking place in the realms of communication, transportation, manufacturing, and economics. These changes were reflected in the traditions, customs, beliefs, and daily routines of the burgeoning middleclass. Faced with new roles the 19th century, Mrs. Isabella Mary Beeton, wrote in her book, Mrs. Beeton's Book of Household Management; *"Many women may have been the first in their families to have servants; the first not to work at something other than keeping a house. The keeping of servants increased dramatically in the course of the nineteenth century, as did the practice of middle-class women being economically non-productive.*" (Humble 2000, xxix) Women came to be looked on as not only the homemaker but the home decorator.

The purpose of this paper is to explore the roots of the interior design profession during the 19th century through the popular print media. *As* John Locke Eastlake pointed out in his work, Hints on Household Taste in Furniture, Upholstery and Other Details *(1872) "The faculty of distinguishing good from bad design in the familiar objects of domestic life is a faculty which most educated people – and women especially – conceive that they possess. How it has been acquired few would be able to explain."*

(Eastlake 1872. Republished: 1971, x) The genre of household decorating books and advice columns on the topic directed to educate the homemaker also gave rise to the popular cultural standards of good taste in interior decoration.

A review of the decorating books and popular magazines from the 19th century is not limited to but includes:

Clarence Cook's, The House Beautiful Book: Essays on Beds and Tables, Stools and Candlesticks, 1881;

Rhoda and Agnes Garrett's, Suggestions for House Decoration in Painting, Woodwork and Furniture;

Furniture for the Victorian Home: Comprising the Abridged Furniture Sections from A. J. Downing's Country Houses of 1850 and J. C. Louden's Encyclopedia of 1833;

Also included is *Household Management* by Mrs. (Isabella Mary) Beeton, 1836-1865. Mrs. Beeton's Book of Household Management was first published in a single volume in October 1861, selling over 60,000 copies in the first year. Between 1859 and 1861 it had been issued in 24 monthly parts. (Humble 2000, xxxi)

Godey's Lady's Book, one of the most popular periodicals of the 19th century. Intended to entertain, inform, and educate the women of America. Reaching a pre-Civil War circulation of 150,000, was certainly among the most influential.

These and other self-help decorating books set the standards of taste and decoration of the *modern* home and gives us a view into interior decoration from that

period as well as the foundation from which the modern profession of interior design has risen.

NARRATIVE

The interior decoration of houses was of great importance in 19th century England and America. The Victorian Period, spanning the 60 years from 1837 to 1901, brought about new developments in the styles and standards of taste in architecture and interior design. Looking back from a distance of more than 150 years it is sometimes difficult to see what a true Victorian interior looked like. Lacking color photography, this task is made more difficult. Fortunately, the rise of advice books during this time, answering the need for more information and design direction to the housewife-decorator, gives a picture of what those interiors looked like. The purpose of this paper is to explore Victorian interior decoration, through the written pages of the advice books.

Changes and developments resulting from the Industrial Revolution gave rise to more wealth, new life-styles and social customs in the 19th century. Women took on the roll of running the home as the men, no longer employed on the farm, left everyday for the office in the city. The home was to be a restful place, a haven from the unhealthful and hectic pace of modern industrial life. The skill and beauty with which she decorated her home reflected on her, and the status of her family. The home was the center of moral life, and the woman was in charge of it. How was she to accomplish such tasks? Looking inside these books and periodicals written for the new and ever enlarging middle classes of England and America gives a view into the fashions and styles popularized during the second half of the 19th century.

Godey's Lady's Book was one of the most popular periodicals of the 19th century. It was intended to entertain, inform, and educate American women while

establishing what was considered good taste. Each issue contained articles, poetry, sheet music, and illustrations by some of the most well known authors in America; reaching a pre-Civil War circulation of 150,000, it was certainly among the most widely read.

Changes were occurring in all areas of life, not only in the fields of architecture and interior decoration, but also in the way work was conducted, the work place, society and a woman's role in that society. Isabella Beeton aimed her hints and remarks to the emerging middle class, as reflected in this passage from Nicola Humble the Editor of Mrs. Beeton's book of Household Management,

> "Many women may have been the first in their families to have servants; the first not to work at something other than keeping a house. The keeping of servants increased dramatically in the course of the nineteenth century, as did the practice of middle-class women being economically non-productive. It is not just because many more people were becoming middle class that the rules needed spelling out: it was because the meaning of being middle-class was changing." (Humble 2000, xxiv)

Mrs. Beeton's Book of Household Management was first published in a single volume in October 1861. It achieved a steady success, selling over 60,000 copies in the first year. … Between 1859 and 1861 it had been issued in 24 monthly parts. (Humble 2000, xxxi) Through these popular pages the housewife is instructed on all phases of household management. Women were instructed on how to "systematically" arrange their kitchen in the new scientific method reflecting the theories of organization and time saving techniques taken from the workplace and the factory is exemplified by the author,

Catherine Beecher. In addition to writing abolitionist papers she wrote, *The American Woman's Home; or, Principles of Domestic Science; Being a guide to economical, healthful, beautiful, and Christian homes.*

J.C. Louden's 1833 book, *Encyclopedia of Cottage, Farm, and Villa Architecture*, promotes the use of stenciling walls, faux painted woodwork, and plaster ornaments on ceilings. Louden goes on to advise the reader that if the cost of plaster is too great then papier-mâché may be substituted for a more economical solution.

Introduced in 1841, *The House Painter, or, Decorator's Companion, by* William Higgins, expands on the use of color also reflecting the new advancements in technology and transportation which gave rise to the commercial paint industry. Higgins advises that "libraries must have a grave and quite coloring … a drawing-room should be distinguished by a cheerfulness and gaiety of coloring." (Higgins 1841, 43) Higgins also comments on the new flocked wallpapers, particularly in red or crimson, which he felt added to the luxury and beauty of a room.

The mid-nineteenth century brought a new way of life and new structures to social customs. Humble gives us some insight to those changes. "Husbands increasingly traveled into the centre of London and other large cities to work, and took their midday in town. Consequently, meal times shifted, with the midday dinner moving into the evening." (Humble 2000, xxiii) Higgins makes practical application of these changes. One was to pay special attention to the coloring of the dining room in the subdued artificial lighting of the evening, when the colors appeared dramatically different. Higgins cautioned against the use of yellow as it loses so much intensity and also against green because it becomes dull and gloomy.

A.J. Downing's book, *The Architecture of Country Houses,* followed in 1850*.* Downing recognized the American farmhouse as a unique architectural form. In addition to suggesting appropriate colors for the exterior of the house, Downing had advice for the interiors as well. "The mode of treating cottage walls now most in favor, is that of papering the principal rooms and best bed-rooms, and whitewashing the kitchen, inferior passages, and bed-rooms." (Downing 1850 Republished; 1969, 370)

Charles Locke Eastlake addresses the issues of the rising costs of interior finish materials. "At the present time, when both marble and oak are beyond the reach of ordinary incomes, the usual practice is to cover the walls with a paper stained and varnished in imitation of marble. This is, perhaps more excusable sham than others to which I have alluded; but still it *is* a sham, and ought therefore to be condemned." (Eastlake 1872. Republished: 1971, 52) Along with dispensing extensive decorating advice, Eastlake disparages the use of his name in his work, *Hints on Household Taste in Furniture, Upholstery and Other Details, 1872.* "I find American tradesmen continually advertising what they are pleased to call 'Eastlake Style' furniture, with the production of which I have had nothing whatever to do, and for the taste of which I should be very sorry to be considered responsible." (Eastlake 1872. Republished: 1971, ix)

1876 saw the publishing of W.J. Loftie's work *A Plea for Art in the House,* which gives insights to the practicality of decorating in the soot caked city of London. "Where smoke spoils everything of the nature of drapery, and where all colors are soon reduced to the same dingy brown." (Loftie 1876, Republished : 1978, 36)

Agnes and Rhoda Garrett wrote the *Suggestions for House Decoration in Painting, Woodwork and Furniture* in 1877, which guides the Victorian housewife to the correct appointments of each room in the house as exemplified in this discussion of the drawing room.

> "The general aspect of the room should be rather gay than grave, and hence it comes that custom has prescribed the use of lighter and more delicate forms and colors than are admissible elsewhere; but there is a wrong as well as a right way application of every principle, so out of this laudable desire to introduce a feeling of gaiety and to exclude all work-a-day thoughts and objects, the modern drawing-room too often displays a tawdry and theatrical style of decoration and furniture and unsuccessful attempt at ease and elegance." (Garrett and Garrett 1877, 56-57)

In the last decade of the Victorian style, Clarence Cook, gives us *The House Beautiful Book: Essays on Beds and Tables, Stools,* in 1881. While discussing Persian rugs, cushions, and wall coverings he gives some of the best descriptions of the Victorian home through his extensive narratives of well designed rooms he has seen and admired.

Eastlake, together with Garrett sisters, had no illusions about the character of mid-Victorian taste, which was based, "upon eclecticism rather than on tradition" and was "capricious and subject to constant variation." (Eastlake 1872. Republished: 1971, xi) Eastlake and the Garret sisters felt it their duty to encourage discrimination between good and bad design in those articles of daily use. Through their eyes we see the over abundance of Victorian taste, and the cautionary notes to avoid "garishness" of the late

nineteenth century as they proclaim the virtues of the “new” Gothic Revival as defined in the Arts and Crafts Movement.

The rise of the professional interior designer did not end the tradition of dispensing advice begun over 150 years ago. Interior design and shelter magazines along with a vast array of books on the subject are still popular today along with the modern medium of cable TV continue to grow and have a large following.

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With a Little Help from their Friends: A Learning Strategy for Maintaining Positive Attitude in Quick Perspective Sketching Practice

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Florida State University

ABSTRACT

Quick perspective sketching is a valuable skill that can communicate spatial ideas in interior design. However, students are often inhibited with the mechanics of perspective as they learn to draw quick perspective sketches (Pable, 2000; Brehm, 2007). This situation can result in drawings that are timid in line quality and slow in production.

Achieving sketching proficiency is a long process, and students can stop trying if they do not maintain a positive attitude about the effects of sustained practice. Therefore, sketch exercises that help students continue to practice are likely important. This study explored the efficacy of timed perspective sketches as a means to enhance student sketching abilities, and tested two different ways of completing an exercise: (1) sketching silently alone; and (2) sketching with a partner while verbally describing the sketch to that person. This idea arose from two premises: 1) engaging a learner in drawing and another cognitive task simultaneously may lead to ‘automatizing’ the act of mark-making, which can enhance sketch speed and accuracy (Bloom, 1986); and 2) interior design students may draw comfort and confidence from practicing together. The study also explored students’ perceptions of themselves as perspective creators and their attitudes toward the two sketching exercise types.

Sketches produced by four sophomore-level interior design graphic classes were assessed for performance and perceptions of eight timed perspective exercises. Random assignment to two experimental groups assisted in controlling extraneous variables. A total of 495 sketches were scored by trained graders.

Quantitative analysis and qualitative assessment of three attitude questionnaires gave rise to conclusions. Descriptive statistics, comparative t tests and effect size analysis confirmed:

1. Timed exercises do help students sketch more quickly and accurately.
    - When assessed for sketch completeness, perspective accuracy and line quality, both groups improved during the study.
    - The talking group improved more than the silent group, but achieved lower scores in the beginning. Essentially, both groups made statistically similar gains.
2. While both groups made achievement gains, the talking group maintained a better attitude about their progress and practice potential.

Both groups self-identified their skill as progressing, moving from 4 to 5.58 along a spectrum from ‘beginning novice’ (1) to ‘experienced professional’ (10). Thus, the exercises appeared to boost the self-identity of the participants for sketching behavior. However, ‘drawing quickly’ was cited as a challenge more than twice as often by the silent group than by the talking group. Further, the talking participants exited the study with a more enthusiastic sense that their sketches were starting to appear more confident. Thus, attitude for sketch practice was enhanced in the talking group with little or no reduction in sketch scores.

It is possible that the camaraderie that often exists between student colleagues may be a useful tool in promoting positive attitude in sketching practice. Partnered verbally-enhanced practice may serve to place students at higher ease, take their minds off the timed nature of sketches, and provide them a sense of support.

NARRATIVE

Context of the Problem

Quick perspective sketching is a valuable skill that can communicate spatial ideas in interior design. However, students are often inhibited with the mechanics of perspective as they learn to draw quick perspective sketches (Pable, 2000; Brehm, 2007). This situation can result in drawings that are timid in line quality and slow in production.

Achieving sketching proficiency is a long process, and students can stop trying if they do not maintain a positive attitude about the effects of sustained practice. Therefore, sketch exercises that help students continue to practice are likely important.

Purpose of the Study

This study explored the efficacy of timed perspective sketches as a means to enhance student sketching abilities, and tested two different ways of completing an exercise: (1) sketching silently alone; and (2) sketching with a partner while verbally describing the sketch to that person. This idea arose from two premises: 1) engaging a learner in drawing and another cognitive task simultaneously may lead to ‘automatizing’ the act of mark-making, which can enhance sketch speed and accuracy (Bloom, 1986); and, 2) interior design students may draw comfort and confidence from practicing together.

The study also explored students’ perceptions of themselves and their attitudes toward the two sketching exercise types.

Method

Sketches produced by four sophomore-level interior design graphic classes were assessed for performance and perceptions of eight timed perspective exercises (see Figures 1 and 2). Random assignment to two experimental groups assisted in controlling extraneous variables. A total of 495 sketches were scored by trained graders. Grading consistency was ensured through group training, and the graders' interrater reliability was confirmed with Cronbach alpha result of .84.

Results and Discussion

Quantitative analysis and answers to three attitude questionnaires gave rise to conclusions. Descriptive statistics, comparative t tests and effect size analysis confirmed:

1. Results on sketch performance.

Graded results from the study's 495 sketches confirm that the study's timed exercises did help students sketch more quickly and accurately.

- When assessed for sketch completeness, perspective accuracy and line quality, both groups improved during the study (see figure 3).
- The talking group improved more than the silent group, but achieved lower scores in the beginning. Essentially, both groups made statistically similar gains.

2. Participants' attitudes toward sketching practice was both similar for both groups and also differed on some points.

Overall, both groups reported they felt they were improving in their sketching ability. Echoing the study graders' results on the participants' sketches, participants in both groups reported that they felt their ability to sketch well was increasing. On a 10 point scale where 1 was 'beginning novice' and 10 was 'experienced professional', both

groups perceived themselves at the study's beginning at approximately 4 and exited the study perceiving their ability/identity at a mean of 5.58 for the silent group and 5.88 for the talking group. While the improvement that each group made over the study was statistically significant (talking: $t(27) = -7.3$, $p=.000$ & large 1.25 effect size; and silent: $t(19) = -4.179$, $p=.001$, large 1.05 effect size), the .3 concluding difference between the groups was not statistically significant ($t(46)=.13$, $p=.89$).

On other questions of participant attitude and perceptions, differences between the silent and talking groups emerged. Overall, the talking group maintained a better attitude about their progress and practice potential.

a. Participants' reflections on the challenge of sketching quickly.

When presented with a short list of challenges they might encounter with practicing perspective sketching, the challenge of 'drawing quickly' was cited more than twice as often within the silent group than the talking group (for further detail see figure 4). The fact that the silent sketchers picked this option more frequently than did the talking sketchers suggests this challenge was on their minds more often. One possible explanation for this difference was that the talking sketchers, by virtue of having a partner, thought less about their speed because they were engaged in something else simultaneously that occupied their active attention (explaining or narrating the emerging scene), thus lessening their cognizance of time and pressure that timed drawing can present.

b. Participants' perceptions of progress during the study.

Participants were asked the degree of agreement with the statement "My sketches are starting to look more confident" at two equally spaced time points

after drawing 4, responding on a Likert scale of 5 points with 1 being strongly disagree, 3 being neutral and 5 being strongly agree. The talking group reported their sketches began to look more confident between administrations 2 and 3, increasing in score by .63 from 3.33 to 3.97, statistically significant at $t(29) = -3.072$, $p=.005$, and a calculated large effect size of .81. The silent group also increased in mean score from administrations 2 to 3, although the gain in the mean was a lesser value of .33 moving from 3.46 to 3.79. This finding was statistically significant, but approximately half of the gain of the talking group ($t(23) = -.012$, $p=.043$; medium effect size of .37), and slightly lower than the talking group as they exited the study. Thus, the talking group reported a slightly lower appraisal of the confidence they saw in their sketches than the silent group at the beginning, but saw greater gains by the end of the study than the silent group did. Both groups exited the study with a similar level of confidence in their sketches' apparent visual confidence. These differences are slight. However, it is suggested that this may be because the talking participants were being observed, and at the beginning experienced a lower sense of performance than did the silent participants who were not observed. A worthy follow-up study might explore the dialogue between the talker and their partner directly after the sketch to see if this may have contributed to this result.

Thus, it is notable to acknowledge the study's results of both achievement and attitude: attitude for sketch practice was enhanced in the talking group over the silent group with little or no reduction in sketch scores.

Summary

Essentially, both groups in the study benefited from undertaking the time sketching exercises. Also, the talking participants exited the study with a more enthusiastic sense that their sketches were starting to look more confident than the silent group. It is possible this was realized through the post-drawing verbal interaction between the talking artist and their partner, or from other body language signals that provided the talking artist with a more confident outlook about their practice.

The study suggests that the mutual support and camaraderie that often exists between interior design student colleagues may be a useful tool in promoting quickness and accuracy in perspective sketches, especially since the study results did not indicate a heighted sense of anxiety or concerned attitude when a participant sketched with a partner and described the emerging sketch to them. Rather, it may serve to place students at higher ease, taking their minds off the timed nature of sketches, and providing them a sense that others are ‘in the same boat’ with their similar challenges. Further, it may emphasize to students that the inevitable messiness and errors in sketch practice are ‘ok’—and that the main point is to keep practicing to witness progress. Given that:

- the sketch exercises in general promoted improved accuracy in students quick perspective sketches and boosted students’ self-perception of their sketching abilities;
- the overall achievement on sketch speed and accuracy was similar for the silent and talking groups;
- talking while sketching appears to lessen perception of time pressures with no noticeable decreases in speed or sketch performance; and,

- talking while sketching appears to enhance students' enthusiasm for sketching practice,

it may be most advantageous to offer the sketching practice to students in a format that mixes up the timed silent sketching exercises with those where students are paired with a partner for simultaneous sketching/verbal practice. In this way the benefits of both methods are realized, and students may leave with an enhanced sense of confidence that continued sketching will offer further progress in their abilities.

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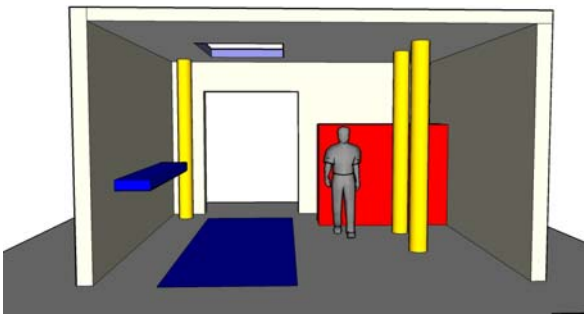
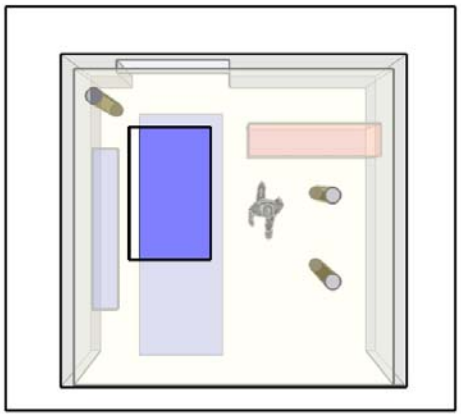
Figure 1. The introductory instruction sheet provided to participants for the sketch exercises. Given drawings and an example sketch perspective are included.

Perspective Sketching Exercise

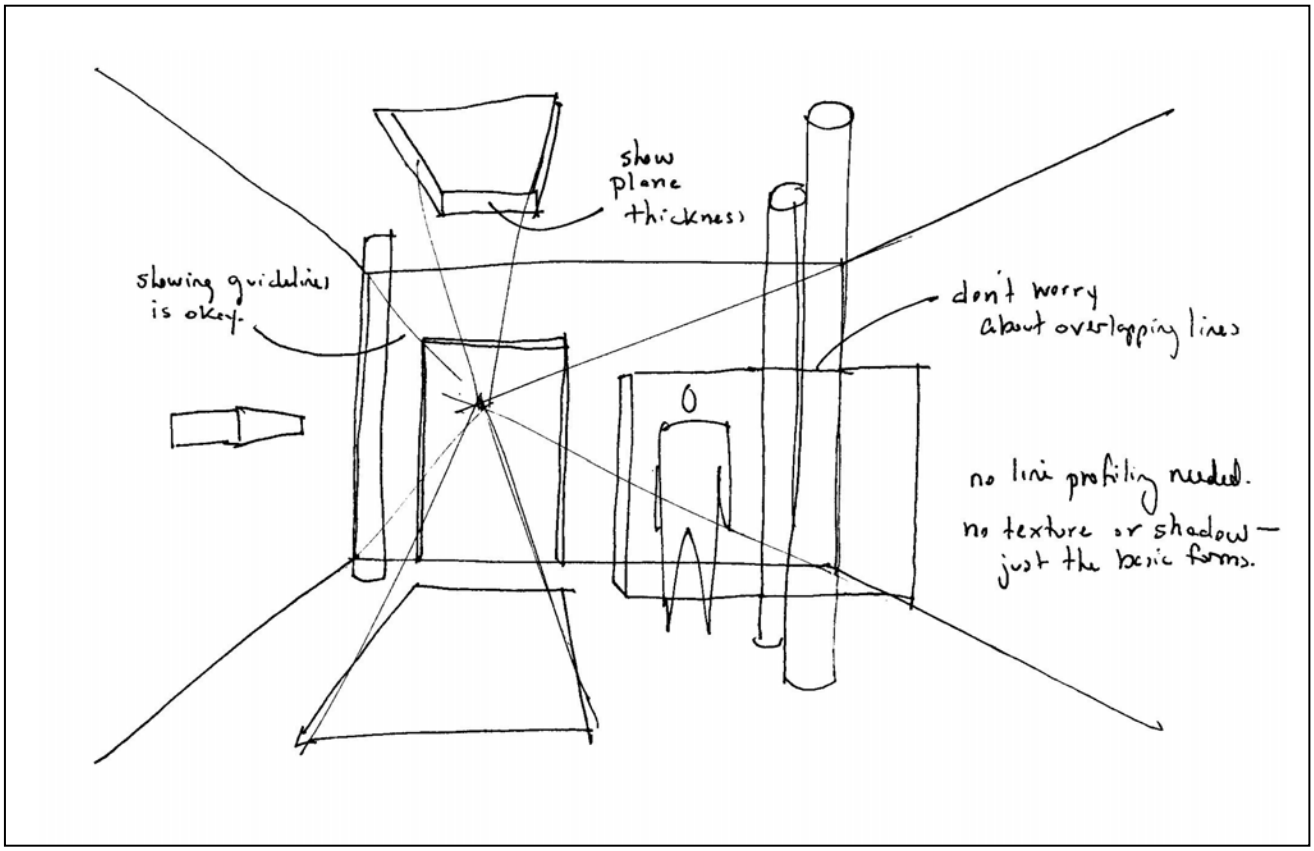
What you're given…



See this for 10 seconds, then turn the sheet over



The x-ray style plan view is available to you while you sketch for three minutes



You'll draw on an index card. Keep your scene centered on the card and away from the edges of the card like this example.

Figure 2. Example of a participant perspective sketch completed in three minutes. The code name protects the anonymity of the participant.

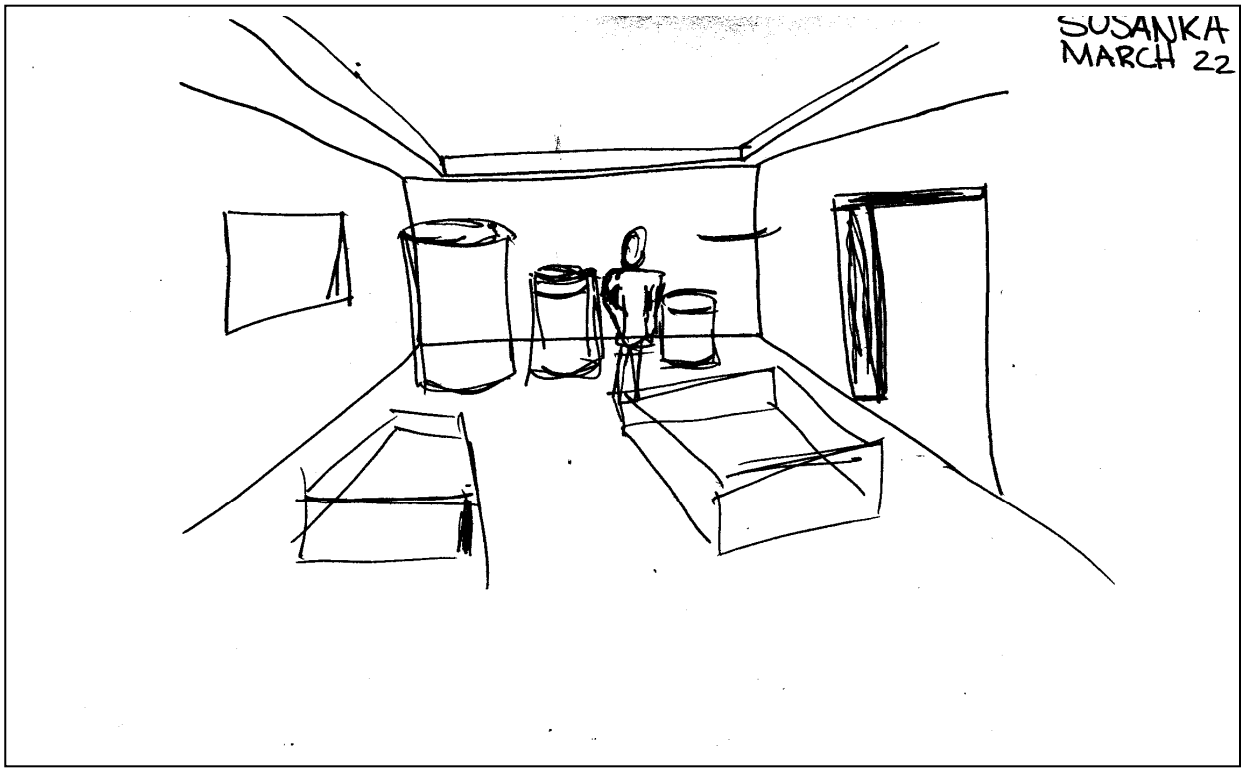


Figure 3. Overall sketch score means for the talking and silent groups over the course of the eight sketch administrations.

Drawing overall score means for talking and silent groups								
	1	2	3	4	5	6	7	8
Talking	17.76	18.86	19.17	21.09	20.28	23.10	21.32	21.24
Silent	17.16	20.78	22.32	22.46	21.26	22.04	20.83	
						* low n precludes analysis		

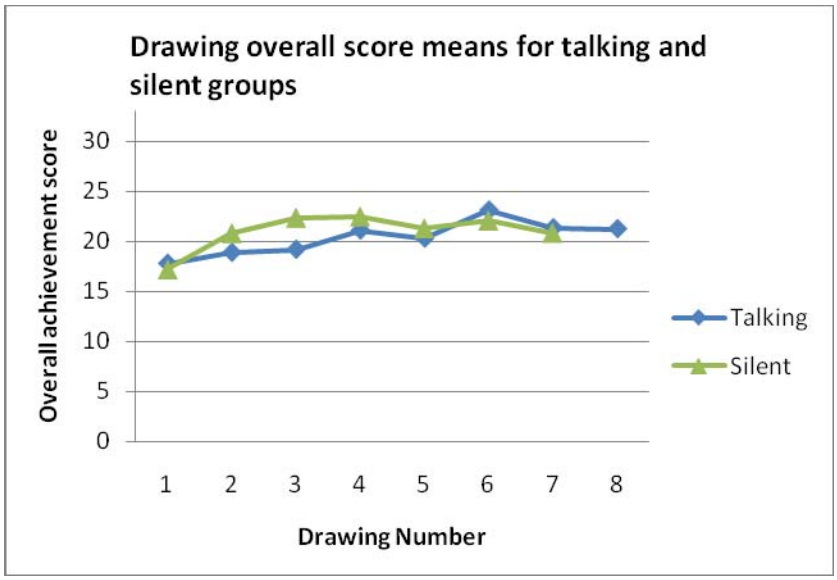


Figure 4. When asked to identify particular sketching challenges with regard to their sketches, participants in the two groups reported similar quantities of responses for the criteria of (1) drawing in proper perspective, (2) creating drawings that look confident, and (3) drawing proper size and placement on the paper. The talking group, however, reported the challenge of (4) drawing quickly only half as often as the silent group.

Total quantity of challenges cited in the study's three attitude survey administrations					
	1: perspective	2: look confident	3: size/ placement	4: drawing quickly	Total # drawings attempted
Talking group	40	39	59	26	262
% of total # of dwgs for this group	15.27%	14.89%	22.52%	9.92%	
Silent group	34	34	49	52	233
% of total # of dwgs for this group	14.59%	14.59%	21.03%	22.32%	

“Deep design”: Applying ethnography studies & story telling to your end user profile

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ABSTRACT

“Our design process is founded in the belief that a project’s success depends on truly understanding the users – the challenges they face, the goals and dreams they hold close and the type of environment that will help them succeed.” (Astorino, C., personal communication, October, 2007)

Interior design is at the service of the people. Ultimately design excellence is defined by the end users who occupy the spaces we design. With recent CIDA standards requiring more emphasis on information gathering, it is important that students master techniques such as interviews and observation to extract a functional list of wants and needs from the end user. However, these techniques are limiting as an individual user cannot usually verbally communicate concepts and ideas he hasn’t seen before. How do we draw accurate information out of a user, when in truth they may not be aware of what they do not know? How do we understand an end user who cannot speak for him or herself? How do we move beyond identifying symptoms of the design problem to identifying the actual design problem? Recent trends into alternative data collection methods have opened the doors to cross-disciplinary approaches, providing insight into the subconscious and extracting the essential wants and needs of the end users.

The application of the ethnography study, a descriptive anthropological method that involves the exploration and documentation of a culture, can tell the story of a people. An ethnography study assimilates objective information gathering techniques, such as one-on-one interviews, observation, and photo and sketch documentation into a subjective process of story telling, allowing the designer to create a meaningful user profile with an attitude of empathy, feeling what they feel, seeing what they see, experiencing what they experience, eliminating assumptions, and understanding the end user beyond the usual statistics of age, sex, gender, socioeconomics, personal interests, affiliations, etc. An ethnography study identifies patterns in behavior, captures emotional expression, tells a story, pays attention to detail, and allows students to gain a new perspective

This technique aids not only in the development of an accurate user profile but provides a process of analyzing information, extracting meaning and communicating complex ideas between the educator, guest critic and fellow students or between client, users, designers, architects, contractors and all others involved in the design process. It creatively establishes the existing context and requirements of the problem, such as user characteristics & diversity, special adjacencies and conditions, and the existing building conditions and functionality.

Describing the user's experience in a narrative educates the client and users as well. According to Steve Polo of OPX in Washington, D.C., "Every company has an 'operating system', but many companies don't actually know what it is. How they do things around the office stops being intentional." (Polo, S., personal communication,

June, 2008) Like placing the client in front of a mirror, your information helps the client better understand the reality of the existing conditions.

NARRATIVE

"Our design process is founded in the belief that a project's success depends on truly understanding the users – the challenges they face, the goals and dreams they hold close and the type of environment that will help them succeed." (Astorino, C., personal communication, October, 2007)

Interior design is at the service of the people. Ultimately design excellence is defined by the end users who occupy the spaces we design. With recent CIDA standards requiring more emphasis on information gathering, it is important that students master techniques such as interviews and observation to extract a functional list of wants and needs from the end user. However, these techniques are limiting as it is often difficult for an individual to verbally communicate concepts and ideas he or she has not seen before. How do we draw accurate information out of a user, when they are not aware of what options exist or the impact of those options? How do we understand an end user who cannot speak for him or herself due to health reasons or cultural divides? How do we move beyond identifying *symptoms* of the design problem to identifying the design problem itself? Recent trends into alternative data collection methods have opened the doors to cross-disciplinary approaches, providing insight into the subconscious and extracting the essential wants and needs of the end users.

In the classroom there is a tendency to treat the end user profile as a systematic process, creating a laundry list of statistics copied from sources such as census.gov. Unfortunately this end user research doesn't even include the actual end user in the

process! To offset this we encouraged our students to use more creative techniques such as observation and surveys, but this did not come without pitfalls as students applied a series of preconceived notions and assumptions that would lead to problems such as loaded questions and false interpretations of data. We also found a disconnect between data collection and the translation of this data into meaningful messages that can be translated into a design application. In a quest to bring the life back into the end user profile we redirected our focus from the information gathering techniques themselves to creative documentation, interpretation and application.

The ethnography study, a descriptive anthropological method that involves the exploration and documentation of a culture, can tell the story of a people. Ethnography studies assimilate objective information gathering techniques, such as one-on-one interviews, observation, and photo and sketch documentation into a subjective process of story-telling. This allows the designer to create a meaningful user profile with an attitude of empathy, feeling what they feel, seeing what they see, experiencing what they experience, eliminating assumptions, and understanding the end user beyond the usual statistics of age, sex, gender, socioeconomics, personal interests, affiliations, etc. Ethnography studies can identify patterns in behavior, capture emotional expression, tell a story, and allow design students and practitioners to gain a broader perspective as they relate to the end user in a new way.

This technique aids not only in the development of an accurate user profile but provides a process of analyzing information, extracting meaning and communicating complex ideas between the educator, guest critic and fellow students or between client, users, designers, architects, contractors and all others involved in the design process.

It creatively establishes the existing context and requirements of the problem, such as user characteristics, special adjacencies and conditions, and the existing building conditions and functionality.

For inspiration we began looking into cutting edge alternative data collection and documentation techniques used by OPX (former employer of the author) and *fathom* (research design firm). For example, in a project for the VA, *fathom* employed a storytelling technique including one on one interviews with the veterans. The information collected in these interviews was interpreted and translated through a process of storytelling, complete with images of the individual, artifacts from the veteran's life and a written narrative communicating the meaningful messages embedded within the information gathering process. Although information gathering usually demands to be an objective process, we have found that when it comes to understanding the end user, it is not just about a balance between objectivity verses subjectivity, but it is about a balance between sensitivity (objective understanding) verses empathy (subjective understanding).

Describing the user's experience in a narrative educates not only the designers but the client and end users as well. According to Steve Polo of OPX in Washington, D.C., "Every company has an 'operating system', but many companies don't actually know what it is. How they do things around the office stops being intentional." (Polo, S., personal communication, June, 2008) Like placing the client in front of a mirror, your information helps the client better understand the reality of the existing conditions.

When designing for their corporate clients, OPX uses a technique called an "integration audit" which investigates three areas of the company: technology, space

and people. This process asserts that you cannot study the corporate end user alone, but you must look at the end user within the context of the other two influencing factors, the technology used and the space itself. For example, in one large organization, the researcher evaluating tools and technology found within the organization's computer system 50 different versions of the same letter. What was supposed to be one "Activity Memo", written by an employee, passed to management for a round of revisions, and then sent right back to the employee to be mailed went through 50 revisions and took 9 months to get out the door. What should have taken one week took nine months! Imagine the impact on the organizational efficiency when OPX identified this issue through a technology audit, isolated the real problems causing the issue, such as training problems, trust issues and turf battles between managements and employees, and identified strategies to solve those problems. Most likely an interview with end users alone would not have revealed such eye opening and insightful information to the client.

These lessons can be applied both academically and professionally at all project scales. In a residential project for a client in Virginia the designer was asked to renovate a dining space within the home. Embedded within the interview questions for the client, were the western centric assumption that the dining room would be made up of a dining table, chairs and some kind of storage. In truth the family had lived in North Africa and wanted a space that reflected the cultural experiences from that time in their life. A traditional American dining room would not do! Participant observation which included attending a formal meal with the family revealed not what a dining room 'should be' but what a creative and dynamic space it 'could be' as it responded to 1) the

types of dishes served (a complete lamb and platter of couscous), 2) the social experience of the meal (the relevance and participation of the guest of honor) and 3) the other activities surrounding the meal (a belly dance performance).

A second example of the application of the ethnography study to a residential project is the aging in place mother. In this instance, the designer was not able to interview the end user directly because she did not speak English and the designer's Spanish was poor. Because the interview was translated through her son, the designer was unable to establish a rapport to uncover many personal desires and details necessary to design a supportive space for aging in place. Many of the details of the user's daily life were too personal to tell her son. Cultural blocks or inhibitions prevented her from revealing necessary detail. Deep design was not possible from this cursory, culturally appropriate, sanitized version of her daily life obtained through the traditional interview technique.

The objective information gathering technique, direct observation, was used to eliminate some assumptions, identify patterns in behavior, and record details which would not have been apparent through any other objective means. Photos of the existing space were taken, as well as of her artifacts (doll collection, family photos, bible, games/puzzles, medications). A place centered behavioral mapping technique was used to record her use of the space, paths, locations where she sat, the direction she faced while seated, etc.

Interpretation of the ethnography study allowed a subjective story telling method to summarize how the artifacts and space were valued and used by the user. For example:

1. The foot of the bed and skylight overhead was the space for prayer. The elderly woman believed she could directly communicate with god through the skylight. The height of the bed was perfect for propping up her elbows while kneeling on the floor. This position and its relationship to the skylight must be maintained and supported through the design of a bench or prayer space or altar.
2. “Curtina’s” which are wood framed fabric partitions for visual privacy were requested and were to be made by a family member. The cultural significance cannot be overstated. Both the construction and the cost were of significance to the user.
3. Visual access to the driveway provided a connection to family life, and must be maintained by the new furniture layout.
4. Furniture was used as a support device to facilitate navigation of the space.
5. The game table had to support on-going puzzles that she could return to. This was necessary for her sense of stability and well-being.

In the classroom, the ethnography study helps the student overcome the inherent cultural stereotypes and assumption imbedded in information gathering, the written program and design application, as the student learns to “assume nothing” and “question everything”. Even the typical programmatic list of required spaces and adjacencies is often riddled with cultural assumptions and personal values about the relationship between the space and the end users. How the instructor or student names

the spaces assumes physical requirements that can unfairly influence and limit the potential design solutions. Ethnographic studies that comparatively interpret the end user experience through the lens of various information gathering techniques can creatively encourage students to move beyond applying the traditional paradigm that says, “this is what the design *should* be”, to a realization of, “this is what the design *could* be.”

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Proposing a Dialogue about Design Research in Interior Design: New Frontiers and Possibilities

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ABSTRACT

This paper discusses the necessity for a dialogue about interior design research—how we do it and what new frontiers may exist. When we ask what we do as interior designers and interior design researchers, we must do so understanding that how we study and what we do to develop what we know must include the tacit forms of doing interior design. We will present theoretical ideas about the nature of design research and about concepts that explore the differences between design research and interior design research. Two fundamental questions will be considered. First, what alternative research models are possible and necessary to appropriately represent the visual and creative nature of what we do and, in so doing, accounts for this tacit knowledge? Secondly, how can we document fairly and rigorously the tacit aspects of interior design? The theoretical concepts surrounding these questions are discussed through the introduction of conceptual models and a case study.

NARRATIVE

Interior designers create environments that mediate human responses using functional and visual design processes. Interior design processes that combine research, creativity and know-how are associated with non-linear thinking and intuitively-based problem-solving, all elements of tacit knowledge production (Neiderrer, 2007). If this is true, then several questions arise. For example, can research (as it is understood by the so-called "hard" sciences) fit within a creative paradigm? If, indeed, creative processes and research methodologies are at opposite ends of the spectrum does that mean that artists and designers are unconcerned about the validity, generalizability, and applicability of the research that they produce?

This paper proposes to answer two questions: 1) what alternative research models are possible and necessary to appropriately represent the visual and creative nature of what we do and, in so doing, account for this tacit knowledge and 2) how can we document the implicit aspects of doing and creating interior spaces?

We submit that the creative process and research are intimately connected and interdependent upon each other in the design of objects and environments and that semantics, professional jargon, and disciplinary "turf" often limit opportunities for interdisciplinary exchange and research collaboration. We also submit that this critical thinking and judgment used in designing is synonymous with processes used in research. Secondly, we argue that as creative interior designers, that this process is interconnected with the dialogue that we have with others, be these other designers,

architects and consultants, clients or users. If both the design of the project and the communication of it are interdependent, and the research design necessarily includes both the research object and the communications we have with others during research development, then the result is collaborative research.

This paper explores the theoretical concepts surrounding these questions, followed by examples of theory put into practice. Two models of design process and design research are presented to show the theoretical ideas being considered and then shown using the case study as an example.

The Theoretical Framework: *What is Design Research?*

Our first question ‘What alternative research models are possible and necessary to appropriately represent the visual and creative nature of what we do, and to account for this more tacit knowledge’ is predicated by a more fundamental question: *What is Design Research*? Many visual arts disciplines have developed a reflective sensibility to doing research; that is, to ask questions about both the process and the product of their crafts. This elevates ‘thinking’ to what is commonly known as ‘Design Research’. Ken Friedman (2000) challenges the view of design as egocentric by suggesting that a designer is neither the entry point nor the pivot of the design process, but rather a member of a design team that can be thought of as a system. Each designer is indeed the center of his/her perceptual process, but cannot claim that role in the design process itself. (Friedman, 2000).If we accept Friedman’s explanation of design as a

network of linked events among various domains of knowledge, then the differences between scientific research and the creative process begin to blur. The reality is that major societal issues are not solved by one individual or one methodological approach. Rather, teams of researchers—drawing knowledge from various domains—are necessary to make a significant difference. Similarly, a design team is composed of individuals from various domains of knowledge, each of whose expertise is critical in the design process, and with whom cross-disciplinary exchange and dialogue in practice allow for complex problems to be addressed.

What then, is Design Research? If design is an integrative process that sits at the intersection of several disciplines, then design research (incorporating aspects of the creative process) might be considered as research that recognizes alternative vehicles through which new knowledge can be assessed and created. Design research means integrating the theoretical and philosophically reflective practices with pragmatic every-day design problems situated in the project, process or product. This definition of Design Research fits well with those who argue that design and the creation of knowledge are both intensely human acts—the meaning of which is dependent upon the utility and cultural location or ‘situatedness’ of the environment or artifact (Laurel, 2003). Design research for interior designers is dependent upon the ‘situatedness’ of the people within the environment.

Situating the 'doing' of interior design within research methods

The second, and related question that we explore here, concerns the actual practice of research itself. We ask, how can we document the broad range of tacit aspects of *'doing'* and *'creating'* interior spaces so as to include the creative aspects of what we do as well as the spontaneous conversations that we have in collaboration with others?

As interior designers, we design projects in collaboration with others, we investigate space problems and we research materials, products and functional requirements for diverse situations. By extension, interior design research should be able to capture both the modes of representation and the ways in which they work with others to achieve design solutions. These ways include tacit knowledge production such as intuitive thinking, visual representation modes, and conversations that change ideas into viable, thoughtful and service-based intentions (Nelson & Stolterman, 2003). We argue that for interior design research to appropriately represent the knowledge we gain both by doing our projects and seeing them realized, the research must be done on two levels: first, in the situations within which the designing occurs, and second, understanding that the design is created using both artistic and scientific modes in real-time collaboration with others. As Carr and Kemmis (1986) suggest here:

> "…*the only legitimate task for any educational research to pursue is to develop theories of educational research that are rooted in the concrete educational experiences and situations of practitioners and that attempt to confront and resolve the educational problems to which these experiences and situations arise."* (p.118)

Examples of this model can be found in education research inquiry, wherein teachers are considered researchers when they actually do research 'in action', in the teaching

situation itself. In our case, this means immersing oneself into the research situation, much as interior designers 'immerse' themselves in diverse design problems and situational contexts.

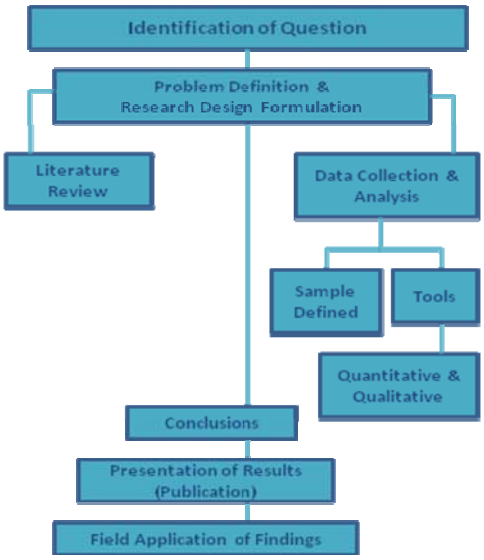
A second collaborative dimension in design work is the conversation and dialogue that occurs over the course of an interior design project and how this assists in the creation and co-production of the design itself. This co-operative and collaborative nature of the design process naturally lends itself to exploring design problems as research that we do 'with' rather than 'on' people, and is by its very nature hands-on and tacit knowledge production that cannot be 'objectified'. Heron and Reason (2001) suggest that

> *….. research 'with' rather than 'on' people using co-operative inquiry situates the inquiry directly in the experiences of the people who are in the research situation. People are involved and become part of the research process. (Heron & Reason, 2001).*

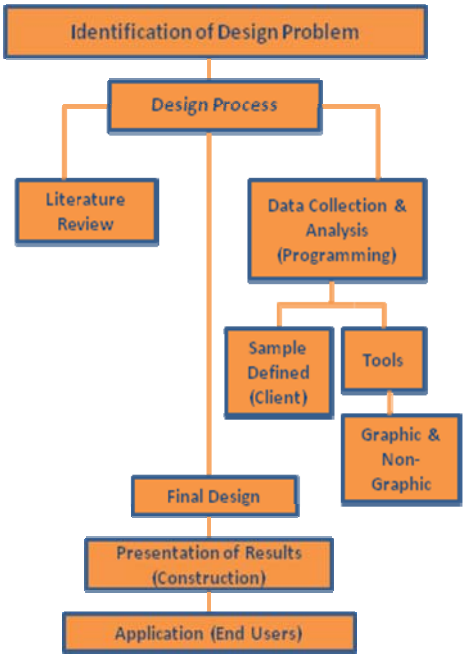
Two Models : Design Research Model and Design Practice Model

Two models presented below offer parallels between the creative and research processes:

Design Research Model



Design Practice Model



Situating through 'doing': The case study example

Tiiu Poldma was contacted by the head nurse of a long-term care institution, who wanted to understand why her patients were rejecting activity spaces that had been designed for them. Specific issues became apparent and certain changes were suggested to improve the overall spatial configuration and space use.

Figure 1 – Before of the Interior Space

Figure 2 – After of the Interior Space

A post change evaluation confirmed how the design changed the social activities within the space. This type of design inquiry must be logical and guided by research methods, such as action and collaborative research.

Conclusion

Research questions must be asked that capture the essence of what do we do as interior designers and as researchers, through empirical research modes while realizing that how what we ‘do’ also includes the tacit forms of knowledge. The interior designer’s ‘designerly’ ways of doing become integrated into research design and processes, and give value to what designers actually ‘do.

The questions asked and the models presented in this paper suggest a need for reflection on ‘what’ and ‘how’ interior design researchers and practitioners ‘do’ design. First, it is important to remember that design research considers the nature of the

problem as it is situated in multiple contexts—both objective and subjective. Similarly, Interior Design as a professional act is situated in both codified and tacit forms of knowledge. This means that designers use both intuitive, creative acts (tacit) and technical, evidence-based acts (codified) that are integrated to produce the resultant interior design research project or installation. We argue that this means doing research in ways that capture creative, tacit forms of knowledge through evidence-based modes situated in interior design processes and methods. Further, we argue that known empirical modes of tacit knowledge production in research can be used to develop specific research inquiry methods that will capture the collaborative nature of interior design problems.

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Color Planning Framework:
On the Design Process and Visitor Experience in the Georgia Aquarium

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ABSTRACT

Both objective and subjective, color solutions reflect quantifiable dimensions as well as subjective and personal meanings that people assign to color (Naz & Crosby, 2006). This paper will revisit a color planning framework illustrated by designer and end user narratives that reveal holistic color solutions. The color planning framework originally proposed by Portillo (1992) recognizes five types of criteria employed by the designer and the complex role that color plays in interior design. This paper revisits the Color Planning Framework with new contemporary cases validating and expanding the previous national study upon which the framework was based and identifies the following categories of color criteria:

- Color as Composition
- Color as Communication
- Color for Engagement
- Color Preferences
- Color Pragmatics

Gathering new project cases during 2007-8, the author interviewed interior designers and architects on their use of color in twenty total projects primarily located across the United States as well as three international projects. The projects, representing a broad range of interior spaces from entertainment, corporate, retail, healthcare, institutional, and residential sectors, supported the color planning framework and also constructed project narratives to illustrate an integrative approach to environmental color (Portillo, 2009). The paper will present the framework and narratives from one project: Georgia Aquarium. This project commissioned by Bernard Marcus and designed by the Atlanta-based firm TVSdesign focuses on the process employed by the design team while another narrative captures the experience of a first time visitor to the Aquarium.

In summary, the paper illustrates a five-part color planning framework using the case of the Georgia Aquarium and employs narratives to gain insights into the processes of creating interiors and reactions to those designed spaces. The compelling nature of color in interior spaces impacts how people perceive form, recognize shared meanings and associations, as well as impacts emotional and cognitive responses as well as behavior. From small to large-scale interiors, spanning a range of facility types, the color planning framework offers a means to better conceptualize and fully realize the potential of color.

NARRATIVE

Georgia Aquarium is one of the largest aquarium facilities in the world. It contains more than 8,000,000 gallons of salt and fresh water exhibits and features over 100,000 animals and 500 species (http://www.georgiaaquarium.org/). Nearly 100, 000 yd3 of concrete forms the Aquarium and offers an exceptional example of concrete design and construction technology (McDowell & Keck, 2007). Likewise the interior of the building offers an extraordinary example of environmental color and light.

Color planning processes for the Aquarium will be examined through a five-part color framework that spans designer and visitor perspectives. Designer accounts offer insights into the process of creating the interior spaces while visitor narratives reveal reactions to design of the Aquarium and speak to the many functions of environmental color. “Light and color work together with form and spatial effect to modulate interior space, add drama and intrigue help us in our daily tasks, or set to the mood or scene for various types of activities. All subjectively enhance our responses within interiors while objectively satisfying visual and functional needs (Poldma, 2009; p. 20).”

Color and lighting played central roles in creating this world-class aquarium that has drawn recording breaking crowds since it opened in November of 2005. The client for this project Bernard Marcus, co-founded Home Depot in Atlanta over three decades ago, felt passionately about contributing to the city of Atlanta through the gift of a precedent-setting aquarium.

His charge to the appointed firm, TVSdesign, was ambitious: set a new standard for the design of aquarium facilities. Steve Clem, TVSdesign Principle, recalled that it

was critical to create an unparalleled experience for all those who visited the Aquarium. Early in the design process, the TVSdesign team invested in an extensive process of “image benchmarking” where they studied a range of interiors characterized by well defined ambiance. Interestingly, they did not simply focusing on other existing aquarium designs but carefully reflected on ambiance and the spatial experience. From this process, notion of a sea mount emerged as a central driver guiding the conceptual development and spatial organization of the project. A sea mount is a sheltered underwater enclave that draws large and diverse aggregates of marine life. This driver translated spatially into a plan with a central core with radiating spaces. The core space, quickly dubbed the Rotunda, offered respite to the visitors between visits to five adjacent gallery exhibitions. The Rotunda filtered natural light though a large-scale, central skylight and in the perimeter of the space which was much darker, a dramatic band of LEDs, programmed in spectral sequence, bordered the ceiling condition. The kinetic shift from hue to hue referenced the underwater motion of color and light. In the Rotunda, blue terrazzo flooring, with flecks of mother-of-pearl, reinforced the feeling of water as did the patterning of the mosaic wall tile that suggested air bubbles moving to the water’s surface. Blues, varied in value and saturation, formed the base coloration for the interior while limited amounts of saturated orange offered contrast and also associated with marine life. While the designers deny any overt reference to the Home Depot logo, it could well be argued that the ubiquitous accent hue offers a client nod. Reflecting light into the space, white also made a significant contribution to the palette. Blue, orange, and white defined the Rotunda while the low lighting levels in the monochromatic blue galleries showcased the marine life. The overall feeling of light

and dark differentiate activity zones within the Aquarium. The lower lighting levels in the exhibition spaces optimized the viewing experience while higher lighting levels in the Rotunda offered psychological relief and supported eating, shopping, and other visitor activities occurring outside the viewing galleries.

Not only did color and lighting influence visitor behavior and the emotional draw of the space, these elements also helped humanize the monumental scale of the space. For the designers on this project, an on-going challenge was to accommodate the size and scale requirements of the exhibitions but still address human preferences. Steve Clem remembered a question that the designers repeatedly returned to during the process, “How do you create spaces that are so large yet still retain a sense of intimacy?” Color and light offered a means to sculpt the fairly monumental scale of the Rotunda. Compositional color criteria surfaced in the design of the Georgia Aquarium. Color and light also functioned to create a memorable experience where visitors flowed easily through different areas designed for experiential learning and rejuvenation. Further, color and light reinforced associations of being immersed in an underwater wonderland and related blues to water, greens to sea kelp, and oranges to exotic fish and sea corals. Working in tandem, color and light created areas of emphasis and spatial definition. Client preferences also may have been reflected in the accent coloration of the space. Finally, color and light responded to pragmatic considerations paramount in designing an aquarium including designing for appropriate lighting levels to support the well being of the marine life on view.

Color and light progressions reinforced the feeling of a watery environment as was noted in this excerpt from the visitor narrative: “For me, the most memorable use of

color was the large band of light glowing from the upper portions of nearly every wall in the Rotunda. These bands changed color from blue to green to yellow to red to purple in a rolling effect, like a wave crashing. In an unexpected way, the lighting and color created a kind of rhythm throughout the space, and I remember feeling the sensation of being under water due to the combination of the timing of the color changes and the flow of lighting. Thinking back to the Aquarium, I immediately get a sense of being cooled off (Portillo, 2009; p. 204)."

This exploration of color and light in the Georgia Aquarium underscores the importance of a holistic approach to design. According to Smith (2006), "Designers who consider place as an experience, or as part of a social domain, will address the design task differently than those who treat it as an object to be colored." The designers of the Georgia Aquarium considered color and light in tandem as serving five distinct functions reflected in the Color Planning framework. These criteria speak to color and light's ability to shape space, communicate meaning, impact the human response, reflect preferences as well as meet practical considerations. By not focusing exclusively on singular color functions, the designers treated color and light as dynamic elements in the space, essential to creating a memorable visitor experience.

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Ageism: Design through a Gray Lens

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ABSTRACT

"The old are condemned to obsolescence; left to rot like wrinkled babies in glorified playpens — forced to succumb to a trivial, purposeless waste of their years and their time."

- Maggie Kuhn, founder, Gray Panthers

Fear of growing old is not a foreign concept in America and coupled with ageism has led to limited connectivity between younger generations and their older counterparts. Approximately 80% of older Americans have encountered some form of ageism according to a study conducted by the Federal Interagency Forum on Aging-Related Statistics (2004). Many designers have not had the opportunity to experience, or walk a day in the shoes of an older adult. Whether a patient in a doctor's office, or a family member, on some level designers are required to relate to the needs of these individuals to better understand the steps necessary for successful design strategies when working with this age group. Our future older selves, however, is an unexplored territory; with limited or little connections. We cannot assume the needs of older individuals, how they feel, think, or want without truly understanding the individual. We commonly empathize to assist with their needs, and while important, this cannot be the sole driver for design decisions.

Interior designers are increasingly pressured to provide evidence based design solutions. In long-term care, what better way to explore the needs of our older

generation than directly; immersing ourselves in their lives? This form of connection is reciprocal; it enhances the personal connections older adults enjoy as well as provides a platform for our younger generation to change formalized opinions and stereotypes that have been instilled through media or passed down from others.

Transference theory suggests redirecting feelings for one person to another change can occur. For example if *A* causes *B* then person (A) comes in contact with person (B) the object or person that causes B must be in direct contact for the change to occur. An introductory course in long-term care design was developed and delivered in a three week period over the summer. The course carried three themes to immerse students: (1) Ageism and Sensitivity (3) Longterm Care Facts & Figures (3) Longterm Care Design. The course included: surveying students to identify stereotypes they have projected upon elderly counterparts, a “Life Interview” of an older adult *(65 and over)* living in a longterm care facility; tours of long-term care facilities; group sensibility training through role play as an elderly adult with physical impairments and care giver roles assigned followed by reflection, and guests speakers on the American with Disabilities Act: Design Guidelines for Older Adults.

This presentation will introduce a curricular process whereby ageism can be addressed and reduced with transference and immersion processes and better prepare students for industry work in the long-term field. Initially, over 75% were not interested in long-term care design. At the conclusion of the course, 100% of the students had developed a greater appreciation for older adults and considered working in the long-term care segment of the design industry.

NARRATIVE

Introduction

During a three-week, maymester term in 2008, sixteen interior design students from junior and senior levels were immersed into a newly developed special topics course on long-term care design. This course was presented to increase students' awareness of spatial design needs and sensitivity to the physical differences that occur as a result of the aging process.

Methodology

The three-week course met Monday through Thursday and was formed around three concepts: (1) Ageism and Sensitivity (3) Longterm Care Facts & Figures (3) and longterm care design. This three-stage immersion process presented an opportunity for a gradual progression from awareness, understanding, and application. Due to the short term, all projects were completed in randomly selected groups.

Week 1

The first day of the course involved an assessment of student perceptions of older adults and knowledge of the aging process. First, a brief longterm care survey presented each student with five questions (1) Do you have a family member/friend residing in a long-term care facility? (2) Have you visited a longterm care facility? (3) What is your perception of housing for frail elderly? (4) What types of long-term care facilities are you aware? and lastly (5) Are you interested in pursuing professional work in the healthcare or long-term care industries? The last question was of particular

interest in determining the initial level of interest in designing for special populations; 6.25% were interested in this specialty area, 31.25% did not want to practice in long-term care design, and 62.5% were undecided.

Next, students were asked to answer the question: *"When I think of older adults, I think of?"* This question generated an extensive list of both positive and negative perceptions. The most common perceptions (Table 1) are listed in no particular order and represent those concepts of older adults appearing at least two or more times within student responses.

Positive Perceptions of older adults	**Negative Perceptions of older adults**
• Wise, wisdom, experience, knowledge • Veterans • Good stories • Funny	• Slow • Stubborn • Poor hearing • Grumpy, mean • Lonely, sad • Fragile • Forgetful • Wrinkles • Walkers, wheelchairs • Bad drivers • Needy, dependent • Outdated, out of touch

Table 1 - Positive and Negative Perceptions of older adults among college design students

Following completion of this list the class was led into discussion and presentation of common misconceptions of older adults and how these misconceptions are formed within our culture. These include: "lack of contact with older persons" (The International Longevity Center, 2006, p. 31), media portrayal of older adults in commercials and roles played in television sitcoms, fear of aging and assumptions made of the aging process, and stereotypes passed along by parents and friends.

At the conclusion of discussion on ageism students engaged in “sensitivity training” by taking on particular physical disabilities through simulation including vision loss, hearing loss, loss of mobility, and loss of dexterity using methods outlined by the Texas Cooperative Extension (2008) and Kansas State University Center on Aging (2006). Figure 1 illustrates students’ participation in various aging simulations.

Figure 1- Students simulating loss of vision (glaucoma), loss of dexterity (arthritis), and loss of mobility (restricted range of motion).

At the end of the simulation, students prepared PowerPoint presentations with video demonstrating each activity and the complications that arose from the disability. Responses from student to the experiment included:

How did it interfere with your abilities and activities?

- “Difficult to see the bottom of things and to either side, It was hard to walk, climb stairs, and bend over. “

What was the most bothersome?

- “Walking down the stairs, Having to shuffle my feet to walk and not being able to bend over. Also taking a long time to climb the stairs.”

How did it interfere with your daily abilities and activities?

- “Could not do normal activities like opening doors.”

What was the most bothersome about your disability?

- “Opening the door in the bathroom. Not having the freedom to see fully. Not having the freedom to do normal activities. Time consuming.”

What steps did you have to take to overcome the difficulties?

- “Had to depend on others and use other parts of the body. Had to use my other senses to find my way.”

What are three things you could do out of consideration to someone with the disorder to show them that you empathize with the daily problems the encounter?

- “Changing door handles, lighter doors and bigger switches. Help older adults up the stairs, help older adults walking when there is no hand rail, Pick up things off the floor for them. Hold on to railings and change position of head to be able to see things. Using the hand rail to walk up the stairs, changing the way I walked, and finding alternative ways to perform activities such as picking up objects.”

Week 2

Next, students were required to visit a minimum of two local long-term care facilities for a tour of the building operation and design. The site visits served as case studies in

preparation for the design of resident apartment during week 3. In addition to the tour, a “life interview” of a resident within the facility toured allowed students to make formal connections with their elder counterparts (Figure 2). The life interview provided students with direct feedback and dialog on the physical environment and the ability of the space to provide supportive needs for the resident. Students developed twenty questions ranging from personal experiences of aging, perception of facility design and homelike features, amenities, sense of safety and security, and supportive features to provide maximum independence and autonomy.

Figure 2 – Interview with Ledora Loveless, Waterford Independent Living Resident and Bill Steven, Carriage House Assisted Living.

The second week was concluded with a visit form Kristi J. Thomas, founder of Accessology Inc. in Flower Mound, Texas. Accessology Inc., services include architectural plan reviews and final inspections in Texas on behalf of the Texas Department of Licensing and Regulation (TDLR) which provides construction documents review for compliance with Texas Accessibility Standards (TAS) and a

comprehensive report for the architect designing the project and a final on-site inspection (www.accessology.com). Ms. Thomas spoke directly to the codes and standards that affect the designed spaces for older adults.

Week 3

The final week presented students the opportunity to apply acquired knowledge into the design of a long-term care resident apartment. In lieu of the traditional board presentation; students were to create a promotional and marketing package which could be marketed as tool by long-term care facilities to potential residents and families visiting the facility. This package included:

1. Design of a presentation document/folio for marketing the facility to potential residents and family members.
2. Facility name, graphic logo, fonts, and color key for marketing package.
3. Design of a one-bedroom deluxe unit (500-700 sq. ft.) to include separate living and sleeping areas, tea kitchen, ADA bathroom (sink, toilet, roll-in shower, linen storage). These are minimums. Use the information presented in this course to develop a customized unit. This document is to be annotated to describe all design concepts that are planned for the space, but may not be visible in a plan drawing.
4. Select one of the two building shells for your unit or you may develop a shell of your own. Two sides of the unit must be attached to adjacent units.
5. Furniture plan (living room, bedroom, and eating area, minimum)

6. Annotated design features list for the unit. Categories to be determined by team, and developed based on lecture materials. This is a selling point to potential client.
7. One detail (recessed threshold, curb-less shower, ADA sink cabinet, etc.)
8. One elevation (group choice)
9. Selection of finishes for public living space to include: sofa fabric, chair 1 fabric, chair 2 fabric, accent fabric, drapery fabric, wall paint, accent paint, trim paint. Purpose to provide the style and mood established with color, pattern, and texture.
10. Separate bound process document illustrating the development of your design.

Figure 3 illustrates an example of a groups design package

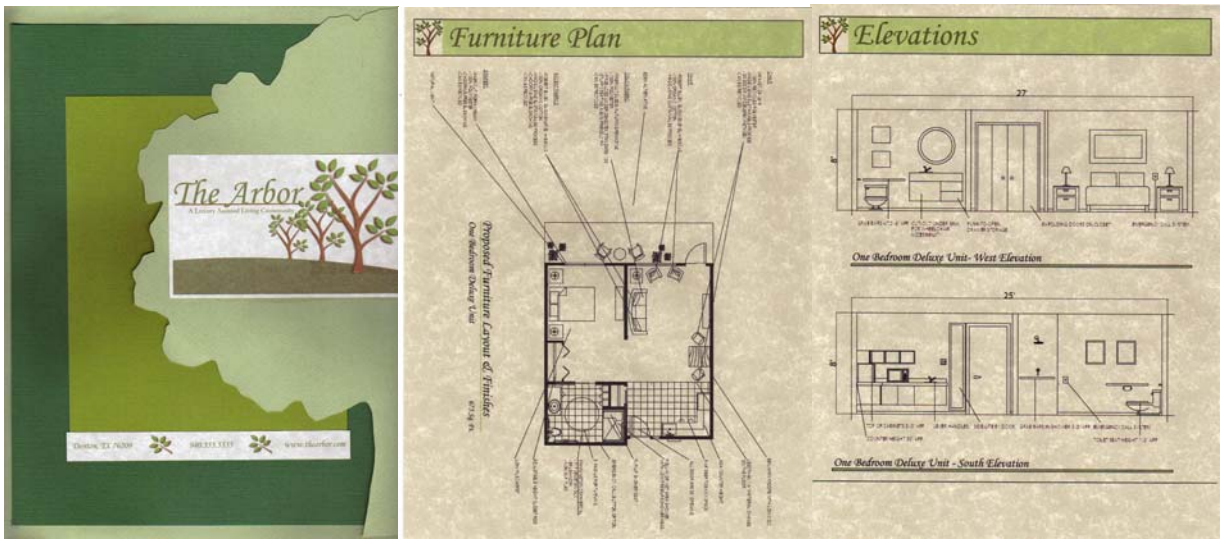

Figure 3 – Example of marketing package, graphics, annotated floorplan and interior elevations

Conclusion

The final day of the course each student was asked to reflect on their previous perceptions of ageism and whether their current perceptions have been changed as a result of “Life Interview”, facility tours, and group sensibility training through role play as

both an elderly adult with physical impairments and a care giver. Negative perceptions were greatly reduced and a deeper appreciation and sympathy for older adults and aging were gained. At the close of the class, students were queried if they would now consider long-term care design as a potential area of practice upon graduation. The previous 31.25% who did not wish to pursue this field had either changed their previous reservations to yes or to maybe. The course involving multiple immersion projects resulted in a greater awareness and appreciation for the aging process, older adults, and requirements for designing supportive spaces in long-term care design.

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Reaching Today's Student Population: Design Professionals Speak to Students Through Web-based Videos

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ABSTRACT

The purpose of this project is to implement effective tools for communicating information about the profession of Interior Design to the current generation of students. Marc Prensky, designer of video-based games for learning, coined the terms "digital natives" to describe the millennial generation raised on technology verses "digital immigrants" who learned technology later in life (Prensky, 2001). Prensky reported digital native students frequently indicated that their education was not worth paying attention to as a result of non-engaging lectures. The digital immigrant instructor who continues to teach using a pre-digital, outdated language must apply new ways of communicating with a student population that speaks in an entirely new tongue.

With Prensky's findings in mind, the author searched for a medium that would attract today's student population. Video was considered a viable option as the Millennials thrive on information-sharing websites such as YouTube where viewers watch up to 100 million videos a day online (USA Today, 2006). The opportunity to connect the student to design professionals through video vs. a traditional written format is an appealing option to contemplate. The author first considered the possibility that free web-based videos may already exist. Searches for "Interior Design" videos on YouTube and other information-sharing websites boast thousands of options! Video titles range from "Jay

and Matt Look to Redecorate Their Bachelor Pad" to "Victorian Décor Can Be Confusing".

With the discovery that on-line videos featuring professional Interior Designers were scarce, the author set out to film current practicing designers. The first phase of the project was completed in the summer of 2008 with the filming of over fifty designers in six cities around the United States. Interior designer professionals practicing in areas of specialization such as corporate, healthcare, hospitality, residential, etc. were asked first hand about their experiences.

Because classroom discussions about working in the interior design industry are often abstract to young students who have never worked in an office environment, the first set of videos focus on topics such as *Areas of Specialization, Daily Work Life, Studio Structure* and *The Design Process*. The third phase of the project will be unveiled in the spring of 2009 with a website to house the videos. Current interior design students, prospective interior design students and interior design educators will be able to access the videos via the website. By March of 2009 video samples will be presented along with initial feedback from students and educators.

The structure of the project is such that videos and other media could be added indefinitely. The long-term goal of this venture is to create a rich educational resource for interior design educators as a way to inform prospective and current students about the profession.

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Reaching Today's Student Population:
Design Professionals Speak to Students Through Web-based Videos

Amy Roehl, MFA

Texas Christian University

NARRATIVE

The purpose of this project is to implement effective tools for communicating information about the profession of Interior Design to the current generation of students. Marc Prensky, designer of video-based games for learning, coined the terms "digital natives" to describe the millennial generation raised on technology verses "digital immigrants" who learned technology later in life (Prensky, 2001). Prensky reported digital native students frequently indicated that their education was not worth paying attention to as a result of non-engaging lectures. The digital immigrant instructor who continues to teach using a pre-digital, outdated language must apply new ways of communicating with a student population that speaks in an entirely new tongue.

With Prensky's findings in mind, the author searched for a medium that would attract today's student population. Video was considered a viable option as the Millennials, also known as the "Net" generation (Fleischner, 2008), thrive on information-sharing websites such as YouTube where viewers watch up to 100 million videos a day online (USA Today, 2006). The opportunity to connect students to design professionals through video verses a traditional written format was an appealing option to contemplate.

Prior to embarking on a video-based project, a pilot study was conducted. In a blind survey, 104 Interior Design students from 7 Universities were asked “If you could not have direct contact with a design professional (in person or on the phone), what would be your choice of media to learn about design?” Options for response included: reading an article in a design magazine, reading an article online, reading a textbook, watching a video interview with a designer or viewing a powerpoint lecture.

Of students surveyed, 61% wrote that their first or second choice would be to “watch a video interview with a designer.” Of that 61%, 44% indicated that watching a video was their first choice and 17% replied that it was their second choice. Of respondents who indicated that to watch a video was their first preference, 91% were of Millennial age, born between 1977-1998 (Fleischner, 2008).

Moving forward with the idea of using video, the author then searched for existing web-based videos about the profession of Interior Design. Searches for “Interior Design” on YouTube and other information sharing websites yielded results ranging in description from “Jay and Matt Look to Redecorate Their Bachelor Pad” to “Victorian Décor Can Be Confusing” (YouTube, 2008). Websites like Design2Share.com offer interior design oriented videos through TidalTV.com, but tend to focus only on the decorative. Typical video titles include “How do I Choose Colors that I Won’t Get Tired Of?” and “What Value Does a Fireplace Add to a Home?” (Design2Share. 2009). With the discovery that on-line videos featuring professional Interior Designers were scarce (or perhaps just very difficult to find), the author set out to film current practicing designers.

The first round of videos focus on topics such as *Areas of Specialization* (CIDA, 2009)*, Daily Work Life, Studio Structure* and *The Design Process* (CIDA, 2009). The first phase of the project was completed in the summer of 2008 with the filming of over 50 designers in 6 cities around the United States. Interior design professionals practicing in areas of specialization such as corporate, healthcare, hospitality, residential and exhibit design were asked firsthand about their experiences.

As of March 2009, the initial series of videos has been viewed by over 100 interior design students at Texas Christian University. Videos were tested during the fall 2008 and spring 2009 semesters. Freshmen through senior level students viewed the videos as part of the Introduction to Interior Design, Career Development and core studio classes.

Feedback was collected anonymously from students after viewing the videos. Student reaction to the use of the videos has been consistently positive and the selected quotes are indicative in content and spirit of the vast majority of the responses. The below student comments highlight the appeal of the combination of sound and visuals that a video provides:

- “Hearing information directly from the source really lets you understand true meaning through tonal inflection and non-verbal signals (such as) facial expressions.”
- “(The videos) make the comments feel more honest. Books and articles are written after the fact, but a video interview is harder to use (the designers’) words in another way.”
- “(The videos) give a more personal feel and connection to learning.”

- “I loved how personable (the designer) was. I really felt like he was sitting right in front of me.”
- “(The videos) are more believable than if (the information) was simply in a textbook. I put more trust in the information from a successful professional.”
- “Candid interviews provide first-hand information, a perspective that can get lost in books.”
- “With (the addition of) more videos and resources, students will find more than enough to get an idea of what they need to prepare for a career in (interior design).”

The consistency of positive responses points to a desire from the student for a media that provides a more immediate experience. In that spirit, as the project moves forward, it will strive to further connect the student in the process. An upcoming set of videos will be based on questions generated by students. Students submitted ideas about what they would like to hear about from design professionals. To provide a range of responses, the questions will be answered by designers in a variety of roles who are at different points in their career. With video becoming a common media used for both teaching and learning due to the accessibility and affordability of technology (Hernandez-Ramos, 2007) the next level of engagement may involve students creating videos themselves.

The overall structure of the project is such that videos and other media could be added indefinitely to a website that has been designed to house and distribute the

videos. The long-term goal of this venture is to create a rich educational resource for interior design educators as a way to inform prospective and current students about the profession.

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Concept formation through sketching and writing for novice designers: a demonstration of the stages for student application

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Abstract

Development of ideas in the early stage of the design process is critical to the final success of a design idea. Designers must be adept at both visual and verbal reasoning in order to convey a creative concept for a design, but must first learn approaches to idea development. This teaching method enables novice designers to experience how visual and verbal thinking skills are used simultaneously in concept generation.

Sketching is an activity used by designers in the early stages of concept development (Menezes & Lawson, 2006) and is essential in the full realization of an idea (Bilda, Gero & Purcell, 2006). Verstijnen, Hennessey, Leeuwen, Hamel, and Goldschmidt (1998) found that students who were allowed to sketch during an exercise performed significantly better on development of novel approaches than counterparts who were not allowed to sketch in the same circumstances. Learning how to sketch develops student skill in moving through iterations of conceptual ideas (Bilda, Gero & Purcell, 2006). The repeated explorations of ideas through sketching undertaken in design courses are the basis for development of this expertise. Concept development is

a distinct early phase of exploration in the design disciplines and has been identified as the occasion for generation of multiple and varied ideas (Bilda, Gero & Purcell, 2006). Sketches are considered to be the primary method for recording these early conceptual ideas (Goldschmidt & Weil, 1998; Menezes & Lawson, 2006). Early in this stage sketches are notable because of their abstract and often ambiguous nature that encourages a dialogue between the designer and the sketch. This dialogue is described as evidence of the process of reasoning out an idea, or a series of ideas (Goldschmidt & Weil, 1998).

In this method the framework of the elements and principles of design are used to focus student sketch and writing development. The elements and principles of design are valued as introductory concepts in design (CIDA, 2009) and students are generally introduced to them in lecture courses. Application of knowledge leads to understanding, and this teaching method compels students to apply their base knowledge of the elements and principles of design to develop a series of concept development sketches, and annotate them with the language of design. Students begin with an analysis of an inspirational object or phrase and complete a series of sketch and writing tasks (Figure 1). This process enables students to develop the skills necessary to generate and develop a concept idea using two- and three-dimensional sketching and writing.

Developing the ability to transform an inspirational piece into an abstraction and then into a valid design idea is a developmental necessity for students, and this method offers an approach for building abstract thinking skills that segue into spatial design ideas. These tasks, presented in stages, enable students to develop ways to evolve an idea from the perspective of the elements and principles of design, and develop

strategies for transforming two-dimensional abstract sketches to three-dimensional design ideas.

NARRATIVE

This method is based on the theory that application of knowledge leads to understanding, and that active learning and transfer of knowledge principles as described by Bransford et al. (2000) is a dynamic process that is effective when students build new understandings while actively applying previously acquired knowledge. In this heuristic approach novice design students reference their previously acquired knowledge of the elements and principles of design and apply that knowledge to this novel task of developing concept sketches.

In the studio setting, and depending on the project and parameters, each student begins the concept development phase by referencing a physical object. A written phrase or quote is also effective for concept generation, but a physical object is more effective at this early stage of skill development. The physical object is selected based on project requirements, and may include a “found” object, or an object selected for a specific purpose or because it relates in some way to the project premise. Objects should be less than 12” x12” x12” in size to keep them manageable in the studio setting.

At this stage the student directly refers to the object and begins the process of identifying all observed characteristics of the object. Initially students realistically sketch the physical attributes, observe all sides of the object, and record those observations using sketch and annotation (keywords or phrases that express the object). The annotations serve to put into words the visual observation of the nature of the object. The sketch process is adapted from Wallschlaeger and Busic-Snyder’s (1992) “object

analysis” method of visual recording. This approach focuses the student’s attention on the detail and structure of the object in order to develop an understanding of the essential nature of the object. Once the realistic observation, dissection and annotations are complete the student begins the process of re-interpreting the object by using the elements and principles of design. This process requires the student to refer to their prior knowledge of the elements and principles of design, and begin to apply that understanding to interpretation of the object.

Sketches are done on sheets of tracing paper (17” trimmed from a roll) to enable easy review of the work. Sketches should be relatively small (2”x2”), to force capturing an idea in a compact unit, and to reduce time spent on each sketch. At this stage the goal is to quickly sketch multiple transformations of the object informed by the elements and principles of design. Details are not as critical as a visible expression of the object in relation to the elements and principles of design. Annotations are also critical to provide verbal and visual opportunities to express ideas. Students who are less experienced in sketching have an opportunity to express their ideas in the more familiar format of written and verbal expression.

Following the realistic sketches, initial reinterpretations are sketched as expressions of the essential geometry of the object. This action breaks down the abstraction process into coherent steps: students begin with portraying realism, next define the essential geometry and then begin to create abstracted imagery. Wallschlaeger and Busic-Snyder (2000) suggest subtracting information from the realistic sketches as a step towards abstraction. These subtractions can become the genesis of a new sketch, and what remains can evolve in another direction. Focusing on

a macro view of a portion of an initial sketch, or enlarging the features also provides a path for sketching. Throughout this process the instructor provides feedback by reviewing the sketches, suggesting change of drawing media if drawings become too similar in appearance, and/or providing direction in following a particular thread that appears in multiple sketches.

At predetermined junctures in the sketching process students meet in small groups to present their ideas to each other, verbally identify their successes and frustrations, and share their interpretations with their peers. The process of self-evaluation and peer feedback indentifies directions for each student to pursue to formulate successful sketches. Each student verbally presents their ideas, detailing the elements and principles of design that were addressed in the sketches. As each student presents their sketches, another student records their verbal statements. This record, in conjunction with annotations written on the sketches, provide the basis for a written concept statement. The process of annotating sketches and presenting informally using the language of the elements and principles of design provides the opportunity to engage both verbal and visual reasoning skills. Recording verbal observations reinforces the visual observations by establishing a connection between the two forms of expression. Experiential or active learning is effective in this area of skill development as students become aware of their own successes and tendencies in visual and verbal reasoning.

Periodically the studio holds a “gallery” where the object, realistic object analysis and 2”x2” concept sketches are informally displayed and students review the work as a whole. Informal discussions occur at this point, and students are encouraged to observe

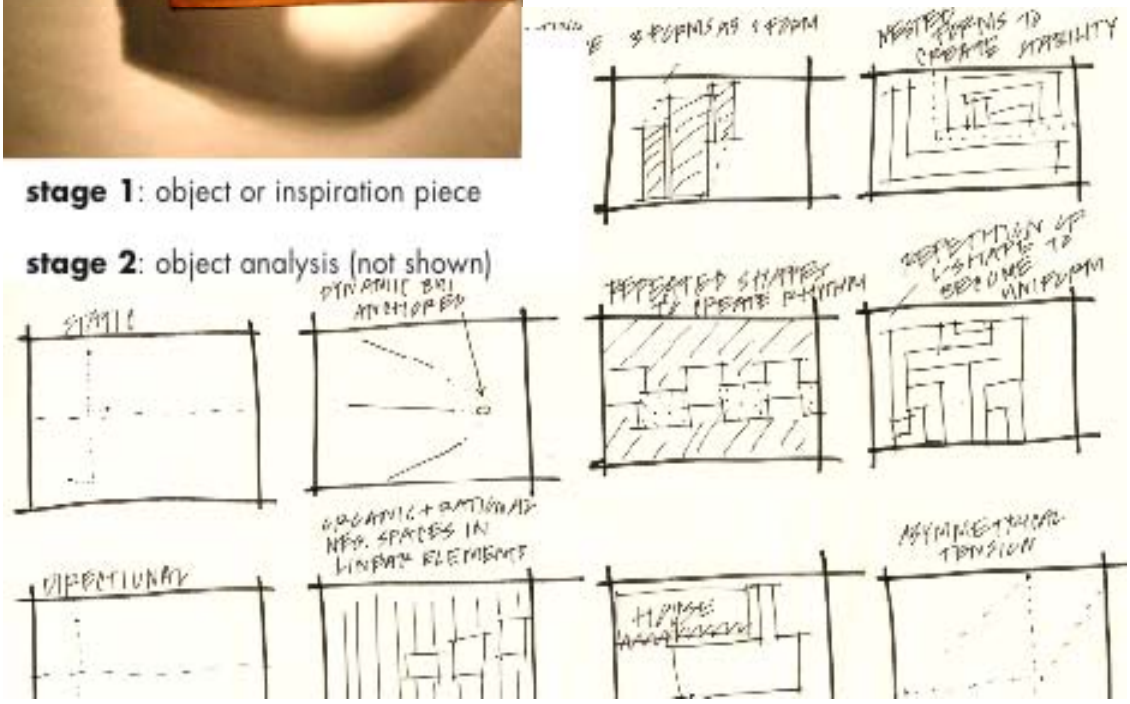
successful sketching or media techniques, and adapt those techniques to their own concept sketching. Sharing of critique and technique is promoted in these early stages of novice designer skill development.

Students continue to develop thumbnail concept sketches and generally exceed 50 concept sketches. These sketches are then reviewed in small group critiques with relation to how effectively they express the essential nature of the object in relation to the elements and principles of design. Each student selects their most successful sketches, based on the criteria of the elements and principles of design, and continues to revise, adapt and transform these drawings to meet the criteria of an effective concept sketch.

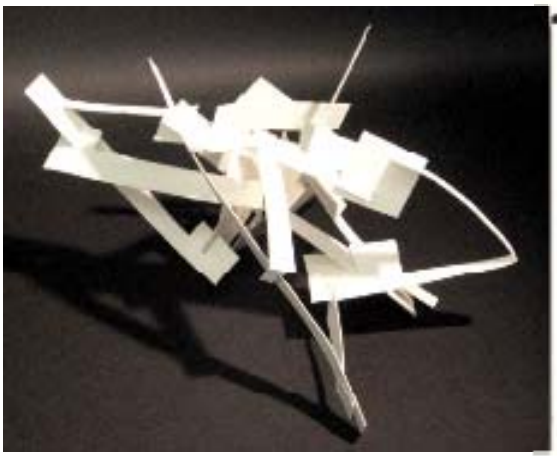
The annotations and verbal presentation form the basis of a written concept statement. It is valuable for the visual and verbal aspects to be developed simultaneously. The more familiar verbal reasoning begins to inform the visual reasoning and novice designers begin to develop both of these essential skills.

stage 1: object or inspiration piece

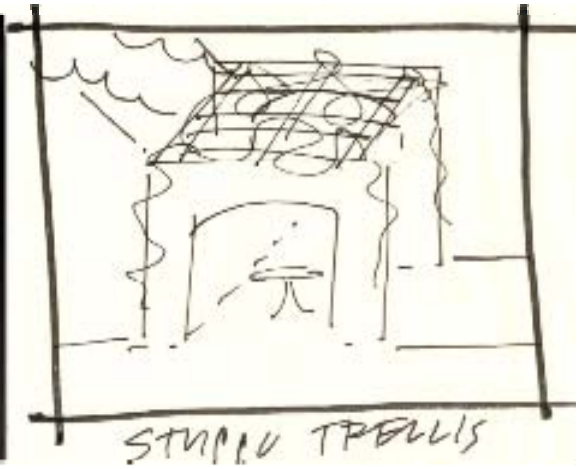
stage 2: object analysis (not shown)



stage 3: series of sketches showing the sketch and written analysis of inspiration using language of the elements & principles of design



stage 4: transformation to three dimensional abstract form



stage 5: transformation to sketch of three dimensional space

Figure 1: Student work showing the stages of concept generation sketching and writing.

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Cultivating Creative Skills: Comparing Teaching Strategies and Design Products for Third Semester Studio Projects

Haroon Sattar and Marie Gentry

University of Arkansas

ABSTRACT

Cultivating creative problem-solving skills in the studio-learning environment is integral to the development of effective design solutions. CIDA emphasizes this skill set, as underscored in the 2007Standard 3: *Entry-level designers need to apply all aspects of the design process to creative problem solving.* In our increasingly complex and global society, these skills have become a commodity valued by employers across disciplines (Lawrence & Heeley, 2007; Shalley, C.E., Zhou, J., & Oldham, G., 2004). This presentation will elaborate on strategies used in a third semester studio to enhance creative problem-solving and to integrate global/cultural dimensions for an effective balance of knowledge, skills, and values necessary for academic and professional success.

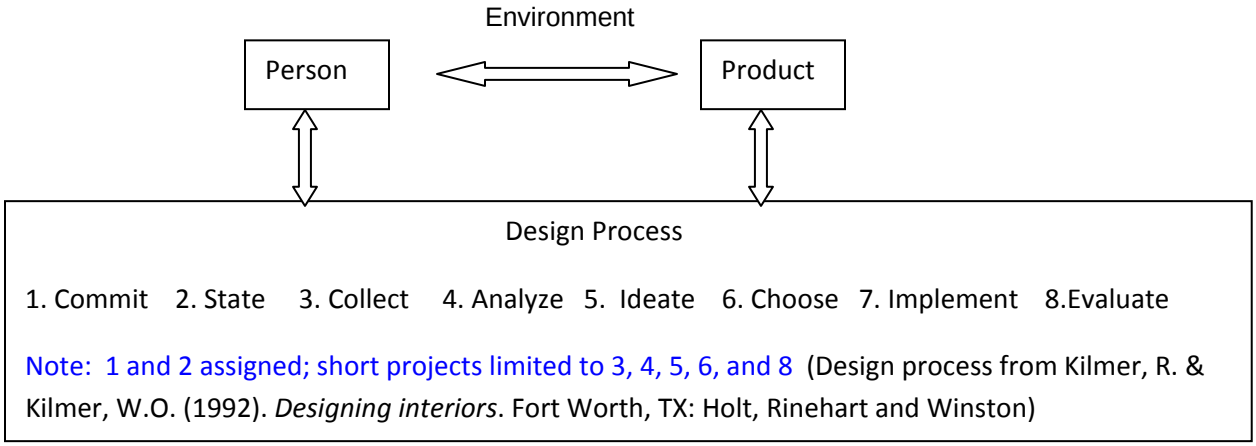
Context

The rapidly-evolving global market is characterized by complex ecological, socio-economic, and cultural issues. Although students are technologically literate, many lack the critical thinking skills necessary to address complex problems. To prepare students to function effectively in the marketplace, the faculty has incorporated a variety of methods across the studio sequence. “The combination of creative skills and technical abilities will enable the student to be ready to “hit-the-ground-running” and produce in

industry when they graduate" (Dekker, 1995, p. 3a5.18). Additionally, a cultural context is used as a foundation for the design process in the third semester (Studio 3).

Method

A principal objective of Studio 3 is to apply creative and critical thinking skills to all phases of the design process. A framework by Hasirci & Demirki (2007) will be used to guide the discussion regarding the design process for short-term, team-based design projects with a cultural/global component. Collaborative projects are used to stimulate creative processes and cooperative learning (Lawrence & Heeley, 2007).



The presentation will examine the evolution of teaching strategies and products of the design process in a third semester design studio over the past three years. Recognizing the need to address learning styles of millennial students, faculty has incorporated a variety of techniques, including problem-based learning, sketching, on-line editable websites, written justification for design decisions, and leadership and team building activities in an effort to "organize and manage our knowledge of the world: logical-scientific thinking, narrative thinking, and critical thinking" (Bruner, 1996, p.39).

To further foster critical thinking and evaluative learning, studio presentations/ critiques, written reflections, and self and team assessments follow each phase of the design process.

Summary

Facilitating creative and critical thinking and is not an easy task. For students and faculty alike, the topics are somewhat ambiguous. Likewise, the cultural/global dimension is sometimes difficult to articulate, requiring a learning curve for faculty to develop clear instructional materials and project expectations/guidelines. Also, students seem to find insightful application of cultural/global dimensions to the design solution/ product challenging. Nevertheless, most students appreciate the transparent stages of the design process, idea– and task-sharing, and opportunities to utilize different skills/knowledge to produce effective and innovative design solutions and to prepare for the realities of design practice in a global economy.

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Shalley, C., Zhou, J., & Oldham, G. R. (2004). The effects of personal and contextual characteristics on creativity. *Journal of Management*. *30*(6), 933-958.

NARRATIVE

Cultivating creative problem-solving skills in the studio-learning environment is integral to the development of effective design solutions. CIDA emphasizes this skill set, as underscored in the 2007 Standard 3: *Entry-level designers need to apply all aspects of the design process to creative problem solving.* In our increasingly complex and global society, these skills have become a commodity valued by employers across disciplines (Lawrence & Heeley, 2007; Shalley, C.E., Zhou, J., & Oldham, G., 2004). This presentation will elaborate on strategies used in a third semester studio to enhance creative problem-solving and to integrate global/cultural dimensions for an effective balance of knowledge, skills, and values necessary for academic and professional success.

Context

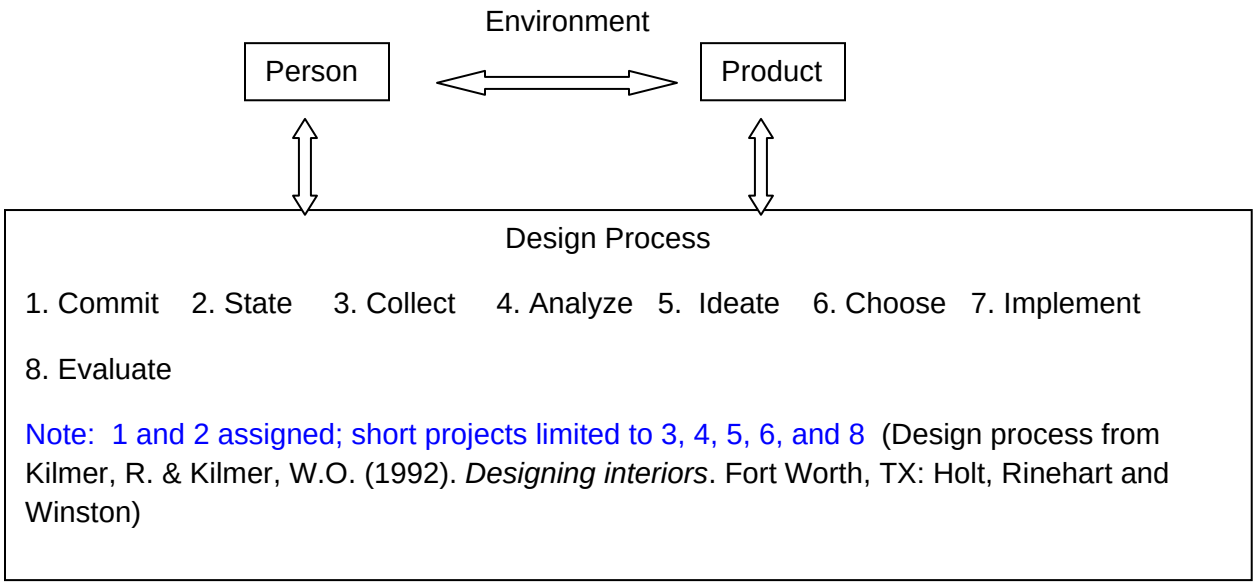
The rapidly-evolving global market is characterized by complex ecological, socio-economic, and cultural issues. Although students are technologically literate, many lack the critical thinking skills necessary to address complex problems. To prepare students to function effectively in the marketplace, the faculty has incorporated a variety of methods across the studio sequence. “The combination of creative skills and technical abilities will enable the student to be ready to “hit-the-ground-running” and produce in industry when they graduate” (Dekker, 1995, p. 3a5.18). Additionally, a cultural context is used as a foundation for the design process in the third semester (Studio 3).

During the past three years third semester students enrolled in Studio 3 have been assigned projects of differing natures, requirements, size, and complexity to

explore creative problem solving and to integrate global, cultural dimensions into the design solution. The intent of the studio is to ensure that students are exposed to and understand the comprehensive nature of the design process while developing creative solutions for the given problem.

Method

A principal objective of Studio 3 is to apply creative and critical thinking skills to all phases of the design process. A framework by Hasirci & Demirki (2007) will be used to guide the discussion regarding the design process for short-term, team-based design projects with a cultural/global component. Collaborative projects have been used since 2007 used to stimulate creative processes and cooperative learning (Lawrence & Heeley, 2007).



The presentation will examine the evolution of teaching strategies and products of the design process in a third semester design studio over the past three years. Recognizing the need to address learning styles of millennial students, faculty members

have incorporated a variety of techniques, including problem-based learning, sketching, on-line editable websites, written justification for design decisions, and leadership and team building activities in an effort to “organize and manage our knowledge of the world: logical-scientific thinking, narrative thinking, and critical thinking” (Bruner, 1996, p.39). To further foster critical thinking and evaluative learning, studio presentations and critiques, written reflections, and self and team assessments follow each phase of the design process.

The Studio Context

In 2006, the first project for Studio 3 was an Information Center for selected U.S. national parks in regions remote from Arkansas in an effort to expose students to a broader spectrum of American culture. The information center represented national parks, seashores, monuments, historical sites, or recreation areas and was part of a larger complex. Students were provided a building footprint to create a solution outlined in the problem statement developed by the faculty. In Phase One each student completed background research on a specified park. The research included topics such as its unique natural environment, its history/culture, the people it serves, or the story it tells. Information regarding sustainable design, exhibit design, and retail space was presented by the faculty and integrated into the design solutions. Each student completed research, concepts, preliminary designs, and final designs that were to reflect the unique nature of the region and the park.

The 2007 project was the design of a Tourist Information Center (TIC) in a foreign country. In the first part of Phase One, teams composed of four members completed preliminary research of at least four countries from a list of countries from

around the world. The teams selected two countries from the short list on which to carry out additional research on specified topics. For this project, each team designed a tourist information center that represented a specified country and its cultural characteristics. The center was located in the capital city of the country. A major intent of the design was to create a positive first impression of the country in which it was located. Also, the design team was directed to apply inclusive design and sustainable and vernacular design principles appropriate to the country. Students were provided with a building footprint and programmatic requirements. The project included both collaborative and individual design components.

In 2008 students designed a residence for a client of a different culture who had moved to the U.S. to accept a faculty position at an American university in St. Louis. Students' research included a wide range of topics in an effort to understand cultural characteristics of different regions of the world. Initially, teams were assigned a geographical region (seven to eight counties) and specific topics for the research phase. Students were asked to develop client and programmatic requirements (based on the research findings) that reflected American standards, yet was responsive, appropriate, and expressive of the culture of the native country.

Summary

Facilitating creative and critical thinking and is not an easy task. For students and faculty alike, the topics are somewhat ambiguous. Likewise, the cultural/global dimension is sometimes difficult to articulate, requiring a learning curve for faculty to develop clear instructional materials and project expectations/guidelines. Also, students seem to find insightful application of cultural/global dimensions to the design solution/

product challenging. Nevertheless, most students appreciate the transparent stages of the design process, idea– and task-sharing, and opportunities to utilize different skills/knowledge to produce effective and innovative design solutions and to prepare for the realities of design practice in a global economy.

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Inside the Prefab House:
The Evolution of the Prefabricated Interior

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ABSTRACT

Purpose

This article documents the evolution of the integration of prefabricated interior components into prefabricated houses through an analysis of three houses: the Lustron House, the Furniture House, and the Composite House. Though much attention has been given to the architecture of the prefabricated house, little has been devoted to the discussion of the prefabricated interior environment. Innovations in the prefabricated interior of the prefab home have ranged from individual elements to complete assemblages. Though the notion of prefabrication, and in particular the prefabricated dwelling, has enjoyed continued attention by architects and designers for reasons of efficiency and affordability of construction, current investigations have been coupled with a shift or return to sustainable technologies, designs, and environments.

Concept

There are many examples of innovative singular prefabricated elements within interior environments. This investigation addresses three typologies where the interior environment is truly integrated into the conceptualization of the prefabricated house and the significance of that integration. I have seen no literature to date focused upon this

integration. The investigated houses, the Lustron House, the Furniture House, and the Composite House, are uniquely representative of an interior architectonic that is integral to the design of the prefabricated structure as a whole. The Lustron House, a mass-produced prefab introduced by Carl Strundtland in 1946,[1] integrates a conceptual link between the house's structure, interior, and exterior as expressed through material and finish.[2] The construction of Furniture House, a present-day built house typology, re-conceptualizes the traditional hierarchy of building. In this design, the hierarchy is eliminated and "furniture and house are one."[3] The third house, Composite House, is a prototype un-built project that is truly a culmination of this investigation. The Composite House elements each contain elements of interior, furniture, structure, and exterior.[4] The traditional design hierarchies have been eliminated, and the resultant form exists as an equalization of all elements.

Importance of the Topic/ Relevance to Interior Design

A gap exists in literature focusing on the relevance of prefabricated elements in the interior environment. Upon close investigation, each of these houses secures a place of prominence for interior elements within the prefabricated home. All three houses exhibit a strong connection between interior and exterior and represent an evolution of integration of prefabricated interior components within the prefabricated house. All three houses consider the notion of the prefabricated assemblage as programmed interior elements and as place-making devices. The projects are uniquely interconnected in that the materiality of the exterior and the interiors are unified and the interior elements are elevated to programmatic necessity rather than decoration. Analysis of the houses

reveals the importance of the integration of interior and exterior elements of the prefabricated house and questions the traditional hierarchies existent in the design disciplines.

End Notes:

[1] Douglas Knerr, *Suburban Steel :The Magnificent Failure of the Lustron Corporation, 1945-1951* (Columbus: Ohio State University Press, 2004), 78-79.

[2] Thomas T. Fetters, *The Lustron Home: The History of a Postwar Prefabricated Housing Experiment* (Jefferson, N.C.; London: McFarland, 2002), 18-30.

[3] Riichi Miyake, "Shigeru Ban as an Empiricist," *The Japan Architect* 30 (Summer, 1998): 8.

[4] Jill Herbers, *Prefab Modern*, (New York: Harper Design International, 2004), 30-32.

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Inside the Prefab House:
The Evolution of the Prefabricated Interior

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NARRATIVE

Introduction

Though much attention has been given to the *architecture* of the prefabricated house, little has been devoted to the discussion of the prefabricated *interior environment*. Historically, prefabricated interior elements and constructions have been integral to the development of the prefabricated house. Innovations in the prefabricated interior of the prefab home have ranged from individual elements to complete assemblages. A relatively early prefab innovation, introduced in the Sears and Roebuck kit homes in the early part of the 20th century, was an interior lining that was essentially an early form of gypsum that reduced construction time of the house.[1] An early example of a complete prefabricated interior assemblage is Buckminster Fuller's Dymaxion bathroom of 1930. This bathroom has driven the technology of prefabrication and serves as a precursor to pod architecture and bathrooms that are still currently being designed and installed today. [2]

This investigation looks at three typologies where the interior environment is truly integrated into the conceptualization of the prefabricated house. The selected houses

are uniquely representative of an interior architectonic that is integral to the design of the prefabricated structure as a whole. The Lustron House integrates a conceptual link between the house's structure, interior, and exterior expressed through material and finish.[3] The Furniture House series elevates individual and commonplace interior elements to multifunctional elements of structure, interior, and exterior.[4] The Composite House conceptualizes assemblages as structural elements, which are at once interior and exterior. In all three typologies prefabrication was as critical to the interior as to the exterior.

Lustron House: A "Mass Production" Prefabricated Home

The interior elements of the Lustron House were developed as a system of prefabricated modular units that were not only place-making elements but also acted as programmed space, shelving, cabinetry, closets, and vanities.[5] Significantly, "Twenty percent of the wall space was devoted to such built-in cabinets, dressers, and closets, manufactured as complete units and plugged into the house at the building site."[6] This modularization of the prefabricated parts serves to bring the object – furniture -- to the level of programmed prefabricated space.

The interior panels of the Lustron House were manufactured of the same porcelain enameled steel panels that covered the exterior and roof establishing a clear visual connection between the interior and exterior. The materials were experienced in their true form, and unlike other prefab houses of this era, of which there were many, no attempt was made to disguise the metal utilized for interior wall and cabinet

construction.[7] Though the panelized interior elements did not serve as structural elements themselves, later un-built conceptualizations of the project utilized the untapped strength of the steel panels as structure.[8]

All elements of the Lustron House, exterior and interior, were designed specifically for the house; other elements could not be used for the Lustron house and elements of the Lustron house could not be used in other homes.[9] The Lustron factory had a machine whose sole purpose consisted of producing a bathtub at a fraction of the cost of the traditional tub. In order for the manufacturing to be cost effective, they would have to produce twice as many tubs as the Lustron houses needed, but the dimension did not fit the need of the typical tub.[10]

The design of the Lustron House was manifested in its expression of interior prefabricated elements. Though there was an exhibited visual connection between the design of the interior and the exterior, a true integration would have been in a structural connection between these prefabricated interior elements and the construction of the house. The separate framing and panel systems were highly redundant and did not make use of the structural capabilities of steel. The framing system was in fact determined to be unnecessary.[11] Though a 1950 redesign of the house included an integrated panel; The Lustron company folded in 1950, and these ideas never actualized beyond the drawing board.[12] The Lustron Company's philosophy was a sustainable one; a prime objective was to reduce material and waste through prefabrication and factory construction. Unfortunately, and likely partially responsible for

its demise, the distributed Lustron House was over structured and thus wasted material. Although the goal of true mass production was not achieved, the integration and significant place of the prefabricated interior components informed the evolution of the prefabricated interior.

Image 1 Lustron House: Kitchen china cabinet pass-thru, prefabricated porcelain enameled steel assemblage.

QuickTime™ and a
decompressor
are needed to see this picture.

Image 2 Lustron House: Two Bedroom House Plan

Furniture House: A Interiorized System for Custom House Prefabrication

The Furniture House relied on the prefabrication of “furniture”, typically considered as object, and as the basis of interior design. The house, designed by Shigeru Ban, reconsiders the function of furniture to be place-making and the structural basis of the house. Furniture House 1 was completed in 1995 and five houses of the typology have been completed to date.[13] Ban’s development of furniture as a means for structure formed a natural progression in his investigations into unique forms of structure. An earlier investigation premiered the repetition of recycled paper tubes.[14] Ban’s structural

interest in furniture was prompted by the tragedies of Japan's earthquakes where the cause of many deaths had been falling furniture.

In the design and construction of the first furniture house, Ban collaborated with a furniture manufacturer and the elements were completely manufactured and finished off site. In many instances furniture elements function simultaneously as interior, exterior, and structure.[15] Within the Furniture House typology there are several types of furniture modules that can be programmed into the houses in addition to simple walls.[16] On-site construction time, the amount of leftover materials that need to be transported away from the construction site, and the amount of labor to build the house are reduced. The offsite production allows the furniture elements to be better crafted, materials used more efficiently, and fewer man-hours required— all characteristics of sustainability.[17]

Furniture House 2 was designed as a prototype for a two-story house. The structural furniture on the first floor carries the load of the second floor, and second floor furniture elements carry the roof load.1[8] In the Bamboo Furniture House, ban replaces wood with a bamboo laminate frame and woven bamboo finishes.[19] The sustainability of utilizing a prefabricated technique with a local material (the Bamboo Furniture House is sited in China) is compounded by the fact that bamboo is also a rapidly renewable material. Common to all houses of the Furniture House series, the traditional hierarchies of design are re-conceptualized as "furniture and house are one."[20]

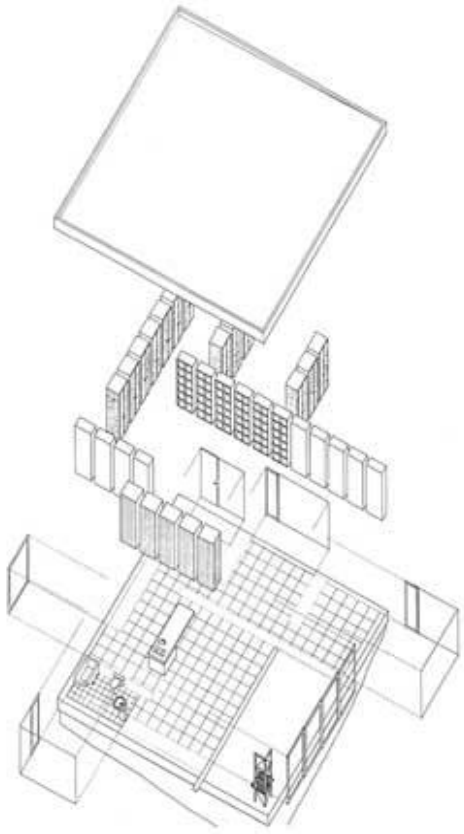

Image 3 Furniture House I: Exploded axonometric, view of structural furniture elements

Image 4 Bamboo Furniture House: Interior view of dining room with various bamboo structural and finish materials

Composite House: A Nonhierarchical Unit Based Building System

The Composite House, designed by SU11 Architects, comprises an inherently flexible prefabricated housing system, and is as much about considering the interior elements of house as the exterior. [21]The house is a prototype un-built concept that is truly a culmination of this investigation. Add-ons, the architects name for the prefabricated multi-programmed units, are “components designed in response to specific programmatic and atmospheric needs”[22] and include elements of the interior and exterior. The house celebrates elements that are integral to the interior of the house like stairs, cabinets, and storage spaces, and encourages the user to think about the livability of the interior of the home and select and arrange the units accordingly.[23]

The system has been reconceived several times, and, in addition, the architects have designed a second system called Composite Architecture, which combines furniture and architecture systems into inter-programmed space, for example, sofa and bed units, table and storage units, among other things. These elements are purely interior prefabricated assemblages and exist unconnected with the house exterior. The elements do not need to be used within a specific structure and could be plugged into existing space to create true interior prefabrication.[24]

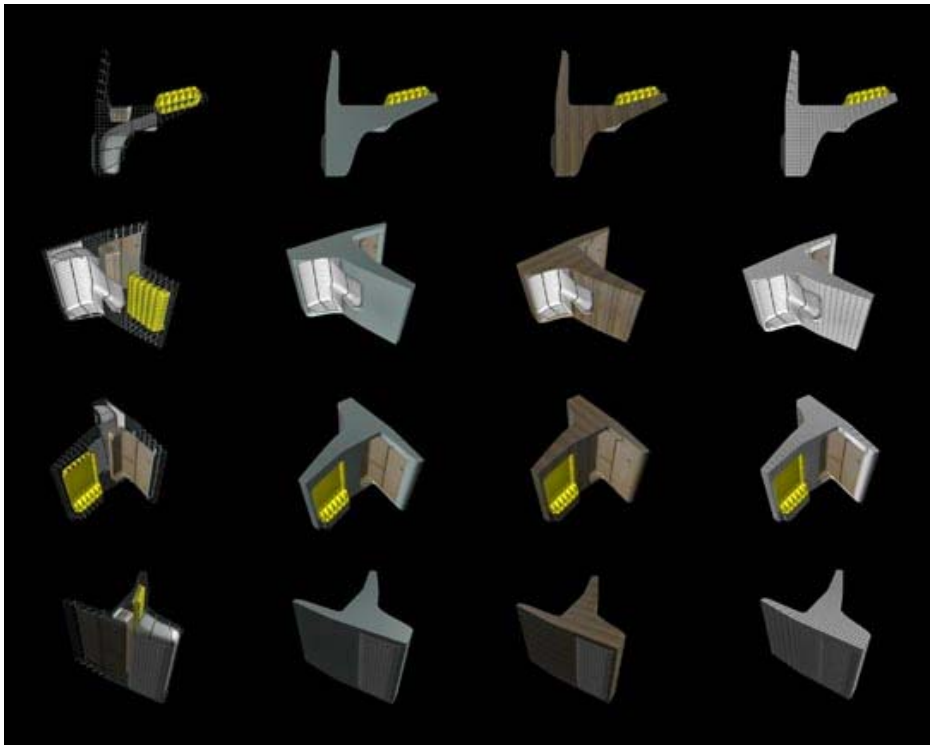

Image 5 Composite House Elements: Sample add-on units.

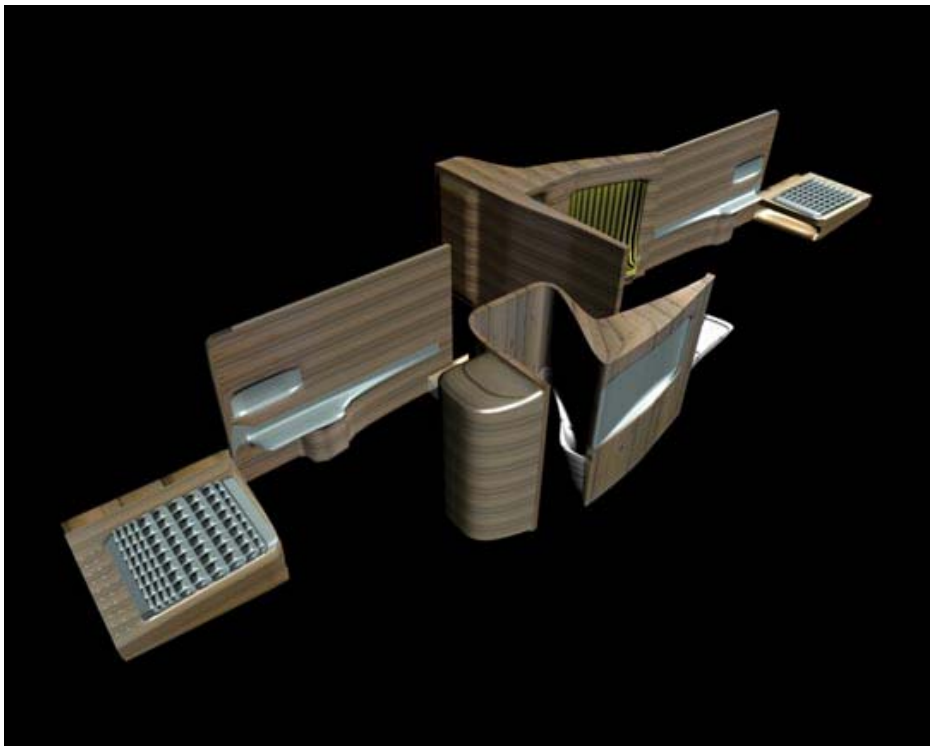

Image 6 Composite House Elements: Assembled configuration example.

Conclusion

Upon close investigation, each of these houses secures a place of prominence for interior elements within the prefabricated home. All three houses exhibit a strong connection between interior and exterior and represent an evolution toward integration of prefabricated interior components within the prefabricated house. The projects are uniquely interconnected as the materiality of the exterior and the interior are unified, and the interior elements are elevated to programmatic necessity rather than decoration. In the latter two projects, the Furniture Houses and Composite Houses, interior elements have a further architectonic role, as they are functionally the structure in addition to programmed interior space.

Though the Lustron House did not actually elevate the interior built-ins or assemblages to the status of structure, the connection between interior exterior and structure was implied through similar materiality and the place-making nature of the built-in units. The unrealized redesign of the structure did begin to explore the structural nature of the panels, which could be viewed as a precursor to a structural interior assemblage.[25] The Furniture House in particular questions the traditional hierarchy of design elements, elevating furniture to be the structural element without which the house would not exist.[26] The Composite House, a prototype concept, is truly a culmination of this investigation. The composite elements each contain elements of interior, furniture, structure, and exterior.[27] The traditional design hierarchies in all three prefabricated houses have been eliminated, and the resultant form exists as an equalization of interior and exterior elements.

End Notes

[1] Katherine H. Stevenson and H. Ward Jandl, *Houses by Mail :A Guide to Houses from Sears, Roebuck and Company* (Washington, D.C.: Preservation Press, 1986), 29-30.

[2] Colin Davies, *The Prefabricated Home* (London, UK: Reaktion Books, 2005), 25-27.

[3] Thomas T. Fetters, *The Lustron Home: The History of a Postwar Prefabricated Housing Experiment* (Jefferson, N.C.; London: McFarland, 2002), 18-30.

[4] Matilda McQuaid, *Shigeru Ban* (London: Phaidon, 2003), 167-168.

[5] Barry Bergdoll, Peter Christensen, Ron Broadhurst, and Museum of Modern Art. *Home Delivery: Fabricating the Modern Dwelling* (New York: Museum of Modern Art, 2008), 102-104.

[6] Tom Wolfe and Garfield Leonard, ""A New Standard for Living": The Lustron House, 1946-1950," *Perspectives in Vernacular Architecture* 3, (1989): 58.

[7] Fetters, 18-30.

[8] H. Ward Jandl, John A. Burns, and Michael Auer, *Yesterday's Houses of Tomorrow: Innovative American Homes 1850 to 1950*, (Washington, DC: Preservation Press, 1991), 197-198.

[9] Wolfe and Leonard, 9.

[10] Jandl, Burns, and Auer, 196.

[11] Koch and Lewis, 115-122.

[12] Jandl, Burns, and Auer, 198-199; Koch and Lewis, 122-125

[13] McQuaid, 168.

[14] Dana Buntrock, "Shigeru Ban: Ethical Experimenter," *Architecture* 85, (October, 1996): 104-109.

[15] Riichi Miyake, ,. "Shigeru Ban as an Empiricist". *The Japan Architect* 30 (Summer, 1998): 7-8.

[16] Shigeru Ban, "Shigeru Ban: House of Furniture, Yamanakako-Mura, Yamanashi," *GA Houses* 47 (1995): 56-59.

[17] McQuiad, 167-168.

[18] Yasuhiro Teramatsu, "Furniture House #2," *Japan Architect* 30 (1998): 54-55.

[19] McQuiad, 130-137.

[20] Miyake, 8.

[21] Andrew Blauvelt, *Strangely Familiar :Design and Everyday Life*, (Minneapolis: Walker Art Center, 2003), 228.

[22] Su 11 Architects, “Composite House,” su 11 (2008), 2. http://www.su11.com/projects/composite-house/.

[23] Jill Herbers, *Prefab Modern*, (New York: Harper Design International, 2004), 130-132.

[24] Herbers, 133.

[25] Koch and Lewis, 115-122

[26] Shigeru Ban, "Shigeru Ban: House of Furniture, Yamanakako-Mura, Yamanashi," *GA Houses* 47 (1995): 56-59.

[27] Herbers, 130-132.

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Image List

Image 1 Lustron House: Kitchen china cabinet pass-thru
www.wosu.org/archive/lustron/house.php

Image 2 Lustron House: Two Bedroom House Plan
www.wosu.org/archive/lustron/images.php?slides=house&img=5

Image 3 Furniture House I: Exploded axonometric
http://www.shigerubanarchitects.com/SBA_WORKS/SBA_HOUSES/SBA_HOUSES_14/SBA_Houses_14.html

Image 4 Bamboo Furniture House: Interior view
http://www.shigerubanarchitects.com/SBA_WORKS/SBA_HOUSES/SBA_HOUSES_27/SBA_Houses_27.html

Image 5 Composite House Elements: Sample add-on units
http://www.su11.com/projects/composite-house/

Image 6 Composite House Elements: Assembled configuration example
http://www.su11.com/projects/composite-house/

Prefab Bathroom: A Prefabricated Interior Construct Revolutionizes the Fabrication of the Built Environment

Deborah Schneiderman

Arizona State University

ABSTRACT

Propose

Much attention has been given to prefabricated architecture but little has been devoted to the discussion of the influence of the prefabricated interior on the built environment. This paper articulates the significance of the bathroom, as an interior construct, in the history of prefabrication and demonstrates its bearing as a significant instigator of prefabricated technologies throughout the built environment. This topic is of particular importance as prefabricated interior elements and environments, particularly bathrooms, are integral to the discussion of sustainable design technologies.

Concept

The design of the bathroom is typically considered well within the realm of Interior Design, and along with kitchen design, the economic basis of many Interior Design firms. The complexities involved in the design of this diminutive yet intricate room have prompted a specialization in bathroom design and led to accreditation of the bathroom designer through the National Kitchen and Bath Association, typically achieved by Interior Design practitioners.[1] Bathroom design

is conducive to specialization as its conceptualization requires knowledge of multiples codes and systems, and in turn its fabrication presents great complexities requiring multiple skilled construction trades to coordinate in one small area.[2] It is the cultural aspects of ritual and the sanitary necessities of hygiene that focus particular attention on the design of the bathroom in addition to already existing complexities. Such complexities in bathroom design have driven the exploration of alternate construction technologies, specifically prefabrication and off-site fabrication to transform the constructs of the built environment. The investigations into the prefabricated bathroom were first introduced in Buckminister Fuller's 1930 Dymaxion Bathroom and subsequently revisited by many architects and designers.[4] These explorations have revolutionized the investigation of prefabrication, and more recently sustainability, in the built environment not only on the bantam scale of the bathroom, but further extending to the pod or plug-in concepts on the scale of the building and the city – as demonstrated by Plug-In City, Peter Cook (1964); Nakagin Capsule Tower, Kisho Kurakawa (1972); Lloyd's Building, Richard Rogers, (1972-1981); and Cellophane House, Kieran Timberlake (2008).

Importance/ Relevance to Interior Design

The investigation into modern prefabrication has enjoyed much attention in the architecture community for over a century, but the literature documenting the significance of Interior Design and interior elements on prefabricated technology contains a notable gap. Given its complexity, the bathroom, a room traditionally

delegated to the Interior Design profession, is an ideal prototype for new building construction technologies. As such, the prefabricated bathroom -- an antecedent for revolutionizing the design and technologies of the built and sustainable environment -- is the typology best suited for engaging critical discussion of the prefabricated interior environment.

End Notes

[1] National Kitchen and Bath Association, *The Essential Bathroom Design Guide* (New York: Wiley, 1997).

[2] Giuseppe Biondo and Ezio Rognoni, "Prefab 6: Bathroom Units," *Domus* 563 (1976), 1-8.

[3] Alexander Kira, *The Bathroom: Criteria for Design*, Vol. 7 (Ithaca, N.Y.: Center for Housing and Environmental Studies, Cornell University, 1966), 116.

[4] Colin Davies, *The Prefabricated Home* (London, UK: Reaktion Books, 2005), 223.

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National Kitchen and Bath Association. *The Essential Bathroom Design Guide*. New York: Wiley, 1997.

Prefab Bathroom: A Prefabricated Interior Construct Revolutionizes the Fabrication of the Built Environment

Deborah Schneiderman

Arizona State University

NARRATIVE

Introduction

Though much investigation has centered on the topic of prefabricated Architecture, little has distinguished the significance of the prefabricated Interior. The complexities involved in the design of this diminutive yet intricate room have led to a specialization in bathroom design, and to specific accreditation of the bathroom designer, generally for Interior Design practitioners[1] -- in addition the bathroom has generated a recurring and appreciable interest among Modernist architects of note.[2] It is just this type of interest and complexity that has situated the bathroom as the ideal prototype for prefabrication technologies. As such, the prefabricated bathroom has been an antecedent for revolutionizing design and technologies throughout the built environment.

Prefabricated Bathroom: Architectural Precedent

The early part of the twentieth century witnessed an attempted revolution in the design of bathrooms through the advent of the prefabricated bathroom. Buckminster Fuller's prefabricated Dymaxion Bathroom of 1930 is frequently

credited as the first and most significant. The Dymaxion Bathroom has influenced the design, theory and technology of prefabrication across the considerably broad range of the built environment. The extent of its effect is inherent in its inception as Dymaxion itself is not limited to that of bathroom but incorporates investigations into architecture, automobile design, mathematics, and mapping.[3]

The Dymaxion Bathroom first appeared in Fuller's visionary 4d house (1927),[4] as a complete unit, including all fixtures and facilities. The American Radiator Company's Pierce Foundation manufactured the first prototype in 1930, though no one outside the firm was ever shown this prototype. Fuller later went on to work for the Phleps-Dodge Corporation, there further realizing his design of the Dymaxion Bathroom in 1937. This unit constitutes an early example of a complete interior prefabrication with provisions for ventilation, heating, lighting, and variations in site conditions for plumbing connections and stamped in sheet metal (modern moldable plastic, Fuller's preferred material was not broadly available).[5] Although there were several prototypes constructed, the Dymaxion Bathroom never did achieve mass production, although without its influence, the prefabricated future of not only the bathroom but architecture and the built environment may well have been significantly altered and delayed.[6]

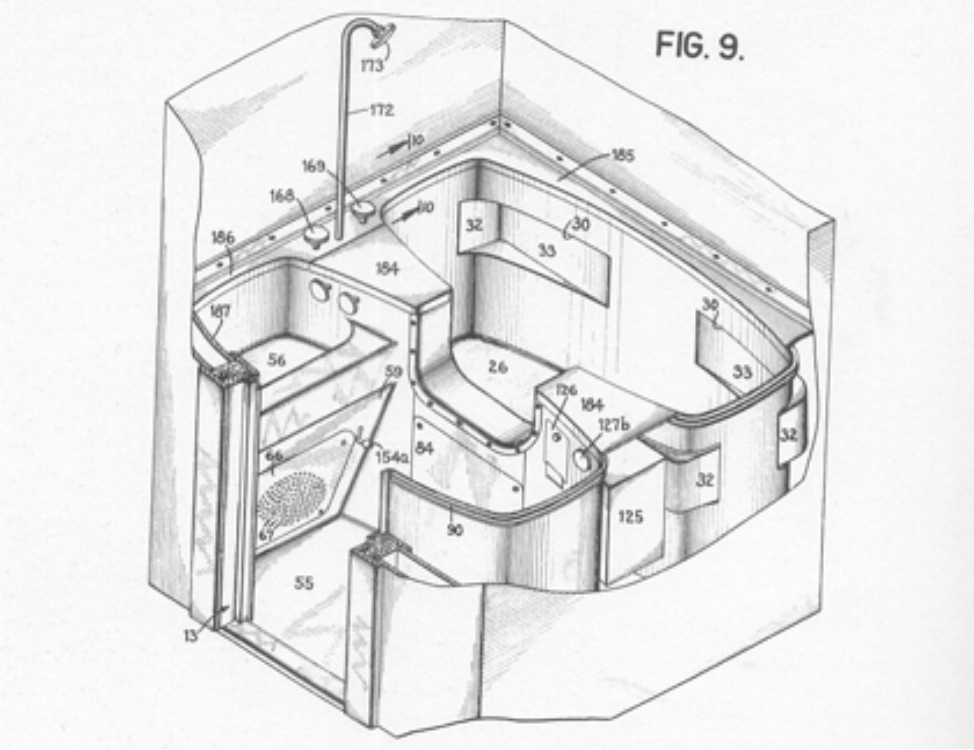

Image 1 Dymaxion Bathroom. Buckminster Fuller. 1930.

Pre-1950: Prefabricated Bathroom Investigations

The 1930's and 1940's demonstrated no shortage of investigations into the prefabrication of the bathroom. In the early 1920s, Le Corbusier had already investigated the idea of off-site assembly and prefabrication in his theoretical discussion of "object types." He advanced the notion of the house as a "machine for living" and based much of his formal architectural exploration on the typology of the automobile.[7] Le Corbusier's iteration of the prefabricated bathroom, the 'sanitary cabin', focused upon streamlining the necessities in a bathroom. The unit (built only once and likely for an exhibition) was designed with Pierre Jeanerret – Le Corbussier's cousin and collaborator, and Charlotte Perriand –

also Le Corbusier's collaborator, for Établissement Delafond, a French plumbing fixture manufacturer in 1936.[8]

Several prefabricated bathrooms were featured in **Architectural Forum**'s 1942 article the House of 194X, in which the bathroom was central to the design of the house. Notably, Maynard Lyndon's Packaged Bathroom is designed as one of several units that define a house, the other units being the kitchen unit, the laundry unit, and a heating plant. Ralph Rapson and David Runnells' Fabric House also demonstrates the core utility elements of the house: the kitchen, bathroom, and heating and electrical equipment are prefabricated in linear elements where the bathroom and kitchen occupy opposite sides of the unit, highlighting the importance of the interior elements of kitchen and bath.[9]

The early prefabricated bathrooms discussed thus far have been units designed for the assembly of a bathroom in its entirety, incorporating the room's enclosure. In 1947, **Architectural Forum** introduced a unique concept, an 'in-line' integrated unit designed by Bertrand Goldberg. The prefabricated unit fit through a conventional door and integrated all bathroom functionality into a fully prefabricated 'appliance' form. The prefabricated unit not only included all fixtures, toilet, bathtub, shower, and lavatory, it also incorporated storage and lighting.[10]

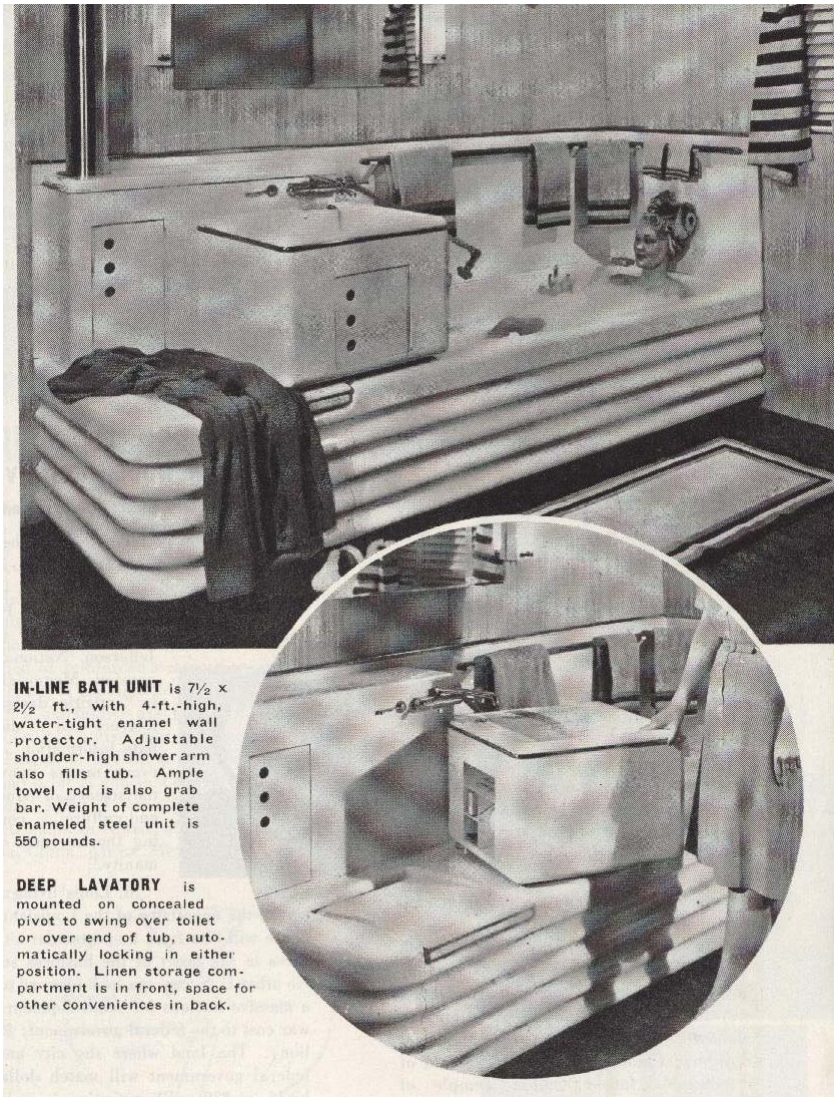

Image 2 In-Line Bathroom Unit. 1947

The 1960s: Materiality and Anthropometry

The introduction of moldable plastic, Fuller's preferred material, in the 1960s, prompted a resurgence of fascination and design solutions for prefabricated bathroom designs. With plastic, prefabricated units could embody complex curves and connections, incorporating new functionalities such as integrated soap dispensers in their unified design. A prominent form taken at this time,

inspired by the ability to mold plastic, was the one-piece linear form bathroom facility similar to the earlier in “In-Line” unit. [11]

In his seminal investigation of the bathroom, Kira proposed his own design investigations into the prefabricated bathroom -- not inspired by materiality but rather by function. What separates Kira’s investigation from those of his peers is his rigorous study of anthropometry. His prefabricated proposal, the “Experimental relaxing/washing facility”,[12] provides for the incorporation of “controls, support devises, storage shelves, ventilation, lighting, etc.”[13] To assure that all fixtures are properly located for the best functionality, he held that the elements should be fabricated in a controlled environment, hence making prefabrication a pragmatic choice to insure quality control.[14]

Beyond Interior: The Bathroom Pod Influences a New Form of Architecture

The kinetic nature of Fuller’s Dymaxion Bathroom pod has been credited for inspiring a cross-cultural architectural movement often referred to as plug-in or pod in architecture. Peter Cook, of Archigram, designed the Plug-In City. The 1964 project implemented the pod or plug-in concept as an entire city replete with interchangeable parts. The Archigram team found inspiration in the work of the Japanese ‘Metabolist’ architects and particularly the visionary plug-in mega-structure schemes of the architect Kenzo Tange. In their work, the Metabolists designed long-term fixed structures that housed interchangeable short-term components, plug-in’s, or pods.[15] Probably the most well known built Metabolist

structure and pod structure is Kisho Kurakawa's Nakagin Capsule Tower of 1972 -- which in turn likely found its influence in Cook's Plug-In City. The Capsule Tower premiers the plug-in pod as a dwelling unit within which the design of the compact interior rivals that of the architecture. As the pod outlives it usefulness, it can be replaced, eliminating the necessity to re-construct an entire building. This type of pod or plug-in received nearly simultaneous investigations in Israel in 1972 with Zvi Hecker's built Ramot Housing, in the United States with Paul Rudolph's Amalgamated Lithographers of America investigation of 1968, and Moshe Safdie's Habitat project of 1967 in Canada.[16]

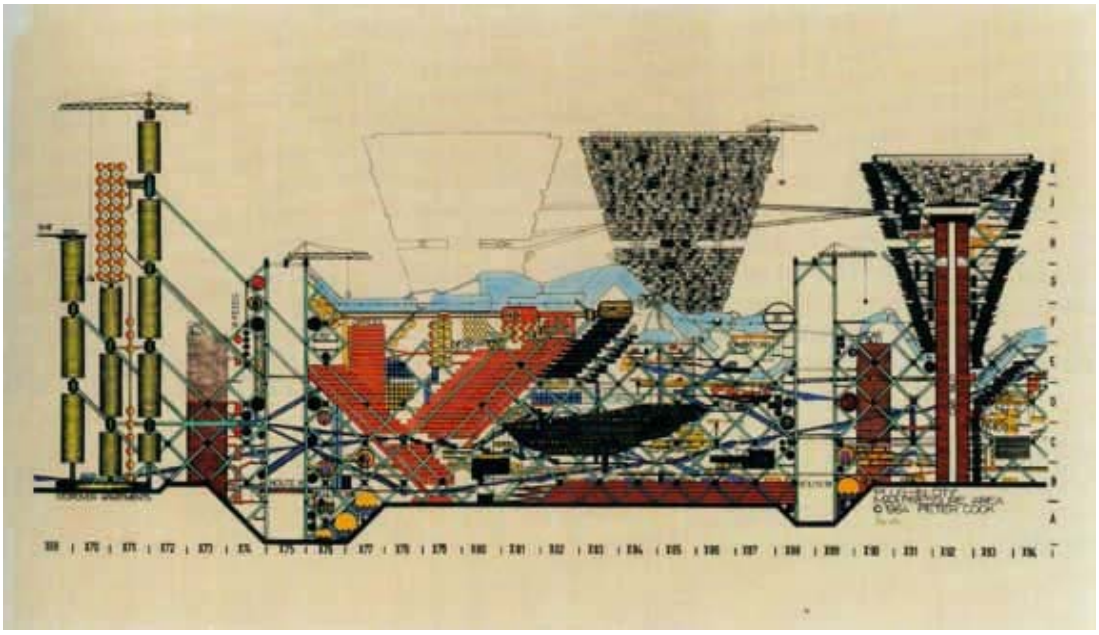

Image 3 Plug-In City. Peter Cook. 1964.

Image 4 Nakagin Capsule Tower. Kisho Kurakawa.1972.

Coming full circle, Plug-in Architecture is also evidenced as exteriorized prefabricated bathroom pods. Farrell Grimshaw's 1968 student hostel conversion was the first realization of a toilet pod structure. While an obvious derivation of Fuller's Dymaxion Bathroom, Farrell and Grimshaw's design constitutes an essentially modern take on the outhouse, the original bathroom pod.[17] The prefabricated bathrooms of Richard Rogers Lloyd's of London Building (1978-1986) are one of the key defining architectural moments in one of the most well known modern buildings ever constructed.[18]

Image 5 Lloyds building. Richard Rogers. 1974 – 1981.

Prefabrication Now: The Continued Influence of the Prefabricated Bathroom

Of note, amongst the many Architects exploring prefabricated technologies, the Architects Stephan Kieran and James Timberlake strongly advocate the concept of the production of the module rather than the individual part, like Corbusier, they analogize this concept of production to the automobile. In the automobile industry, the various “modules that form a car are designed and produced in parallel,” resulting in products that are less expensive, take less time to produce, and are of a higher quality.[19] This amounts to a re-conceptualization of the way that we build, individual parts are put together into sub assemblies that are then integrated into modules and ultimately form the whole, be it interior, architecture, or automobile.

Kieran and Timberlake investigate the design of prefabricated bathrooms in their practice and writing, but the construction of their Cellophane House epitomizes the influence of the bathroom on prefabricated design and construction technologies. The house, constructed of modular assemblies at full scale for the “Home Delivery: Refabricating the Modern Dwelling,” exhibit in 2008 at The Museum of Modern Art, is comprised of elements and modules constructed and assembled by Kullman, a firm that is a world leader in the production of off-site constructed bathroom pods.[20]

Image 6 Cellophane House. Kieran Timberlake. 2008.

Conclusion

Compounding the particular attention given to bathroom design and its existing building challenges are the cultural aspects of ritual and the sanitary necessities of hygiene. These multiple complexities have inspired considerable explorations

of alternate construction technologies, particularly the prefabrication of bathrooms. This has situated this diminutive room, typical to Interior Design, in a pivotal position to revolutionize the constructs of the built environment. The bathroom presents all of the complexities present in building construction making it an ideal typology for an investigation into evolving and new building techniques. The investigations into the prefabricated bathroom, introduced in Fuller's Dymaxion Bathroom (and revisited by many architects and designers over the course of a century), have revolutionized the investigation of prefabrication in the built environment, not only on the bantam scale of the bathroom but extending to the building and the city.

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Image List

Image 1 Dymaxion Bathroom

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Image 2 In-Line Bathroom Unit

"Prefabricated Bathroom." *Architectural Forum* 87, (1947): 13.

Image 3 Plug-In City

www.ucl.ac.uk_news_news-articles_06111101.jpg

Image 4 Nakagin Capsule Tower

http://www.arcspace.com/architects/kurokawa/nakagin/nakagin.html

Image 5 Lloyds building

http://www.greatbuildings.com/buildings/Lloyds_Building.html

Image 6 Cellophane House

http://www.momahomedelivery.org/

Furniture Design and Concept Development

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ABSTRACT

This teaching forum presents design studio instruction methodology and project assignments used in teaching furniture design and connection details. When asked to provide design solutions for furniture design, students initially draw from imagery they have seen before and their designs are often copies of furniture pieces. Concept diagramming provides a quick method for students to go beyond the literal and develop more personal expressions in their work. Through discovery of relationships and abstract meanings in design compositions that originate from a process of self-discovery students can quickly move into design concepts for furniture. Diagrams are used as design templates for creating varied furniture pieces and as a basis to give meaning and symbolism.

The process requires students to individually do a self- assessment with self-reflection and develop a list of single words that offer insight about them. Word lists are then shared in groups to provide further analysis of character traits as perceived by peers. A series of additions and deletions are made to the lists of words after peer review until a final list of words are settled upon as the best descriptors of each student. Design elements and principles are composed in graphic compositions to reflect each word's abstract meaning. These compositions are diagrams for conceptual design direction. 3 dimensional studies in clay are developed further from the diagrams into volumetric

studies investigating the way elements in the compositions are joined, perceived movement, and hierarchy of elements. Each composition is to convey a meaning of stance, an intention that speaks in a general way to character or emotion. These three dimensional sketches allow students to examine perceived meaning in directional forces and to resolve how the composition succeeds in dramatic balance. The clay compositions are study models for furniture pieces created with a sense of unity. They are abstract organizational ideas that are then developed further in drawings, cardboard models, and CADD modeling. Students continue to explore the compositions of abstract forms but apply practical criteria to their work incorporating functional, ergonomic, and material requirements.

This studio methodology develops 3 dimensional design thinking. It offers organizational insight in developing a sense of visual structure. The diagramming process opens possibilities for new and personal interpretation of design elements and principles that can be applied to an abstract experience based on construction. The developed form compositions give meaning and symbolism in both graduate and undergraduate level work and can be applied in other design studios studying space analysis.

NARRATIVE

IDEC's 2001 conference in Chicago included a presentation on fast diagramming used in a furniture design class. Its genuine exploration in design was provocative and sparked interest to introduce the same idea in one of my design classes. I had been unsatisfied thus far with student work, where many draw inspiration from familiar imagery and their designs are often copies of existing furniture pieces. Concept diagramming showed potential in tapping intuitive creative thinking. I introduced this teaching method, with further development, in my furniture design seminar where character words assist students to involve their senses in design thinking. In subsequent years I revised the learning process. Some students struggle in seeing three dimensional form relationships, which highlights gaps in understanding the basic principles and elements of design. Adding developmental exercises for visualization of space and form have improved their creative development and in 2008, I saw a dramatic shift in student work and in their understanding of form with assistance of varied CADD and digital rendering software programs. Concept diagramming in concert with form and space foundation studies provide a strategy for students to go beyond the literal and develop more personal expressions in their work. Investigation and discovery of form and space relationships, can lead to new design concepts for furniture. Lars Spuybroek credits diagramming as the most important innovation of architecture. He sees diagramming as a move toward metadesign where diagrams are used as design templates. The diagram or template works as an informational system for decision-making. Diagramming is an approach to design networked informational systems and a way to see the difference between the organization of something and its material

structure. “The designer finds a means in diagramming to design one thing that reveals a whole family or range of things to design.”(Spuybroek 243) This teaching approach offers continuous creative assessment as a design process and has been successful for graduate students. Through integration of form studies students are able to create original work for seating, storage units, and table designs.

Furniture Design seminar is an elective course offered annually. We begin the design process with research and a precedent study. Students individually research furniture designers and their work. Historical furniture pieces and contemporary ones are selected for examination. Student research presentations are framed as timelines identifying specific influences affecting design and associations with world events. The objective is to heighten awareness and understanding of furniture design as a social experience reflecting cultural shifts. Students begin exploring visualization of basic design elements working through foundation exercises adopted from design curriculum taught by Rowena Reed Kostellow. Ms Reed established an organized approach to the mechanics of design and developed curriculum that shaped the necessary inner discipline in students so they could carry out assigned problems. (Hannah 46) Students study basic geometric shapes in strict compositional order. Rowena described this process as “3 dimensional sketching” which maintained organizational principles where one volume must be “dominant”, the other “subdominant”, and the third “subordinate”. (Hannah 50) Each form composition incorporates a method for connecting pieces that functions as part of the design. I introduced this particular way of thinking in furniture design as a way to help students create meaning in abstract terms while studying

relationships of space and form. Often students are literal and start with a picture of an object such as a face or a tree as a symbol, but this is copying.(Spuybroek 245) Modeling in clay, poking at the “why” with thoughtful questions, and offering points of view for possible expressions helps students loosen up. Words and diagrams stimulate further understanding. Communicating ideas by way of design elements and principles forces students to reduce and contract information, abstracting ideas to become something else, which is a major hurdle in the design process and an important jump for individual creative expression. (Spuybroek 245)

Experimenting with volumetric compositions students seek a stance of the parts that add up to a unified whole. They move into to the experience of what they have created by describing an associative character word for the visual image. Clay compositions speak in a general way with attitude and movement. Students connect themselves to the creative development . (Hannah 72) This intuitive creative process requires role switching and critique to read the compositions and interpret multiple form and space relationships. Series of clay compositions study attributes of prescribed joints and volumetric interactions in rectilinear, curvilinear, fragmented, and combinations of different forms. It is difficult to decipher tension in negative space and this is often ignored until students are asked to sketch the compositions. Adding shade and shadow allows volumes and joints to become apparent. Line drawings enhance the evolution of creative ideas with exaggerated stances with emotional messages.

I use concept diagramming as a transitional exercise to bridge abstract form making into furniture design. Introduced mid semester diagramming stimulates creative expression and breaks the connection with what a chair typically looks like. In the 1960's Charles Bytheway developed a technique for fast diagramming tied to intuitive thinking. Working with teams of people from different disciplines he saw diagramming as a meaningful way to develop intuitive ideas.(Bytheway 1) Bytheway sees diagramming as most useful to stimulate creativity and new ideas, which differs from Spuybroek's view that diagramming is a template for organizational decision-making. (Spuybroek 243; Bytheway 1) I have taken advantage of both views and incorporated the diagramming process as a tool that begins with brainstorming in teams. (Bytheway 1) This spontaneous group activity gets at character attributes and requires self-assessment, self-reflection and in-depth thinking to develop a list of single words that are interpreted as personal traits. Adopting Bytheway's view that fast diagramming is much more productive if different roles are played by each team member, students switch roles and share their character words with a partner for further analysis and expansion. (Bytheway1) The words selected are based on a variety of factors and often are limited by interpretation of the meaning of the word based on past experience. A series of additions and deletions made after peer review helps students settle upon a final list of trait descriptors. There is an initial blindness students experience in the struggle of creating something new by the reduction of meaning in the simplest organization of parts. Understanding organizational structure of something new, Spuybroek notes "can only be done by diagramming". (Spubroek 245)

Students draw thumbnail sketches for each word and examine the differentiation of interesting and pleasing shapes, tension with movement in space, and symbolic communication. The concept diagrams are first an abstract system of lines, but it later becomes clearer what these lines are when extruded into forms. Lines become shapes with axial direction and flexible edges in an iterative process. Relationships of 2 dimensional elements are captured in 3 dimensional clay studies showing rhythm and emphasis. Study models convey an intention that speaks in a general way to character and emotion. These three dimensional models allow students time to experiment with directional forces and resolve how each succeeds with a sense of unity in direct or indirect balance. Learning to bind the whole piece by studying the forms from different views is understood progressively in the ongoing development of assignments. Students apply practical criteria to their work incorporating functional, ergonomic, and material requirements. Criteria for purposed use is further developed in drawings, scaled cardboard models, and in 2008, CADD modeling.

The second half of the semester focuses on design for specific furniture pieces. The goal of economy and material dimensions are assessed in the first assignment for seating that integrates strength, beauty, and delight. The second furniture problem, a storage unit, examines cabinet design and detailing. Students are encouraged to adopt a target market and consider modularity with flexibility of the parts that make the whole. The third problem, a table, connects design organization to the family of design elements worked on in the previous assignments. Students generate design solutions and connection details from the design template and the original unifying concept is

experienced as a family of specific relationships. (Spuybroek 243) Students then model and draw their ideas in plan, elevation, and 3 dimensional renderings. The models exhibit a sense of visual organization and incorporate one of the prescribed joining methods from previous studies.

Future improvement to this active learning process would allow students the opportunity to build their work. Connecting design information communicated through concept diagram templates and integrated with CADD software allows electronic transmission to a 3D printer. Each design would be produced into its family of furniture pieces. After evaluation the pieces are used as templates for building full-scale prototypes.

This studio instruction develops 3 dimensional design thinking. Several learning activities are used to stimulate creativity and open doors for students to access their intuitive thinking in problem solving. The three dimensional exercises develop discipline in sensing visual structure, and the necessity of joining pieces become integrated design characteristics. The diagramming process stimulates an intuitive application of design. Concept diagrams, brainstorming, and distinguishing the ordering capabilities of the diagram opened up possibilities for creative development in textile design, window treatments, space analysis and floor plan arrangement.

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Using SketchUp to Increase Understanding of Detailing, Material, and Assembly in Interior Design

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ABSTRACT

In order to draw and interpret two-dimensional construction details, students need a strong understanding of the detail's spatial properties. In foundation design studios, interior design students explore the relationship between three-dimensional design ideas and two-dimensional drawings such as plan, section, and elevation through a combination of built models and two-dimensional design drawings. This paper details how the Author introduces construction detailing to interior design students through the virtual assembly of custom details using Google SketchUp, a three-dimensional modeling program. In following the foundation design studio's pedagogical approach of connecting the three-dimensional object to two-dimensional drawings, the Author created a new learning environment where students form a strong understanding of detailing and assembly.

The use of three-dimensional models to create dynamic two-dimensional drawings has increased in recent years with industry adoption of building information modeling (BIM) software like Revit and ArchiCAD. The 'act of drawing' with BIM software is conceptually similar to the teaching methods implemented by the Author in that students must first draw in three-dimensions before the software can output traditional two-dimensional drawings. While this paper's primary focus is the pedagogy of teaching

detailing through virtual three-dimensional construction using SketchUp, the Author also explores and compares the strengths of BIM software as a tool to understand detailing in the design profession.

The Author teaches both *Furniture & Detailing Studio* and *Advanced Materials and Methods Studio* to undergraduate and graduate Interior Design students. This presentation will focus on the Author's work with the students enrolled in his section of both studios. In both studios, students form an understanding of detailing and assembly by working through the detailing process from two-dimensional drawings to three-dimension models and from three-dimensional models to two-dimensional drawings.

In early exercises, students create three-dimensional models from traditional two-dimensional furniture drawings. (Figure 1) By virtually modeling and assembling the furniture's individual components in SketchUp, students can question and better understand what each drawn line represents in a typical construction detail. The virtual assembly is dynamically sliced to reveal traditional detail drawings that help students understand the relationship between the three-dimensional construct and the two-dimensional drawing. Students import the dynamic sliced plan and section details into AutoCAD to add dimensions and notes typically found in a construction detail.

In advanced exercises, students demonstrate their understanding of detailing and assembly by creating multi-step assembly drawings that communicate the order of assembly in a custom detail. (Figure 4) When combined with traditional construction

detail drawings, these assembly drawings provide additional insight into the student's understanding of detailing and material assembly. This understanding is typically not apparent when students only present traditional construction details.

While traditional two-dimensional construction details communicate scope and sequence of construction, the Author has identified that new learners were successfully producing graphic representations of these details but struggled to understand and communicate the individual components in these drawings. By introducing three-dimensional modeling as an integral component of the detailing process, the Author created a new learning environment where students visualize and understand the materials, assembly, design, and documentation of construction details.

NARRATIVE

Issue

In order to design and interpret two-dimensional construction details, students need a strong understanding of the detail's material and spatial properties. While traditional two-dimensional construction details communicate the scope and sequence of construction, the Author has identified that new learners can successfully produce competent graphic representations of these details with little understanding of the detail's components or implied construction sequence. In these examples, students use digital drawing software to combine manufacturer provided CAD details. These *exquisite corpse* details falsely convey a student's understanding of construction methods. Rather than engage learning methods of construction and detailing, students often take advantage of technology masking their illiteracy behind crisply drawn two-dimensional details.

The introduction of building information modeling (BIM) in practice presents similar challenges during the 'act of drawing' for construction. Drawing with BIM requires accurate knowledge of the construction process 100% of the time. Because BIM is based on a three-dimensional database, it is not possible to fake form or omit construction information from the drawing (Khemlani, 2004). Unlike hand and digital drafting, drawing with BIM mirrors the construction process. Doors must be set within interior walls, which must attach to a floor slab. To successfully use BIM, students must understand how to use the software and how to physically construct an interior environment.

By introducing three-dimensional modeling as an integral component of the detailing process, the Author created a new learning environment where students visualize and understand the materials, assembly, design, and documentation of construction details.

Rationale

In *Self-Theories: Their Role in Motivation, Personality, and Development*, Carol Dweck describes the "patterns of vulnerability and hardiness that students display as they confront difficulty". Through her research with 5th and 6th grade learners and their ability to conceptually solve difficult problems, Dweck identifies a strong connection between an individuals belief of fixed or malleable intelligence and how that students engages (or disengages) new problems. If a student believes intelligence is acquired as one grows, challenges are seen as an opportunity for intellectual growth. Failure is not a reflection of their ability, so the associated risks are low. If a student believes that intelligence is fixed at birth, each challenge is the potential end of their intelligence. Failure signals the limit of one's ability to learn and is usually avoided through disengagement and/or avoidance (Dweck, 2000).

When learning construction detailing, design students mirror the behavior of Dweck's 5th and 6th grade subjects. Some young designers immediately relish the challenge and ambiguity of detailing. These students make teaching seem incredibly easy. The second and often larger set of students react to each detailing assignments as the potential end

of their design career. They avoid potential failure through procrastination, lack of engagement in project goals, or by digitally combining manufacturer's CAD details.

In foundation design studio, most curricula develop understanding of spatial relationships, two-dimensional drawing, and three-dimensional representation, through a combination of built models and design drawings. The success of this approach to teaching and learning is found in the scaffold created for Dweck's "helpless learners". By creating two-dimensional drawings from built models and built models from two-dimensional drawings, students develop an understanding of spatial representation through specific and clearly defined learning exercises. This paper details how the Author introduces construction detailing to interior design students through the virtual assembly of custom details using Google SketchUp, a three-dimensional modeling program. In following the foundation design studio's pedagogical approach of connecting the three-dimensional object to two-dimensional drawings, the Author created a new learning environment where students form a strong understanding of detailing and assembly.

Case Study One – 2D to 3D

In early exercises, students virtually construct a piece of furniture from instructor provided two-dimensional furniture drawings. (Figure 1) Successful completion of the exercise requires that students understand the relationship between the provided plan, section, and elevation. Students must also understand what each drawn line represents

in the provided furniture details and demonstrates their understanding of casework joinery which may be explicitly stated or implied in the detail.

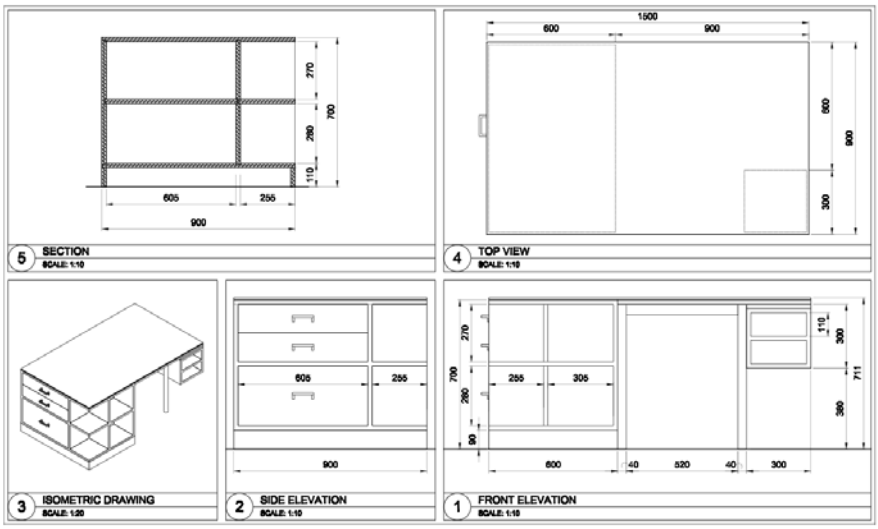

Figure 1: Furniture model and details created from two-dimensional furniture drawings. Gerrit Rietveld, Bureau 1931

Learning goal: Students will understand how the position of a section cut uniquely communicates the material and spatial properties of a detail.

The completed virtual assembly is dynamically sliced in SketchUp to reveal traditional detail drawings. These slices help students understand the relationship between the three-dimensional construct and the two-dimensional drawing. As with BIM drawings, a student's ability to leverage the dynamically drawn computer section is directly connected to their understanding of the section's purpose in construction documents. The resulting section drawing is critically evaluated using criteria that measure its success in communicating the complexity of the given furniture piece. Students are encouraged to improve the section/detail based on their prior experience assembling the furniture in SketchUp.

The dynamic sliced plan and section details are individually exported from SketchUp into AutoCAD. The drawings are assembled on a single page and annotated with dimensions and notes. Students also use AutoCAD to add material hatches to objects cut in section. Through the process of *reading*, *interpreting*, *modeling*, *drawing*, and *communicating* students develops a complex understanding of the detailing process in a little over two days.

Case Study Two – IKEA Assembly Drawings

IKEA manufactures and distributes flat-packed furniture across the world. The IKEA consumer uses a set of visual diagrams, sans-words, to assemble furniture in their home or office. (Figure 2) Because these instructions are language-free, IKEA can distribute their furniture with a globally accessible set of instructions. The strength of these drawings for a student learning how to detail is in the their ability to clearly communicate methods of assembly through a sequence of three-dimensional drawings. In advanced exercises, students demonstrate their understanding of detailing and assembly by creating multi-step assembly drawings that communicate the order of assembly in a custom detail.

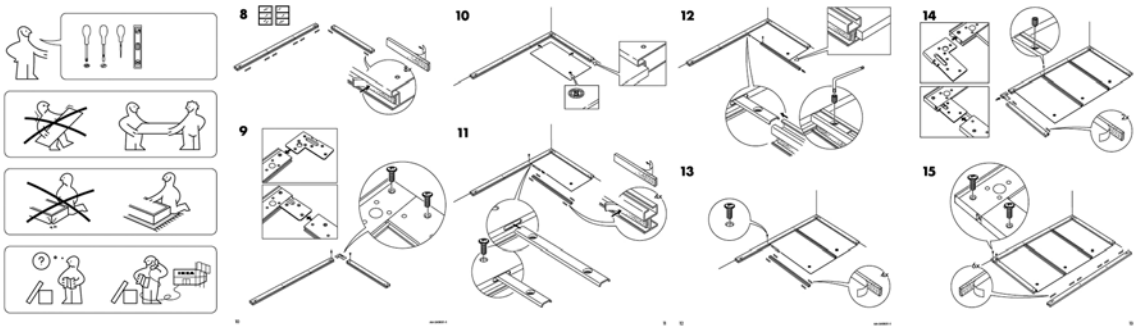

Figure 2: IKEA assembly instructions.

Learning goal: Students will understand a detail's components and assembly method through the three-dimensional modeling process.

Similar to traditional detailing, this design process often starts with a survey of manufacturer provided details. Students translate the individual components of these details to three-dimensional SketchUp drawings. The virtual assembly allows students to build an understanding of each component within a detail and its spatial relationship to other parts of the detail. (Figure 3) As in *Case Study One*, this 2D to 3D translation requires that a student understands each drawn line in the manufacturer's detail.

Figure 3: Exploded and assembled stair isometric drawing communicates student understanding of detail components. Student work: R. Makkas (2008)

As students combine standard construction components with manufacturer's details in their SketchUp model, they become aware of compatibility issues between systems. A common example is the coordination required for full or recessed openings in framed wall construction. The virtual construction process reveals the location of the studs,

which are often overlooked by students in two-dimensional section details. During the exercise, students focus their desk critique on the portion(s) of the detail or assembly that they do not understand. The detailing assignment becomes self-differentiating in that students move forward with improved understanding and must acknowledge the portions of the detail where they lack understanding.

Learning goal: Students will understand how assembly drawings communicate their understanding of the detail and its construction.

Creating assembly-sequenced drawings is an equally important portion of the educational process because it requires a student to successfully communicate their understanding of the detail's construction through drawing. (Figure 4) In the first portion of this assignment, students developed a strong understanding of construction and assembly. This second portion focuses on representation as a method to demonstrate understanding of construction sequences.

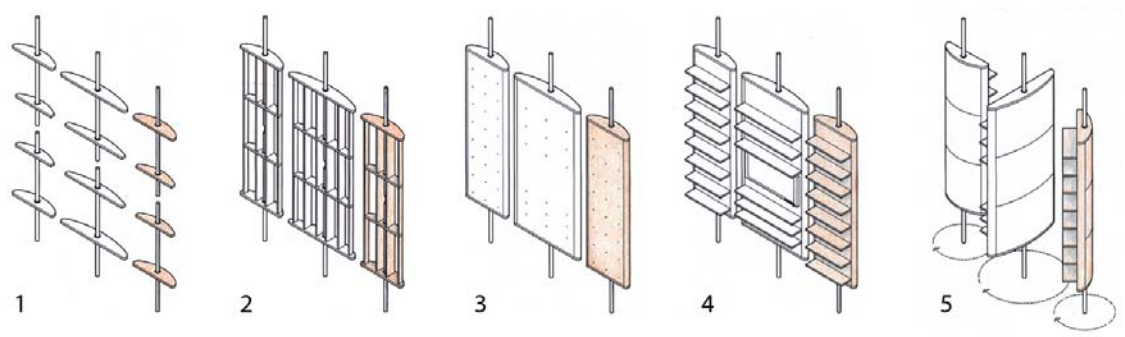

Figure 4: Multi-step student assembly drawing communicates student understanding of detail components and assembly process. Student work: T. Elliott (2007)

Using their SketchUp model, students sequence the assembly of their details by selectively adding or removing individual components to mirror the construction process.

Because this step requires students to understand the order in which items are assembled, students focus their desk critique on the portion(s) of the assembly sequence that they do not understand in their custom detail. Similar to the virtual detailing process, the representation process becomes self-differentiating in that students move forward with improved understanding and must acknowledge the portions of the construction sequence where they lack understanding.

Summary

Young designers struggle with detailing because they do not completely understand the spatial relationship between the components in a detail and they do not understand the construction process. Drawing with BIM software presents a similar challenge in that it requires a strong understanding of construction and assembly. Dweck's research shows that without scaffolding the learning environment, helpless learners will avoid the challenges of detailing. By introducing three-dimensional modeling in SketchUp as an integral component of the detailing process, students form a strong understanding of the materials, assembly, design, and documentation in construction detailing. This understanding of working in three-dimensions to create two-dimensional details will help both mastery oriented and helpless learners develop a complex understanding of the detailing process and conceptually prepare them to draw in practice using BIM.

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Hospital vs. Hospitality: Baby Boomer Women's Design Preferences

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ABSTRACT

Purpose

As the final decade of the last century began, McKahan (1990) predicted that future healthcare facilities would be modeled after airline and hotel industries in service and design. The term, "servicescapes" (Bitner, 1990) was introduced that same year, followed by "healthscapes" (Hutton & Richardson, 1995), focusing specifically on healthcare design. A generation after McKahan's prediction, a study was conducted gauging the degree to which consumer expectations of healthcare interiors parallel preferences in hotel interiors.

American women of the Baby Boom generation (born between 1946 and 1964) were selected for this comparative research. This population is unique as the first generation to experience travel extensively (Kotler, Bowen & Makens, 1999) and the first to drastically change the definition of "health" (Baucom, 1996). The size of this group makes it significant to current and future interior designers, hospital administrators, and hoteliers. Respondents to the 71 question survey (N=248) represented each of the 4 US Census Bureau regional divisions as well as different demographic groups based on age, size of hometown/city, level of education, and income.

Results

The environmental dimensions employed in the servicescapes framework were central to the research questions in this study. **Ambient conditions** of the built environment (sensory impact), **space and function of space** (room size, layout, furnishings), and **signs, symbols, and artifacts** (signage, accessories, design style) were rated by the respondents as they applied to both hotel and healthcare environments.

Ambient conditions, including light level/control, color scheme, air circulation/control, and temperature control, were seen as “very important” in both environments, with color scheme having fewer ratings at this level than the other considerations. Interestingly, none of the respondents reported color scheme to be “very unimportant” in either hotel or hospital environments, and a larger percentage of respondents (96%) found color scheme to be “very important” or “somewhat important” in a hospital setting than in a hotel environment (90%).

The perceived importance of selected signs, symbols and artifacts in hotel and hospital interiors was shown to be very similar in hospital and hotel settings. Mattress comfort, quality of bedding, carpeting, flooring and signage were seen as “very important” or “somewhat important” by over 90% of respondents relative to both hotels and hospitals.

Interesting results in the space and function of space category related to room size, the inclusion of a dining table and table lamps, and the provision of a mini bar or refrigerator. More than twice as many respondents felt size was “very important” in a hospital room than in a hotel room, more respondents considered a dining table “very important” or “somewhat important” in a hospital room, and more respondents felt table lamps “very important” in a hospital room than in a hotel room. The mini-bar or

refrigerator was judged to be an amenity more important to a hotel room than a hospital room.

Conclusion

This study highlights one of the many instances of evolving consumer attitudes and their impact of interior design. Hospital design has moved toward hospitality design, perhaps adopting more of its features than McKahan predicted.

NARRATIVE

Background

As the final decade of the last century began, McKahan (1990) predicted that future healthcare facilities would be modeled after airline and hotel industries in service and design. Rather than being designed solely for efficient operation, focused on accommodating caregiver activities, the new paradigm transformed the patient into a customer or even a guest. The term “servicescapes” (Bitner, 1990) was introduced that same year, followed by “healthscapes” (Hutton & Richardson, 1995), focusing specifically on healthcare design. Other developments during the same timeframe include the foundation of the annual Healthcare Design Symposium, the publication of periodicals like *Healthcare Design* magazine, and the emergence of hospitality design as a major emphasis for architectural and interior design firms. A generation after McKahan’s prediction, a study was conducted gauging the degree to which consumer expectations of healthcare interiors parallel preferences in hotel interiors.

Methodology

American women of the Baby Boom generation (born between 1946 and 1964) were selected for this comparative research. This population is unique as the first generation to experience travel extensively (Kotler, Bowen & Makens, 1999) and the first to drastically change the definition of “health” (Baucom, 1996). Previously, being “healthy” was defined as not being sick. More recently, modifiers such as “vibrancy”, “vitality”, “physical fitness”, and “youthfulness” are part of the concept of “health”, raising the expectation of healthcare, and raising the bar for interior designers working in the healthcare field. The size of this group makes it significant to current and future interior

designers, hospital administrators, and hoteliers. Respondents to the 71 question survey (N=248) represented each of the 4 US Census Bureau regional divisions as well as different demographic groups based on age, size of hometown/city, level of education, and income. Each respondent had been a guest at a hotel and a patient in a hospital during the year preceding the study.

Results

The environmental dimensions employed in the servicescapes framework were central to the research questions in this study. Ambient conditions of the built environment (sensory impact), space and function of space (room size, layout, furnishings), and signs, symbols, and artifacts (signage, accessories, design style) were rated by the respondents as they applied to both hotel and healthcare environments.

Ambient Conditions

Ambient conditions, including light level/control, color scheme, air circulation/control, and temperature control, were seen as “very important” in both environments, with color scheme having fewer ratings at this level than the other considerations. Interestingly, none of the respondents reported color scheme to be “very unimportant” in either hotel or hospital environments, and a larger percentage of respondents (96%) found color scheme to be “very important” or “somewhat important” in a hospital setting than in a hotel environment (90%). The importance of personal control over temperature, air circulation, and light level reflects the respondents’ perception of themselves as empowered consumers of services in both hotel and hospital settings. This represents a major shift from the role of passive patient the Baby Boomers’ parents’ generation would probably have accepted as the norm in the hospital setting.

Table 1

Perceived Importance of Ambient Conditions in Hotels

Item	Very Important		Somewhat Important		Somewhat Unimportant		Very Unimportant		Not Applicable		Total N
	N	%	N	%	N	%	N	%	N	%	
Light Level Control	209	84.27	34	13.71	1	0.40	0	0	4	1.61	248
Color Scheme	154	62.35	68	27.53	21	8.50	0	0	4	1.62	247
Air Circulation Importance	237	95.56	8	3.22	2	0.806	0	0	1	0.403	248
Air Circ.Control	240	96.77	7	2.82	0	0	0	0	1	0.403	248
Temperature Control	236	95.16	11	4.43	0	0	1	0.403	0	0	248

Table 2

Perceived Importance of Ambient Conditions in Healthcare Facilities

Item	Very Important		Somewhat Important		Somewhat Unimportant		Very Unimportant		Not Applicable		Total N
	N	%	N	%	N	%	N	%	N	%	
Light Level Control	239	96.37	5	2.02	0	0	4	1.161	0	0	248
Color Scheme	144	59.02	90	36.89	10	4.10	0	0	0	0	244
Air Circulation Importance	242	97.58	2	0.806	0	0	4	1.613	0	0	248
Air Circ.Control	242	97.58	2	0.806	0	0	0	0	4	1.613	248
Temperature Control	242	97.58	2	0.806	0	0	0	0	4	1.613	248

Signs, Symbols, and Artifacts

The perceived importance of selected signs, symbols and artifacts in hotel and hospital interiors was shown to be very similar in hospital and hotel settings. Mattress comfort, quality of bedding, carpeting, flooring and signage were seen as “very important” or “somewhat important” by over 90% of respondents relative to both hotels and hospitals. Again, two environments that, one generation earlier, would have been viewed as diametric opposites are today aligned as similar by Baby Boom women.

Table 3

Perceived Importance of Signs, Symbols & Artifacts in Hotels

Item	Very Important		Somewhat Important		Somewhat Unimportant		Very Unimportant		Not Applicable		Total N
	N	%	N	%	N	%	N	%	N	%	
Mattress Comfort	204	82.26	38	15.32	2	0.81	4	1.61	0	0	248
Bedding Quality	208	83.87	29	11.69	7	2.82	0	0	4	1.61	248
Soft Carpeting	161	64.92	66	26.41	14	5.65	3	1.21	4	1.61	248
Flooring	202	81.45	30	12.10	12	4.84	0	0	4	1.61	248
Signage	228	91.93	7	2.82	12	4.83	0	0	1	0.403	248

Table 4

Perceived Importance of Signs, Symbols & Artifacts in Healthcare Facilities

Item	Very Important		Somewhat Important		Somewhat Unimportant		Very Unimportant		Not Applicable		Total N
	N	%	N	%	N	%	N	%	N	%	
Mattress Comfort	196	79.03	44	17.74	1	0.40	0	0	7	2.82	248
Bedding Quality	4	1.61	234	94.35	10	4.03	0	0	0	0	248
Soft Carpeting	168	67.74	49	19.76	8	3.23	4	1.61	19	7.66	248
Flooring	186	75.0	51	20.56	10	4.03	0	0	1	0.40	248
Signage	233	93.95	1	0.403	10	4.03	4	1.61	0	0	248

Space and Function

Interesting results in the space and function of space category related to room size, the inclusion of a dining table and table lamps, and the provision of a mini bar or refrigerator. More than twice as many respondents felt size was “very important” in a hospital room than in a hotel room. This could reflect current requirements for patient privacy as opposed to the shared hospital rooms or open wards common a few generations ago. Hospital restrictions regarding visitors have also relaxed significantly during those years, perhaps contributing to a perceived need for increased space in the hospital room to accommodate larger numbers of visitors and even overnight guests in patient rooms.

Almost three times as many respondents felt a dining table was “very important” in a hospital room than those who found it so in a hotel room, and a larger number (63% vs 49%) felt it was “very important” or “somewhat important”. The perennial complaints about hospital food have prompted hospital administrators to improve the quality of patient meals and their service, often adopting a strategy modeled after room service in hotels, with menu choices and the opportunity for visitors to join the patient for meals. A future study might report on whether the use of room service in hotels has decreased over the last generation as the number and variety of hotel restaurants has increased. Such data might help to explain why only half the respondents felt a dining table was “very important” or “somewhat important” in a hotel room.

The mini-bar or refrigerator was judged to be an amenity more important to a hotel room than a hospital room, yet 63% of respondents still thought it “very important” or “somewhat important” in the hospital room. This result can be connected to the

preference reported for large hospital rooms furnished with a table for dining, indicating the desire of patients to have more choice and control relative to what and when they eat or drink in the hospital setting. The relative importance of “dining options” in the hotel setting was reported as “very important” or “somewhat important” by 82% of respondents, with 86% expressing the same level of preference in the healthcare setting.

With 97% of respondents finding table lamps to be “very important” in a hospital room, it becomes clear that a desire to see elements of domestic rather than institutional quality characterizes the Baby Boom women’s expressed preferences, particularly since only 85% of the same women found table lamps to be “very important” in a hotel room. Similar responses relative to “comfortable furniture”, with 90% of the respondents rating it as “very important” in a hospital room” and 79% as “very important” in a hotel, suggest that the hospital room, rather than the hotel room, should be designed to be a “home away from home”.

Table 5

Perceived Importance of Space & Function in Hotels

Item	Very Important		Somewhat Important		Somewhat Unimportant		Very Unimportant		Not Applicable		Total N
	N	%	N	%	N	%	N	%	N	%	
Guest Room Size	94	37.90	146	58.87	7	2.82	0	0	1	0.40	248
Comfortable Furniture	197	79.44	37	14.42	14	5.65	0	0	0	0	248
Mini bar or refrigerator	11	4.47	181	73.57	21	8.53	16	6.50	17	6.91	246
(Work) Desk	46	18.55	142	57.26	38	15.32	22	8.87	0	0	248
Internet	158	63.71	23	9.27	57	22.98	10	4.03	0	0	248
Furniture (existence of)	173	69.76	30	12.10	45	18.15	0	0	0	0	248
Dining Table	17	6.85	105	42.33	106	42.74	19	7.66	1	0.403	248
Bedside Tables	204	82.26	38	15.32	2	0.81	4	1.61	0	0	248

Table lamps	212	85.48	32	12.90	0	0	4	1.61	0	0	248
Fitness Facility	14	5.645	183	73.79	22	8.87	24	9.67	5	2.016	248
Spa	16	6.45	61	24.60	140	56.45	30	12.10	1	0.40	248
Dining Options	79	31.85	124	50.00	44	17.44	1	0.40	0	0	248
Snack machines	208	83.87	26	10.48	10	4.03	4	1.61	0	0	248
Drink machines	214	86.29	16	6.452	14	5.64	3	1.21	1	0.403	248
Ice machines	223	89.91	16	6.45	5	2.01	3	1.21	1	0.403	248

Table 6

Perceived Importance of Space & Function in Healthcare Facilities

Item	Very Important		Somewhat Important		Somewhat Unimportant		Very Unimportant		Not Applicable		Total N
	N	%	N	%	N	%	N	%	N	%	
Guest Room Size	179	72.18	33	13.31	36	14.52	0	0	0	0	248
Comfortable Furniture	222	89.52	26	10.48	0	0	0	0	0	0	248
Mini bar or refrigerator	44	17.74	112	45.16	80	32.26	12	4.84	0	0	248
(Work) Desk	12	4.84	55	22.18	155	62.50	26	10.48	0	0	248
Internet	35	14.11	150	60.48	47	18.95	16	6.45	0	0	248
Furniture (existence of)	167	67.34	77	31.05	0	0	4	1.61	0	0	248
Dining Table	46	18.55	109	43.95	87	35.08	6	2.42	0	0	248
Bedside Tables	219	88.30	24	9.67	1	0.403	0	0	4	1.613	248
Table lamps	238	95.96	5	2.01	1	0.403	4	1.613	0	0	248
Fitness Facility	13	5.24	110	44.35	75	30.24	41	16.53	9	3.63	248
Spa	10	4.05	90	36.44	94	38.06	44	17.81	9	3.64	247
Dining Options	88	35.48	126	50.81	32	12.90	2	0.81	0	0	248
Snack machines	238	95.96	8	3.22	2	0.806	0	0	0	0	248
Drink machines	239	96.37	3	1.21	5	2.016	1	0.403	0	0	248
Ice machines	239	96.37	3	1.21	5	2.016	1	0.403	0	0	248

Conclusion

This study highlights one of the many instances of the evolution of consumer attitudes and their impact of interior design. Hospital design has moved toward hospitality design, perhaps adopting more of its features than McKahan predicted.

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The Millennial Interior Design Learner: Implications for Classroom Teaching Strategies

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ABSTRACT

The newest generation of college students, the millennials, have been shown to be vastly different than their predecessors. Born between the years 1982 and 2002, these students exhibit traits and preferences that can be linked to their unique upbringing (Howe & Strauss, 2000). Of the many differences they exhibit, millennial student learning preferences are perhaps the most notable. This thesis study seeks to determine how millennials' learning preferences and their experiences in interior design classes intersect. Understanding how students learn and prefer to learn can help educators fit their teaching style together with the needs of their students.

There are many ways to instruct students, but research has shown millennials to be selective about how they receive information. Research suggests millennial students usually prefer more hands-on or interactive instructional techniques to other more traditional techniques such as lecture. Specifically, college-age millennials generally prefer the following five techniques to be used in their classrooms:

1. Moderate levels of interactive technology
2. Presence of team or group activities and/or projects
3. Presence and quick turnaround of instructor feedback
4. Presence of hands-on learning or interactivity

5. Presence of peer evaluation opportunities (Oblinger, 2003; Howe, 2005; Prensky, 2001)

This presentation will report the results of a thesis study which examines how millennial interior design students respond to current instructional techniques employed in studio and non-studio classes. Aligning educational tactics with student needs and ways they learn best is a logical goal in secondary education. It is helpful, therefore, to examine the interaction between educators and their students to identify and examine possible strengths and weaknesses of classroom learning and the teaching tactics that facilitate this learning.

For the purposes of the study, second year interior design students were observed in classes entitled, 'Studio 1' and 'Social/Psychological Aspects of Interior Design', and their reactions to instructional techniques were recorded. They were also asked to complete questionnaires about specific class activities in order to gauge their responses. Several students were also asked to participate in a short interview at the end of the data collection period in order to gather more in-depth responses about their reactions to instructional techniques used in their interior design class.

This study specifically provides students the unique opportunity to express their feelings about ways they prefer to learn. The intent of this study is to provide interior design educators an opportunity to see through the eyes of their students and to determine if class learning strategies used in interior design classes are in fact suitable for the millennial learner generation.

At the conclusion of this study the findings on millennial interior design student learning preferences will be published in a pamphlet format. These brochures will be

distributed to IDEC members at the national conference in order to inform them of this study's findings. As millennial-generation interior design learners will be inhabiting college classrooms at least until the year 2020, teaching methods preferred by this group can help educators reach their students and ensure a deeper level of learning.

NARRATIVE

Context of the Problem

The newest generation of college students, the millennials, have been shown to be vastly different than their predecessors. Born between the years 1982 and 2002, these students exhibit traits and preferences that can be linked to their unique upbringing (Howe & Strauss, 2000). Of the many differences they exhibit, millennial student learning preferences are perhaps the most notable. Understanding how students learn and prefer to learn can help educators fit their teaching style together with the needs of their students.

Research suggests millennial students usually prefer more hands-on or interactive instructional techniques to other more traditional techniques such as lecture. Specifically, college-age millennials generally prefer the following five techniques to be used in their classrooms:

1. Moderate levels of interactive technology
2. Presence of team or group activities and/or projects
3. Presence and quick turnaround of instructor feedback
4. Presence of hands-on learning or interactivity
5. Presence of peer evaluation opportunities (Oblinger, 2003; Howe, 2005; Prensky, 2001)

Purpose of the Study

Aligning educational tactics with student needs and ways they learn best is a logical goal in secondary education. It is helpful, therefore, to examine the interaction

between educators and their students to identify and examine possible strengths and weaknesses of classroom learning and the teaching tactics that facilitate this learning.

This study specifically provides students the unique opportunity to express their feelings about ways they prefer to learn. The intent of this study is to provide interior design educators an opportunity to see through the eyes of their students and to determine if class learning strategies used in interior design classes are in fact suitable for the millennial learner generation.

Method

This is a thesis study which examined how millennial interior design students respond to current instructional techniques employed in one studio and one non-studio class. For the purposes of the study, second year interior design students were observed in classes entitled, ‘Studio 1’ and ‘Social/Psychological Aspects of Interior Design’ (Social Psychology), and their reactions to instructional techniques were recorded.

Participants were given three questionnaires which asked them to respond to the instructional techniques they had experienced in their class by means of a likert scale, rating their answers from strongly agree (5) to strongly disagree (1). Five choices permitted students to choose the number 3 ‘neutral’ choice if they were indifferent to the helpfulness of the technique. Each questionnaire asked students to respond to three instructional techniques. A fourth final questionnaire used a free response format where students could respond in any way they chose. Some students responded with minimal answers or no answers at all while others elaborated greatly on their response. In addition, several students were asked to participate in a short interview at the end of the

data collection period in order to gather more in-depth responses about their reactions to instructional techniques used in their interior design class.

Instructional techniques observed in each class included both millennial-preferred and traditional techniques. A total of 19 students participated in Studio 1 and a total of 42 students participated in Social Psychology.

Because this study seeks to understand students' attitudes toward instructional strategies that researchers suggest are preferred by millennial-aged learners, it is important to classify the observed course activities into millennial or traditional techniques. Tables 1 and 2 show how each observed instructional technique from Studio 1 and Social Psychology fall into the millennial-preferred category this study specifically examines. Millennial-preferred characteristics can be further broken down into five sub-categories. These characteristics are Feedback, Peer Evaluation, Team/Group projects, Hands-on activities and Information technology (IT).

Results and Conclusions

It was expected that the participants in the study would exhibit characteristics common to the millennial generation. Not until the observation period began did it become clear which of these traits the sample group would possess. Several millennial traits from the Howe and Strauss model began to emerge (See table 3 for Howe and Strauss model and table 4 for these emergent traits).

Figures 1 and 2 show an average of all student responses for each class with the standard deviation. All techniques scored 3.92 or higher on a scale of 5, suggesting that on average participants seem to be pleased with the instructional techniques used in the study's interior design classes. The least enthusiasm was expressed for graded

desk critique used in Studio 1 and extra credit opportunities used in Social Psychology. Lecture and demonstration revealed the highest variability in participants' responses.

The findings from this study seem to be at times contrary to the research that has driven the study. Research suggests that millennial learners will only prefer a select few instructional techniques. This study has shown that interior design millennial learners favor a wide variety of instructional techniques to include traditional instructional techniques. Conclusions have been drawn about interior design education as to why this might be the case:

- Interior design courses require both passive and active learning in order to complete projects. For example, while one class might deliver information in lecture format, the next class asks them to build something with their hands. Students must use several skill sets and methods just to complete one task in many interior design classes, keeping their need for hands-on learning satisfied.
- Interior design students almost always have a studio (project-generating) course which keeps them actively engaged with their work. Studio classes, as seen in this study, can include lecture, model-building, IT, group work, feedback, peer review, etc., which is so diverse students are often engaged in the many activities research suggests they crave.
- Interior design students almost always have a studio course, therefore they do not necessarily need or want as many different activities happening in other classes. One project-generating (and therefore hands-on) class may be enough to keep them busy, leading students to be grateful for the relief of a PowerPoint-assisted lecture. Over-stimulation may burn students out if they experience it in every class.
- Interior design students generally have liberal studies course requirements to fulfill in addition to their interior design classes. Therefore, there will be times outside of the interior design department when these students may be

very unsatisfied with their classes. It may be much more difficult to actively engage students in a literature or mathematics course the way a studio course can. When these millennial students return to the department for their interior design classes they may be craving the mental stimulation interior design classes provide. They are in essence predisposed to be content and satisfied with their interior design classes in the context of their entire university curricula.

Summary

This study is only a small population of the courses offered at this institution and does not take into account the many interior design programs around the country. Rather, it is meant to serve as a guideline for other interior design instructors. Those guidelines would suggest:

- The inclusion of a variety of instructional techniques within one course
- A variety of course structures within one discipline
- A mixture of both traditional and millennial-preferred instructional techniques in each course
- Communication with students in the form of feedback is essential
- Students prefer to be asked what they prefer

In this author's opinion, the nature of this discipline and the skills that need learning will take care of the generational preferences. Interior design educators simply need to keep doing what we are doing. It is this author's opinion that the nature of interior design + the talent of the students + the passion of its educators = an enriched learning experience.

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Table 1. Activities observed in Studio 1, categorized in millennial-preferred and traditional techniques by the author based on the study's literature review. Some activities are classified as both a millennial and traditional technique.

Studio 1		
Observed technique	**Millennial technique**	**Traditional technique**
Graded desk critique	*	
Demonstration	*	
Lecture		*
Group evaluation	*	*
Hands-on activity	*	
Presentation w/critique	*	
Instructor feedback	*	
Peer evaluation	*	*
Model building	*	

Table 2. Activities observed in Social Psychology, categorized into millennial-preferred and traditional techniques by the author based on the study's literature review. Many activities are both a millennial and a traditional technique.

Social Psychology		
Observed technique	**Millennial technique**	**Traditional technique**
Extra credit opportunity	*	
Lecture		*
Team-based learning	*	*
Group project	*	*
Peer review	*	*
Lecture		*
Group project	*	*
Information technology	*	*
Hands-on activity	*	

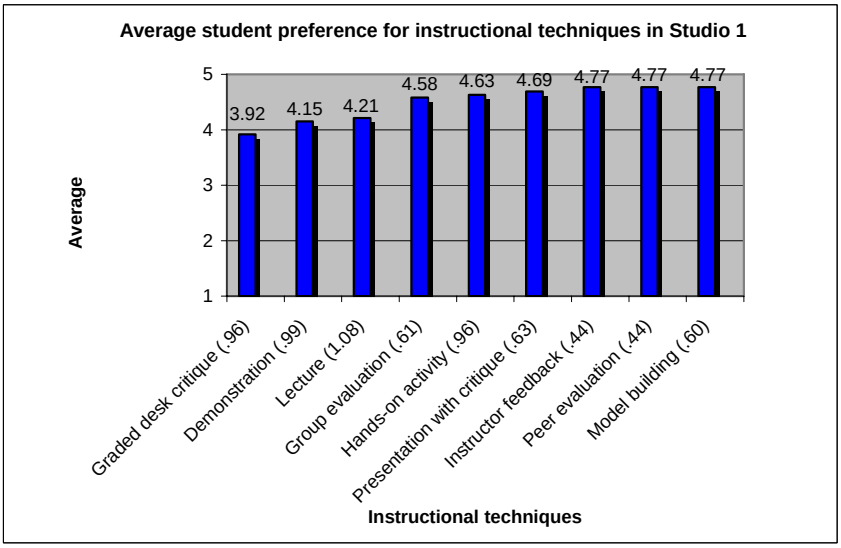

Figure 1. Preferences for instructional techniques of participants in Studio 1. Likert scale of 1 represents 'Strongly disagree' and 5 represents 'Strongly agree' in response to the question, "I feel this instructional technique was an effective way for me to learn course material". Response variability (expressed as standard deviation) is provided next to each technique's name.

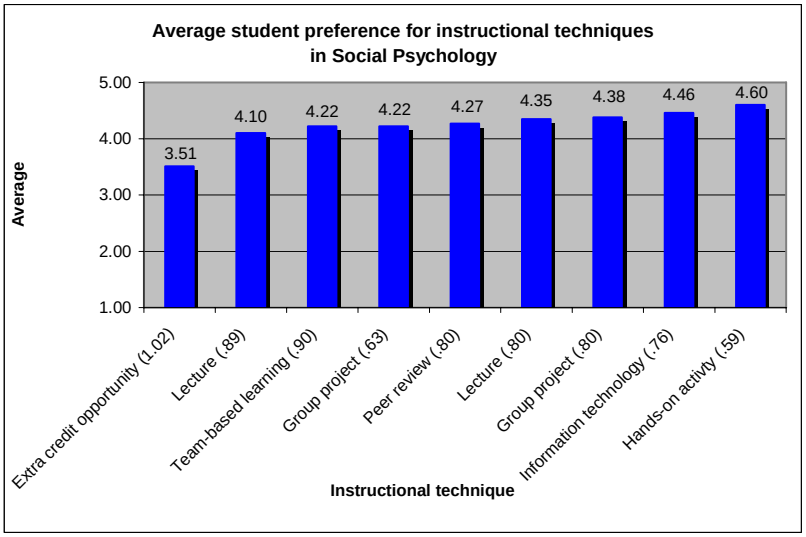

Figure 2. Student preferences for instructional techniques in Social Psych. Likert scale of 1 represents 'Strongly disagree' and 5 represents 'Strongly agree' in response to the question, "I feel this instructional technique was an effective way for me to learn course material". Response variability (expressed as standard deviation) is provided next to each technique's name.

Table 3: Distinguishing traits of the millennial persona (Howe & Strauss, 2000).

Special	From precious-baby movies of the early '80s to the effusive rhetoric surrounding the high school Class of 2000, older generations have inculcated in millennials the same sense that they are, collectively, vital to the nations and to their parents' sense of purpose.
Sheltered	Starting with the early-'80s child-abuse frenzy, continuing through the explosion of kid safety rules and devices, and now climaxing with a post-Columbine lockdown of public schools, millennials are the focus of the most sweeping youth safety movement in American history.
Confident	With high levels of trust and optimism- and a newly felt connection to parents and future- millennial teens are beginning to equate good news for themselves with good news for their country. They often boast about their generation's power and potential.
Team-Oriented	From Barney and soccer to school uniforms and a new classroom emphasis on group learning, millennials are developing strong team instincts and tight peer bonds.
Achieving	With accountability and higher school standards rising to the very top of America's political agenda, millennials are on track to become the best educated and best-behaved adults in the nation's history.
Pressured	Pushed to study hard, avoid personal risks, and take full advantage of the collective opportunities adults are offering them, millennials feel a "trophy kid" pressure to excel.
Conventional	Taking pride in their improving behavior and more comfortable with their parents' values than any other generation in living memory, millennials support convention- the idea that social rules can help.

Table 4. Emergent millennial traits as captured through observations.

Millennial Trait	Class Observed	Date Observed	Comment from Observation Check List
Preference for hands-on and interactivity	Studio 1	10/5/08	Desk critique on model: students were very excited about working in 3-D. They seem much more actively engaged when speaking to the instructor about their work as compared to when they spoke about drawings.
Feeling of specialness and sheltered background	Social Psychology	Multiple occasions	Students were very eager to share about personal experiences during class discussion. Most examples they gave dealt with their own family.
Feeling of specialness and family-oriented/conventional nature	Social Psychology	9/22/08	Influence map* assignment: projects were all about themselves. Most everyone put something in their project about family, support and values.
Patriotic and philanthropic tendencies	Social Psychology	10/13/08	LEED Video: students asked many questions and seemed very interested in sustainability.
Patriotic and philanthropic tendencies	Social Psychology	10/15/08	McDonough and Braungard Video: students had lots of opinions; they were concerned.

The Green Interior as Environmental Educator: A Research Proposal

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ABSTRACT

While the last decade has shown an unquestionable increase in green building activity and increased demand for certified green buildings by clients, many questions remain unanswered regarding the broader impacts of green buildings on society. The following research proposal asks if we can go further in our conceptualization of the green interior -- from the common framing of the green interior as inspired, high-performance design, to the understanding of an artifact that additionally transmits cultural norms and is capable of mental restoration, support for meaningful action and ultimately pedagogy.

This area of research will explore questions such as: *How do occupants learn from green design, and what is the nature of this learning? In what ways do green interiors encourage or support environmental stewardship by the occupants? Can green interiors ultimately influence positive environmental behavioral change across settings?*

The goal of this paper is to introduce a research design that explores the influence of the built environment on occupant environmental attitudes and behaviors through a lens that is both qualitative and quantitative. The theoretical framework will be presented first, followed by the research design, all of which is the hopeful basis for a dissertation proposal.

NARRATIVE

“My point is that academic architecture is a kind of crystallized pedagogy and that buildings have their own hidden curriculum that teaches as effectively as any course taught in them” - David Orr, Earth in Mind

The way we build tells a profound story about the ways we have chosen to treat each other and the ecosystems that sustain us. It is plausible to postulate that the buildings we inhabit not only expand opportunities for positive behavior change, but also give gentle guidance toward shifting societal norms. Thus, despite intent or perhaps even acknowledgement, it seems designers and architects are telling stories through design.

But what is the content of these tales? The vast majority of buildings today seem to be telling the wrong story about the situation of humans on the planet. In other words, “the advent of cheap and readily available oil let the modern building work in spite of nature rather than with it” (Sawin, 2007). The result is the ubiquitous modern structure, the arbiter of the message that locality can be dismissed, disconnection is normal and precious resources need not be conserved (Orr, 2002). Arguably, interior designers pick up where the architects left off, carrying this questionable narrative deeper into the building.

It can be said that sustainable design today demonstrates the exciting possibilities of merging design aesthetics with environmental building technology – and that new stories are being written as we speak. But at the same time, this paradigm shift is not often observable from the perspective of the day-to-day building occupant,

nor is it designed to be. Many green building innovations happen behind the scenes and ask little engagement of the building occupants. The aesthetic and function of the space often remain proudly similar to conventional building design, and the green features are likely to go unnoticed by the uninformed.

There is, perhaps, an opportunity to create buildings that are more than environmentally conscious summations of art and science. We can push our conceptualization of the green interior beyond the role of inspiration and function, and further yet into its potential for providing mental restoration, supporting meaningful action and ultimately offering a form of pedagogy. The proposed green building research thus shifts from the conventional focus on green building technology, and proposes that building interiors have an additional contribution to the environmental movement *via* the people inside them. In the course of the research proposal, we will examine the possibility of interior design as an inspired tool for environmental education.

Some provisional definitions

There are three major constructs at play in this discussion: learning, green interiors, and the outcomes of successful environmental education. A preliminary definition of each is as challenging as it is necessary.

From the field of cognitive science, we find that humans, as information processors, are *always* learning. The view here of learning is broad, and understood at the level of individual cognitive structures – where any change in structure is considered learning (Parson, 1995). To determine whether the nature of individual learning brings positive,

negative or neutral outcomes for the problem at hand, we would need to define the parameters of the problem and engage in further analysis.

Likewise, our view toward green interiors and environmental stewardship (behavioral and attitudinal outcomes) is also broad – and includes those interior designs, attitudes and behaviors which help us to “meet the needs of the present without compromising the ability of future generations to meet their own needs” (Bruntland, 1987). In this discussion, human cognitive needs are an integral part of “needs of the present.” It is this merging of human cognition and green interiors that distinguishes the current project from mainstream approaches to green building research.

The field of Environmental Education (EE) offers helpful distinctions for both the role of the “educator” (in this case the interior environment) and the spectrum of possible educational outcomes for building occupants.

If “ecological literacy” is the goal of environmental education, and the proposition here is that green interiors can become environmental educators to some capacity, what is that capacity? This paper will examine a range of roles the interior environment might play, from modeling societal norms to supporting mental functioning to actively teaching occupants through opportunities for engagement.

We may further question what kinds of outcomes we can reasonably expect from building occupants in terms of environmental stewardship, and how can we describe these desired outcomes? I will use foundational EE literature ("Tbilisi Declaration," 1977) that grounds the goals of environmental education as: knowledge, awareness, attitudes, skills and participation. Such distinctions will become particularly helpful as construct measurement comes into question.

The greatest challenge of addressing the notion of learning in buildings is the isolation of the built environment as a stimulus for learning. Environmental stewardship, in particular, is described as a multiply determined behavior (De Young, 1993), where factors such as culture, physical environment, existing knowledge, and social influences may merge in various ways to support positive outcomes. The research design will attempt to address as many of these variables as possible – and will not hypothesize a direct causal link between green buildings and environmentally responsible behavior, but that green buildings are increasingly able to enhance positive learning experiences in regard to environmental stewardship.

The Green Interior as Environmental Educator

It is helpful to next consider the (green) interior design and its broad capabilities to support and/or encourage environmental education. A variety of literature from the fields of Sustainable Design and Environment-Behavior studies has been consulted to inform the themes diagramed below (Figure 1). Note that the following are not necessarily defining features of a green interior design, but may provide future guidance to those who wish to educate through design.

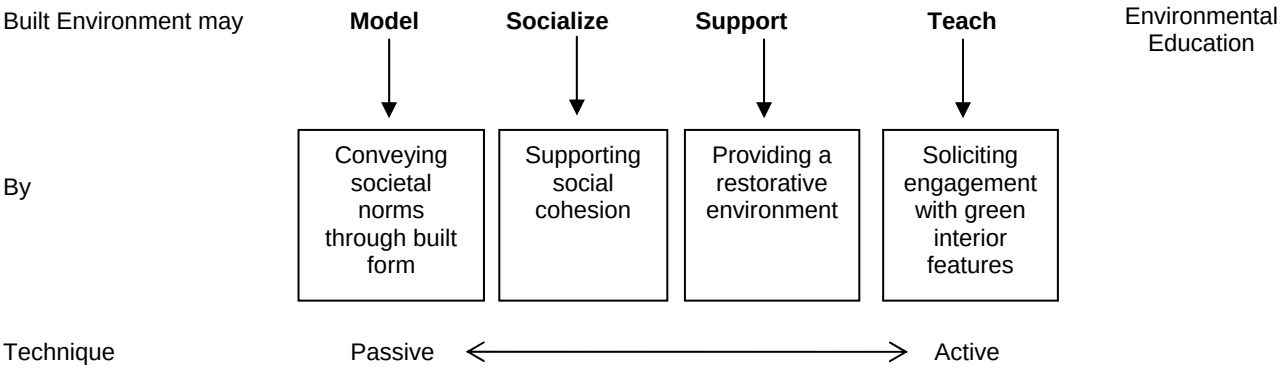

Figure 1. *Potential for the Green Interior as Environmental Educator*

The mediums identified above (Figure 1) are the starting point for a series of hypotheses about the potential impacts of green interiors on environmental outcomes. On this spectrum of passive to active strategies, four major themes emerge as provocative areas of study: 1) Societal norms embedded in built form, 2) The role of social cohesion in environmental outcomes, 3) How restorative environments may enhance concentration on environmental issues, and 4) Notions of environmental feedback or active engagement with the building. In future work, I will outline more clearly how the built interior environment contributes to each of these areas, and make further connections between these strategies and learning – or the strengthening and expansion of human cognitive structures -- in regard to environmental issues.

Structuring the Research Question

At the heart of the research question is the attempt to explore the potential impacts of the green interior on the environmental education of building occupants. Several mediating independent variables (such as social cohesion and mental functioning) have been identified in the previous section, and the dependent variables are shortlisted from the goals of environmental education ("Tbilisi Declaration," 1977). Beyond measuring outcomes in terms of attitudes, knowledge and behavior, I am also interested in changes in building occupant optimism, or belief that human action can make a difference regarding environmental problems. I further propose to expand the inquiry by questioning the ability of occupant outcomes to ultimately influence the performance of the green building itself. Figure 2 shows how these factors may be structured into a cohesive research question.

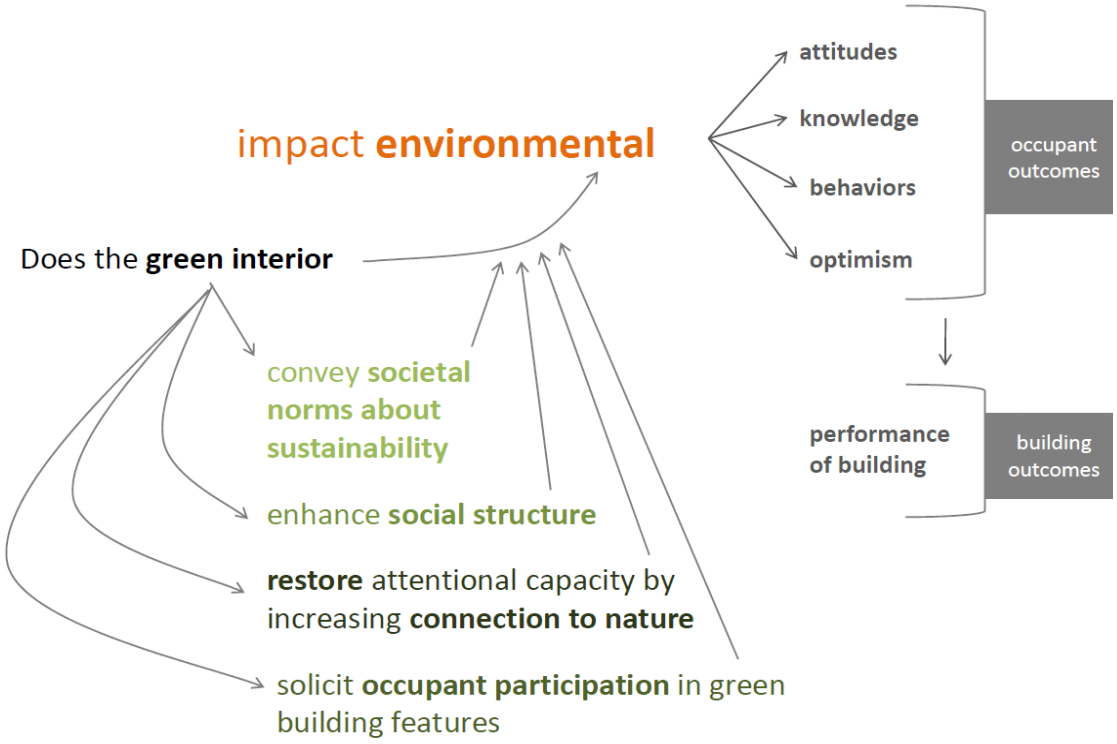

Figure 2. *Structuring the Research Question*

Moving forward with the ideas in Figure 2, I next begin to identify constructs and package them into a research design (where the major constructs are identified in circles and the measurements are indicated in squares.) Thus, the broad structure for my research inquiry can be seen in diagram format (Figure 3).

Proposed Research Methodology

The system of inquiry for this research project is naturalistic, as I will be attempting to make inferences about environmental stewardship attitudes and behaviors by asking questions and observing building occupants in natural settings. In particular, I will

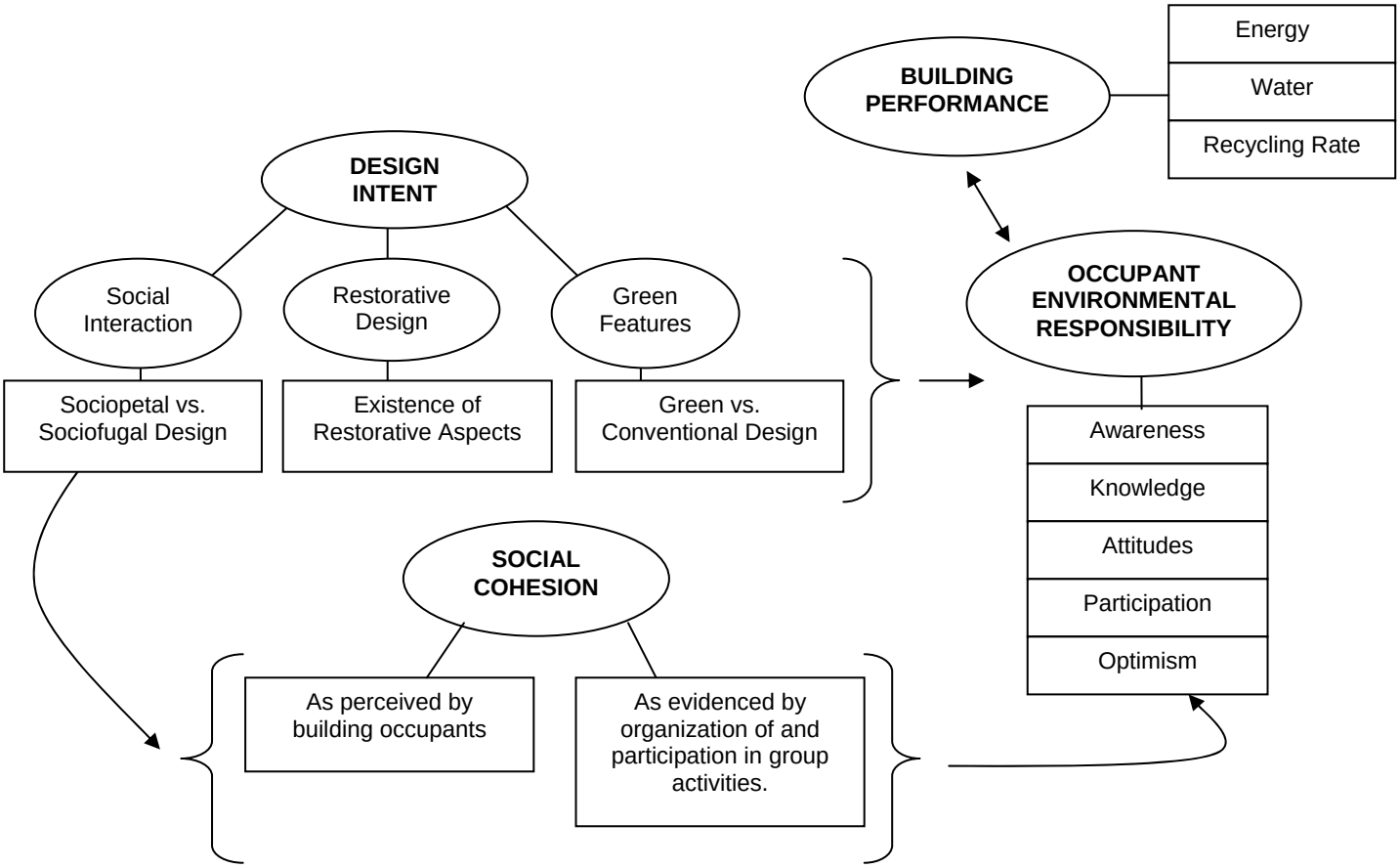

Figure 3. *Research project construct packages and hypothesized relationships*

examine variables across two distinct environments: 1) a green interior environment which incorporates restorative aspects and attempts to foster social interaction through design, and 2) a conventional interior environment which did not have explicit aims to do any of the above.

After developing a theoretical argument in literature review format, I intend to use a combination of quantitative and qualitative methods to conduct data collection and analysis for the hypotheses in question. See Figure 4 for the proposed research activities across a timeline.

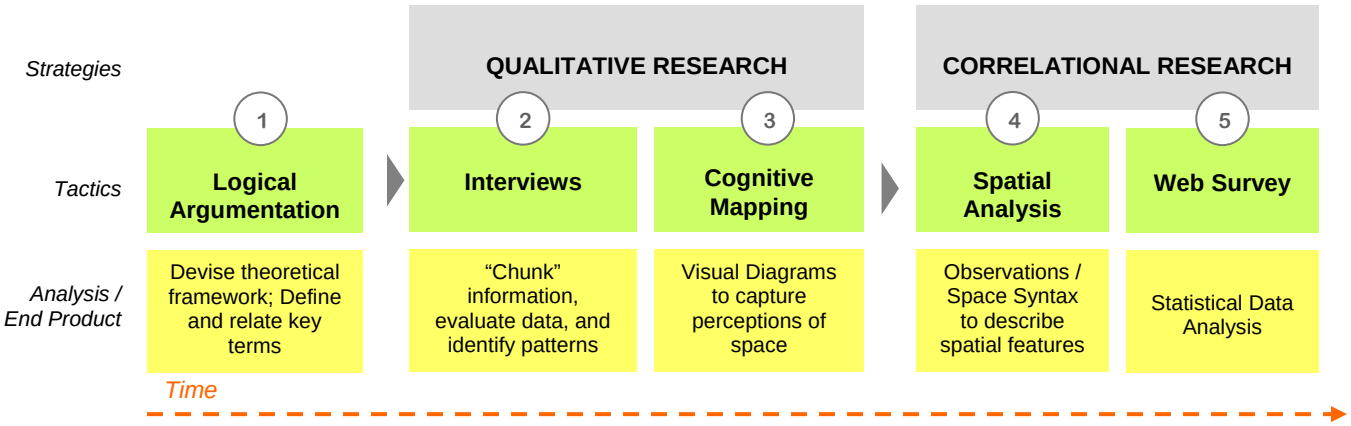

Figure 4. *Proposed Sequencing of Research Data Collection*

Conclusion

The theoretical and methodological ideas presented in the paper are the groundwork for a future dissertation proposal. My hope is to challenge the current mainstream approach to green building research, which is dominated by questions of building technology, and make a contribution to the growing field of literature which examines the individual, social and cultural implications of green buildings in society.

If a case can be made for the positive influence of design decisions on environmental outcomes, such findings could impact the way we design, build and operate green buildings. Ideally, this research can be the starting point for a body of work that equips built environment professionals with informed strategies to support, encourage, and perhaps even teach, environmental education through design.

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Process Folder: a Comprehensive Assessment Tool

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ABSTRACT

With the current overload of information and growing demands of the profession, many Interior Design programs struggle to cover necessary requirements. Assisting students in developing their own design processes, good time management and focus is essential for success. At hand issues often become marginalized in the chase for impressive final presentations that are catchy enough to win student design competitions and program accreditation. In order to coach 'the invisible', my co-author and I invented the "Process Folder" that is now utilized by every interior design course within our program. The process folder is kept by students throughout the semester registering every step of their design and learning process. The process folder consists of exercises and questions guiding students to discovery. Students are required to keep all iterations of their design process and research in the folder in the order they perform those activities for their projects. Each course's process folder shares the same organization, but has content and questions specific to that particular course.

The paper will begin with a description of logic and steps of the process folder development; it will provide examples from a variety of courses process folders, and show how the process folder is used for assessment of student learning, teaching pedagogy and program performance. The process folder has proven to be very successful at many levels. First of all, the process folder is beneficial to students, serving as a guide through the semester to assure coverage of all important aspects of

the course (both covered in class and suggested for independent investigation). By providing an organizational structure and complete documentation of essential aspects of the project or course, the process folder becomes an excellent source for reflection and aids in the improvement of time management. The process folder helps students to gain insight into their own design and learning processes, and to evaluate the distribution of the effort. For an instructor, it allows for tracking the entire student effort and to easily identify whether a student's design is evidence-based and their learning is consistent. The process folder also assists in grading, as the proof of all student actions is documented in an organized and thorough manner. By comparing students' work that is meticulously documented in the process folder, the instructor immediately notices the gaps in learning or understanding that need to be addressed. The pedagogy and instructional materials can be updated in a timely manner to suit the student needs and curriculum goals. On a larger scale, for the Interior Design Program, the process folder becomes one of the main vehicles for self-assessment. It creates an instrument to identify the major knowledge gaps, it clearly shows whether the course material responds to the course and program goals and requirements, and whether there is redundancy or lack of sequence within the curriculum. Lastly, the process folder serves as CIDA accreditation material by providing straightforward evidence to all the accreditation requirements that may not be clearly visible from the final project presentations or examinations.

NARRATIVE

With the current overload of information and growing demands of the profession, many Interior Design programs struggle to cover necessary requirements. Assisting students in developing their own design processes, good time management and focus is essential for success in interior design practice. When dilemma of choice between demands of accreditation and profession, and pure learning, comes into play, the effort typically weights toward impressive presentations that are catchy enough to win student design competitions and program accreditation rather than toward development of near invisible design process and ethics. In order to coach 'the invisible', we invented the "Process Folder" that is now utilized by every interior design course within the program at the University of Texas at San Antonio. The process folder becomes a log for students throughout the semester registering every step of their design and learning process. The process folder consists of exercises and questions guiding students to discovery. Students are required to keep all iterations of their design process and research in the folder in the order they perform those activities for their projects. All drawings, writing and search findings must be annotated to the extent that an outside reviewer or the author themselves after many years can clearly understand the process and make the same decision (s)he made during working on each step of a particular project.

Each course's process folder shares the same organization, but has content and questions specific to that particular course. When we initiated process folders, the

guidelines were rather general and the same for all courses. The categories of process folder included issues universal for most interior design projects or research into human environments, like goals and objectives, human behavior, sustainability, social, political and economic issues, light and color, precedents and typology, codes and standards, team management, and more. By default, those categories also closely relate to the CIDA standards. Very soon we realized that even though the list of issues to cover was rather thorough, it was too overwhelming and open-ended, and students failed to address all issues in each project. In addition, due to differences in each student's methods of capturing and organizing information, it became challenging for instructors to filter through the folders. On the next step of process folder development, categories mentioned above became tabs, and the process folder itself became a sequence of questions and/or short exercises specific to each studio project or course assignment to provide students additional guidance through the process and address specific issues in the order typical to design development or research progression. "Create a concept statement – keep all iterations

Write at least 3 different concepts for the design. Interpretation of the same design idea does not qualify as a different concept" and "Explain your selection of interior finishes and materials. Describe your reasoning for selecting each finish or material (justify your choices relative to the goals and objectives of the project program)" can serve as two examples of such questions/exercises. In its current state, the process folder does not account for the feedback loops assuming students will return to various sections and update them as they develop a project or complete an assignment. To keep track of

feedback loops, each page or each entry into the process folder is dated. One of the instructors also requires a time sheet where student's record time spent per task.

The process folder has proven to be very successful at many levels. It is beneficial to students, course instructors, and program as a whole in ways discussed further. First of all, the process folder is valuable to students, serving as a guide through the semester to assure coverage of all important aspects of the course (both materials addressed in class and suggested for independent investigation). By providing an organizational structure and complete documentation of essential aspects of the project or course, the process folder becomes an excellent source for reflection and aid in improvement of time management. The process folder helps students to gain insight into their own design and learning processes, and to evaluate the distribution of the effort. It is a vehicle to capture an entire design or research project documentation and allows for easy feedback loops and reassessment of decisions. For an instructor, the process folder allows for tracking the entire student effort and to easily identify whether the student's design is evidence-based and their learning is consistent. The process folder also helps grading as the proof of all student actions is documented in an organized and thorough manner, providing insight into amount of endeavor put into the project or assignment not always easily visible from the final presentation. By comparing students' work that is meticulously documented in the process folder, the instructor immediately notices the gaps in learning or understanding that need to be addressed. The pedagogy and instructional materials can be updated in a timely manner to suit the student needs and curriculum goals. For example, in junior studio we expect students to be familiar

with color theories, and design elements and principles. However, when collecting process folders for review, we noticed that the majority of students did not fill in the pages related to those issues. Through discussion with students, it became evident that they knew what the terms meant, yet they never learned how to consciously apply principles described by those terms; for example, using specific design elements and principles to create desired design effect. Awareness of such gaps in students' preparedness early in the semester allowed the instructors to address it in a timely manner. When using a variety of instructional materials and methods (like lectures, field trips, assigned readings, handouts to be studied on student's own) understanding of the material evident in the process folder permits evaluation of effectiveness of each method, and thus serves toward improvement of pedagogy. On a larger scale, for the Interior Design Program, the process folder becomes one of the vehicles for self-assessment. It creates an instrument to identify the major knowledge gaps, it clearly shows whether the course material responds to the course and program goals and requirements, and whether there is redundancy or lack of sequence within the curriculum. When learning outcomes deduced from process folders are compared to CIDA matrix or similar tool identifying standards and learning goals for each course within the curriculum, strengths and weaknesses become apparent. Lastly, the process folder serves as CIDA accreditation material by providing straightforward evidence to all the accreditation requirements that may not be obvious from the final project presentations or examinations.

We need to notice that process folder has been used by our program for only 2 years, and is not nearly perfect. Every semester we learn from successes and failures, and improve the process folder accordingly. Different instructors tried different approaches to using the process folder in classes. For example, when we used process folder initially we realized that unless at least 10% of the semester grade is assigned to it, students do not have strong enough incentive of completing their process folder. In this case, the process folder received 10% if it was complete, and 0 if it was incomplete. One instructor experimented with assigning 80% of the grade to the process folder where each category within it literally became a set of graded exercises catering toward project completion. We personally feel that grading the process folder in such a way defeats its purpose. Once the process is graded, the purpose of the process folder shifts to yet another performance requirement (not so different from project presentation or examination) rather than learning and reflection. This is the opposite of what we were trying to achieve with introduction of the process folder. We have not done a formal assessment of process folder success like student survey, incorporation of true reflection questions, or case study comparing two sections of the same course where one section utilizes process folder and another one does not. This is our next step. From informal observation, we can admit that students become very attached to their process folders. When we collect the folders for review, students are very concerned how soon they will be returned. Even if they do not reflect as thorough as we would like them to on their process, they definitely gain awareness of time and effort it requires to develop a project or an assignment, and how their approach to decision making varies from their peers'.

We are pleased to have an opportunity to share our development with the entire community of interior design educators, and hope to solicit feedback in order to perfect process folder as an assessment tool.

Integrating Environmental Graphics in Retail and Contract Interiors

Jihyun Song

Iowa State University

ABSTRACT

Issue

In retail and contract interiors, environmental graphics play a powerful role for creating brand experience, as well as user well-being. Graphics as architectural interior elements provide stimulation, sensory experience, security, identity and orientation. While environmental graphics are broadly used in design practice and professional standards reference application of graphic identity (CIDA, 2006), this author finds little or no attention given to the topic neither within the curriculum nor in studio projects. In texts, integration of graphic identity in interiors is often covered in a few pages addressing decorative treatments and details. This paper presents a comprehensive approach to integrating graphics in contract interiors and addresses how understanding and applying the concepts advance spatial knowledge, theory of wayfinding and visual methods that strengthen communication within projects.

Context

Practicing and learning environmental graphics crosses disciplines of architecture, interior design and graphic design. Practitioners involved in spatial problem-solving must account for environmental communication involving both architectural and graphic

information. Passini (1999) emphasizes collaboration among design disciplines, stating that graphic communication is often expected to compensate for architectural problems, but it has limits. Interior architecture is a central consideration. Seen from interdisciplinary approaches in developing design knowledge and applications, environmental graphics should be studied across areas and especially in interior programs (Arthur and Passini, 2002; Berger, 2005).

To advance our understanding, a qualitative, evaluative study on teaching/learning environmental graphics was conducted with a group of interior design majors across three levels of studio. Because interior design skill development and knowledge is developmental, curriculum materials on environmental graphics were integrated with interior projects in a beginning sophomore level studio, an intermediate studio and culminated in a retail design senior studio. See appendix for information about students' projects.

Content analysis of students' projects across time and studio levels revealed beginning students engage and link interior space and graphic components with strong form, shape and surface characteristics considering architectural and communication needs. Dealing early with wayfinding issues appears to strengthen order and articulation of space. In the upper division retail projects, the same students with environmental graphic/interior knowledge and experience demonstrated strong creative expression and graphic identity in retail design solutions. Their designs highlighted environmental graphics for branding, advertising, marketing, enticing and attracting visual memories,

and store circulation. Total store identity was further addressed in signage and logo design in the retail space. Interior solutions offered added value for clients.

Summary

A teaching model for integrating environmental graphics and interior architecture elements across contract studios offers building blocks that increase knowledge of integrating interior and graphic design. Students benefit from linking environmental graphics to spatial definition, circulation, orientation and place identity. Learning goes beyond simple signage as graphic identity, but rather illustrates a whole where architecture, interior and graphics reinforce better communication. New courses and direction for infusing the interior design studio with knowledge of environmental graphic principles and their application in retail and contract interiors are supported.

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Integrating Environmental Graphics in Retail and Contract Interiors

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NARRATIVE

Issue

In retail and contract interiors, environmental graphics play a powerful role for creating brand experience, as well as user well-being. Graphics as architectural interior elements provide stimulation, sensory experience, security, identity and orientation. When graphics are introduced, space becomes a visual medium for a variety of messages that inform, inspire and influence three-dimensional experience. This is most evident in retail and shopping center design where extensive graphics, planning features, and sophisticated wayfinding elements are integrated to create a memorable experience. While environmental graphics are broadly used in design practice and professional standards reference application of graphic identity (CIDA, 2006), this author finds little or no attention given to the topic neither within the curriculum nor in studio projects. In texts, integration of graphic identity in interiors is often covered in a few pages addressing decorative treatments and details. This paper proposes a comprehensive approach to integrating graphics in contract interiors and addresses how understanding and applying the concepts advance spatial knowledge, theory of wayfinding and visual methods that strengthen communication within projects. Concepts of wayfinding design

are presented to elevate an awareness of collaboration associated with graphic design issues.

Context

Environmental Graphics encompass many areas of design, including signage, architectural graphics, wayfinding, imagery, interpretive graphics and merchandising. Practicing environmental graphics crosses disciplines of architecture, interior design and graphic design. Practitioners involved in spatial problem-solving must account for environmental communication through architectural and graphic information. Passini (1999) emphasizes collaboration among design disciplines, stating that graphic communication is often expected to compensate for architectural problems, but it has limits. He proposed a joint approach between “the spatial planners” and “the graphic designers”. While both disciplines have their own specific functions, an overlap is so large that a close relationship at an early planning stage is of paramount in good wayfinding design (Arthur and Passini, 2002). Interior architecture is a central consideration. Each of these areas must work cohesively with all the design elements of projects creating “a sense of place”. Seen from interdisciplinary approaches, environmental graphics should be studied across areas and especially in interior programs (Arthur and Passini, 2002; Berger, 2005).

Theory of Wayfinding

A teaching model for studio assumes that the theory of wayfinding and its spatial application is basic to retail settings. In the practice, Wayfinding Design requirements

are integral to articulation of interiors, architectures as well as graphic design. All impact users. Studies on existing problems in wayfinding indicate that difficulties surround circulation systems and information processing. Researchers provide explanations on what information people need to find their way, how information communicates directions, and how people's verbal and visual abilities influence wayfinding performance. In the multidisciplinary study (Arthur and Passini, 2002; Berger, 2005; Lynch, 1960) of wayfinding different terms were used to describe communication of spatial knowledge to others based on the graphic information. According to Lynch, good *environmental image*, or a legible surrounding heightens potential depth and intensity of human experience, offering a frame work for communication or conceptual organization (Lynch, 1960). Arthur and Passini (2002) introduced the term, *environmental communication* referring to architectural and graphic expression of information necessary to solve the wayfinding problems. He argues that the built environment and its parts should function as a communication device. Graphic communication devices or architectural features are landmarks and reference points. In a well-articulated environment, destinations, transition points (entrances and exits), circulation paths, and vertical circulations (stairs, elevators), can serve both landmarks and reference points (Passini, 1999). During wayfinding, people needs spatial knowledge of the environments to construct and develop their cognitive maps. Cognitive mapping is an overall mental image representation of the spaces and layout (Arthur and Passini, 2002). It is an internal spatial representation of environmental information and not directly observable. Graphic information such as signs, maps, environmental graphics, and graphic identity on the other hand are external device that are directly observable.

The use of environmental graphics facilitates *environmental communication*, allowing better understanding of space and special meaning to users. Graphics complement architectural interior features creating strength of environment.

Process/Content

To advance our understanding, a qualitative, evaluative study on teaching/learning environmental graphics was conducted with a group of interior design majors across three studio levels. Because interior design skill development and knowledge is developmental, curriculum materials on environmental graphics were integrated with interior projects and introduced in a beginning sophomore level studio. Additional content was offered in an intermediate studio and culminated in a retail design senior studio. See appendix for information about students' projects.

At the beginning level, students explored environmental graphics integrating it with three dimensional conceptual space. The main goal of this project was to expand students' ability to explore and build an aesthetic sense of spatial volume while bringing awareness to future wayfinding. Part of a project requirement was to finish their space model by designing and applying environmental graphics. Students experienced the power of graphics that communicates and provides spatial identity in space model. The project exhibited individuals' creativity in selecting, scaling, transforming and positioning of interesting graphic components. The activity of applying graphic component reinforced students' understanding of elements of design principles. Other learning outcomes were followed. Application of graphics led not only to aesthetical insight but

also advanced analytical thinking in terms of analyzing circulation and path, creating visual focus, contrast and central attention. The project evaluation focused on the appropriate use of graphics, evidence of graphic manipulation, and creativity and spatial interest.

At the intermediate level, a design project was used to incorporate wayfinding graphics to a showroom design. Wayfinding graphics plays a role in exhibits making the space more memorable to visitors. Goals were to demonstrate how graphics might distinguished and be communicated to the various user groups in the market place and thus remembered. Students' approach included designing a meaningful graphic to support visitor's wayfinding experience, provide spatial orientations as well as educate the visitors. Students incorporated the exhibit company's graphic logo into the 2-D and 3-D elements of space to promote the company's business identity and enhance visitor's experience. Wayfinding graphics were related to the products in display for the communication purposes. While this project focused on creating a space with wayfinding solution, placement of graphic was examined to increase the legibility of the environment.

The upper division studio featured knowledge about the field of Environmental Graphic Design and its practice in retail and contract interiors. The project focused on the marriage of graphic identity and wayfinding through interpretation and application of environmental graphics. Part of the project objectives was to demonstrate an understanding of environmental graphics and their application, thus gaining knowledge

of branded environments, use of brand identity and graphic communication. Students did preliminary research to study the integration of graphics and the retail brand within the store and/or hospitality experience. In the design phase students proposed an environment where brand image and identity were expressed by its name, logo, sign, package, and other brand items of the store related to the design of interior setting. Students' projects illustrated how graphics, interiors and architecture influenced each other. The design process showed development of strong store personality and image created by space layout, architectural and graphic elements, colors, lighting and other wayfinding elements. Students' learning became most evident in retail and contract space through extensive graphics, interior features and sophisticated identity design elements. Communicating brand messages and establishing brands identity of a retail store and contract interior were visually evident.

Results

Content analysis of students' projects across time and studio levels revealed beginning students engage and link interior space and graphic components with strong form, shape and surface characteristics considering architectural and communication needs. Beginning design students exhibited spatial knowledge with creativity in mind. Application of graphic was enhanced by volumetric thinking and analysis of the space and architectural interior elements. Dealing early with wayfinding issues appears to strengthen order and articulation of space. In the intermediate level students displayed a more functional and aesthetically pleasing design and allowed graphics to be integrated into the building's architecture and interiors. In the upper division retail

projects, the same students with environmental graphic/interior knowledge and experience demonstrated strong creative expression and graphic identity in retail design solutions. Their designs highlighted environmental graphics for branding, advertising, marketing, enticing and attracting visual memories, and store circulation. Total store identity was further addressed in signage and logo design in the retail space. Interior solutions offered added value for clients.

Summary

Theory of wayfinding provides a conceptual framework of integrating environmental graphics for environmental communication and ultimately the aesthetic quality of space. A teaching model for integrating environmental graphics and interior architecture elements across contract studios offers building blocks that increase knowledge of integrating interior and graphic design. Students benefit from linking environmental graphics to spatial definition, circulation, orientation and place identity. Learning goes beyond simple signage as graphic identity, but rather illustrates a whole where architecture, interior and graphics reinforce better communication. The process of incorporating environmental graphics broadens students' theoretical insights as well as technical refinement. Teaching approach to variety of project types is suggested to demonstrate these development skills. New courses and direction for infusing the interior design studio with knowledge of environmental graphic principles and their application in retail and contract interiors are supported.

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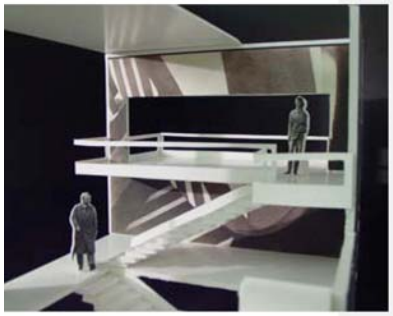
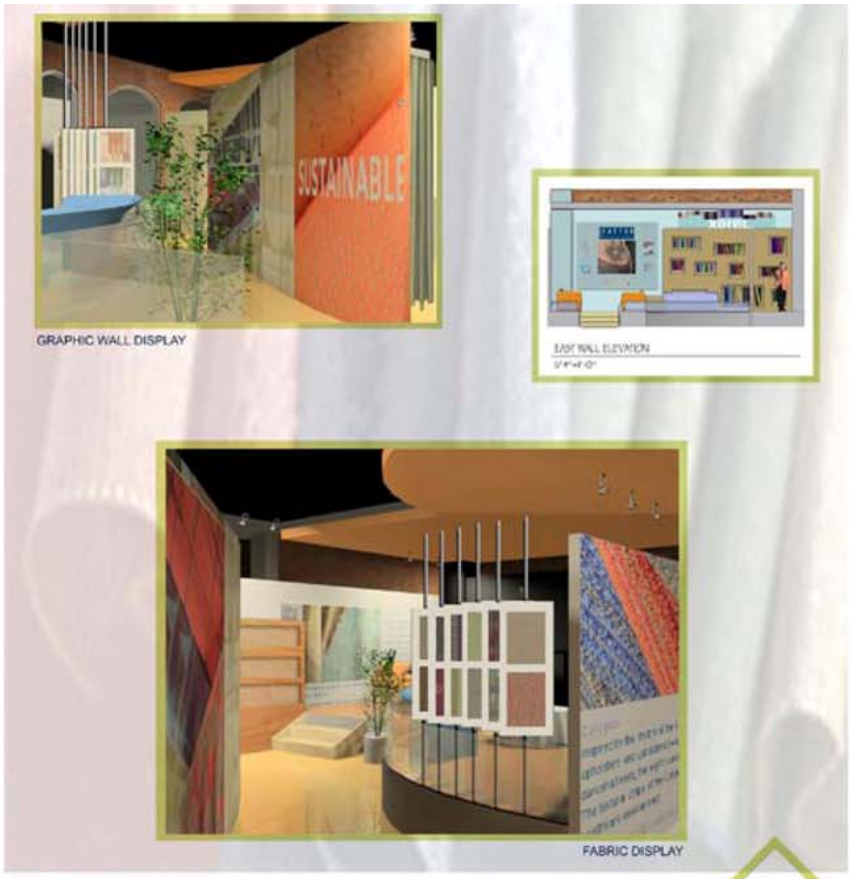
Appendix



ACCESSORY WALL
SHOE/BAG WALL
STRUT
CASH WRAP
STRUT
ENTRY WALL
STRUT

PULSE
ENTRY ELEVATION
PULSE
FITTING ROOM ELEVATION
CASH WRAP ELEVATION
DISPLAY WALL ELEVATION
PULSE



Carnegie NeoCon 2006

London Trash: Green Design and Post-Industrial Art

Processes and Products of Design and Material Culture

Johnnie Stark

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ABSTRACT

Purpose

This report documents *London Trash: Green Design and Post-Industrial Art*, a summer 2008 study abroad course, and encourages an international context as an effective means of sustainable design instruction. The experience engaged students in analysis of green themes supported by scholarly literature and on-site investigations in culturally abundant London.

Framework

Organized by an interior design professor (the author) and an art history colleague, the class occurred over a three-week period with students living in flats in central London and visiting numerous locations from Stonehenge and Kew Gardens to Greenwich and Docklands. Twenty-one undergraduates and eight graduate students participated and represented programs in interior design, art history, communication design, fashion design, studio arts, kinesiology, and business. Combining extensive readings and cultural immersion, the class not only presented the sustainable principles of waste reduction, holistic approaches, and life cycle analysis, but also introduced students to qualitative research methods.

A primary learning theory model used in structuring the curriculum was Bloom's Taxonomy (Ankerson & Pable, 2008, p.43). Prior to arrival in London, students were given a green glossary and a green building movement chronology and instructed to read *Cradle to Cradle*: *Remaking the Way We Make Things* (McDonough & Braungart, 2002) and *Waste and Want: A Social History of Trash* (Strasser, 2000). These sources provided basic knowledge of green concepts from both the design process and material culture perspectives. As the course progressed, activities increased in complexity. Written assignments required critical analysis of objects or experiences based on daily tours and supported by references to designated readings.

Numerous authors state the importance of active participation in understanding design issues, whether citing learning activities that require "kinesthetic, mental, and emotional involvement" (Ankerson & Pable, 2008, p.40) or action research where "emphasis is upon knowledge emerging from localized settings" (Groat & Wang, 2002, p.111). Researchers also note cultural surroundings and social constructs as the underpinnings of phenomenology (Bogdan & Biklen, 1982, p.31) and ethnographic analyses characterized by "holistic exploration of a setting using context-rich detail" (Groat & Wang, 2002, p.82).

Whether studying the impacts of the Industrial Revolution on the arts and consumerism at the Victoria and Albert Museum, walking through four centuries of domestic interiors at the Geffrye Museum, or touring energy efficient dwellings constructed with green roofs, solar panels and wind technologies at the Beddington

Zero Energy Development (BedZED), *London Trash* afforded endless opportunities for students to make connections between cultural experiences, social practices and sustainable outcomes.

Importance

When study abroad courses combine scholarly preparation with disciplined looking and unstructured activities, learning on many levels can occur. For *London Trash*, holistic, multidisciplinary course organization reinforced the holistic, multidisciplinary approach required by sustainable principles. Cultural juxtapositions also offered insights. British public transportation contrasted sharply with a car-centric United States society. The students experienced first-hand the effects of mass transit on the built environment, community life, and personal habits.

Relevance

London Trash addressed two current interior design issues: the participation of interior designers in the global economy, and the timeliness of sustainable practice, which recognizes responsibilities inherent in global citizenship. The cultural institutions and post-industrial environment of London provided the quintessential context for examining green issues and the implications for art and design.

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London Trash: Green Design and Post-Industrial Art

Processes and Products of Design and Material Culture

Johnnie Stark

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NARRATIVE

Background

London Trash was developed in a collegial atmosphere encouraging international studies and multidisciplinary collaboration. At the University of North Texas, the College of Visual Arts and Design (CVAD) is composed of three departments, Design, Art Education/Art History, and Studio Art. Interior design, fashion, and communication design comprise the Design Department. Discussions between the author and Dr. Jennifer Way, a fellow art history faculty, revealed a shared interest in sustainability issues which evolved into the June 2008 *London Trash* class. The course offered six credit hours with no pre-requisites. Twenty-one undergraduates and eight graduate students participated and represented a cross-section of CVAD programs as well as business and kinesiology majors.

The Council for Interior Design Accreditation (CIDA) standards (CIDA, 2006), state that students must engage in learning experiences addressing sustainability principles and interior design practice in a global context. Green design requires a holistic approach supported by strategies of waste reduction, life cycle analysis, and collaborative processes. The diversity of the student population created pedagogical challenges. All students needed a basic understanding of sustainable design theories.

The inclusion of graduate students was an opportunity to expose undergraduates to qualitative research methods.

Review of Literature

Ankerson and Pable (2008, pp.40-42) discuss active participation and experiential learning as valuable strategies and stress the importance of accommodating a broad range of abilities through course design. Bloom's taxonomy classifies six levels of intellectual behaviors in ascending order of complexity: knowledge, comprehension, application, analysis, synthesis, and evaluation. (Ankerson & Pable, 2008, pp.43, 44). The model emphasizes the sequence of building on basic skills such as simple recall or recognition and then progressing to more abstract tasks. (Ankerson & Pable, 2008, p.44). Kolb's experiential learning theory outlines a cycle of "experiencing, reflecting, thinking, and acting," and allowing a balance of responses to multi-sensory, kinesthetic events (Ankerson, & Pable, 2008, p.42).

Bogdan and Biklen (1982, p.2) define qualitative research as a strategy focused on data categorized by concern with the description of "people, places, and conversations" rather than statistical variables. As opposed to quantitative methodologies, qualitative research investigates complex questions in context emphasizing emerging knowledge rather not easily addressed by theoretical hypotheses (Bogdan & Biklen, 1982, p.2). In discussing qualitative approaches, Groat & Wang (2002, p.182) identify ethnographic research, used extensively in anthropology, that emphasizes "immersion of the researcher in a particular cultural context and the attempt to ascertain how those living in that context interpret their situation." The

researcher is characterized as the “participant observer,” a basic qualitative technique (Bogdan & Biklen, 1982, p.2; Groat &Wang, 2002, pp.183-184). According to Groat & Wang (2002, pp.179-180), qualitative research is similar to the interpretive-historical method since “. . . both strategies seek to describe or explain socio/physical phenomena within complex contexts and both seek to consider the relevant phenomena in a holistic manner.” Differences exist between the methods: Interpretive-historical studies deal with the past by examining documents and artifacts whereas qualitative strategies deal with the present and collect data through observation of or open-ended interviews with people over a prolonged period of time (Groat & Wang, 2002, p.180).

Finally, Groat & Wang (2002, p.111) define action research methods as “studies that examine a concrete situation, particularly the logic of how factors within that situation relate to each other as the process moves toward a specific empirical goal.” Action research is also based in the social sciences, specifically sociologist Kurt Lewins’ “field theory” which stresses the interdependence of theory and practice (Groat & Wang, 2002, p.111). In Groat &Wang (2002, p.115), this discussion occurs in the context of the “coexistence of design and research” and the transition to more collaborative approaches. “In today’s post-industrial economy, in which projects are increasingly large and complex, the design process often calls for expertise in a wide variety of disciplines.” (Groat & Wang, 2002, p.115)

Framework

Informed by learning and research theories, the course structure utilized foundational materials, progressively complex activities, interpretive-historical analysis,

multiple learning style opportunities, and qualitative experiences through cultural immersion. The author compiled a green glossary and chronology and assigned *Cradle to Cradle: Remaking the Way We Make Things* (McDonough & Braungart, 2002). Excerpts from *Biomimicry* (Benyus, 2002) and *Infinite Nature* (Hull, 2006) were also suggested. Dr. Way assigned readings from *Waste and Want: A Social History of Trash* (Strasser, 2000), *The Green Studies Reader* (Coupe, 2000), *Culture and Waste* (Hawkins & Muecke, 2003), *Second Hand Cultures* (Gregson & Crewe, 2003), and *Landscape and Englishness* (Matless, 2001). Numerous articles and websites were available online. These sources addressed themes common to interior design and art history: the influence of culture and history on process and product; life cycles of objects and communities bracketed by the Industrial Revolution and Post-Industrialism; and the relationship of material culture and consumerism to objects, people, and nature.

Prior to departure, a syllabus, itinerary, and the green documents were distributed. The decision had been made to remain in central London to maximize immersion. Dr. Way identified and coordinated the event venues through the American Institute for Foreign Study (AIFS), study abroad provider. The first week began with a bus tour overview, then visits to the Design Museum and The Hayward gallery, the Victoria & Albert Museum, and the Tate Modern. The week concluded with a Thames riverboat ride to Greenwich and Docklands. During the second week, the class traveled to Kew Gardens, Stonehenge and Salisbury, and the Beddington Zero Energy Development (BedZED). For the final week, the students visited the Museum of London and Bethnal Green, the Institute for International Visual Arts, the Geffrye Museum and the Imperial War Museum. For the eleven scheduled events, students were responsible

for eight 500-word essays. Topics were assigned at the beginning of each class, discussions were held at the tour locations, and papers were collected at the next meeting. The students lived in flats with easy access to public transportation, grocery stores, and the AIFS facility which provided meeting spaces, a computer center, library and cafeteria. Students were free to arrange side trips on the weekends. They were encouraged to keep journals and sketchbooks, but these materials were not graded. In addition to the daily assignments, the graduate students developed one of the major themes into a PowerPoint presentation.

Discussion

Students explored the effects of culture and history on process and product at the Design Museum and The Hayward gallery. Their essay question was: “How is design influenced by indigenous materials and vernacular culture?” The Design Museum showcased *Richard Rogers + Architects – From the House to the City* (24 April - 25 August 2008), a survey of Rogers’ work from the 1960’s to the present. The Hayward gallery featured *Psycho Buildings: Artists Take On Architecture* (28 May - 25 August 2008). Although the Rogers’ exhibit was filled with outlines, photos, and models of indigenous building materials and sustainable solutions based on local climate and cultures, the students did not fully grasp the concept until they saw Korean sculptor Do Ho Suh’s 1/5 scale model/tableau, *Fallen Star 1/5* (2008), at The Hayward depicting a traditional Korean house crashing into a four-story apartment building in Providence, Rhode Island, the artist’s first home in the United States.

There were many examples of life cycles of objects and communities and the connections between maker, user and artifact. The Victoria and Albert Museum's permanent exhibit on William Morris and the Arts and Crafts movement was a favorite. Students were instructed to "select an object and use your readings to review it critically." Many of them cited the *Cradle to Cradle* (McDonough & Braungart, 2002) discussion of the Industrial Revolution and the transformation from cottage industry to mass production when analyzing a Morris furniture piece or textile. The Thames boat ride passing by Docklands warehouses and arriving at the Canary Wharf office towers was a physical experience of an economy dependent on industry and shipping evolving to one based on financial and information services. The BedZED ecovillage demonstrated how advanced green technologies allow an entire community to approach a sustainable "cradle-to-cradle" existence.

At the Geffrye Museum, the students walked through vignettes of four centuries of domestic interiors and discussed the influence of industrialization on house layout, gender roles, and mass consumption. Perhaps the most dramatic manifestation of material culture, objects, people, and nature was the mass-transit system. The students had become temporary residents and experienced the interdependency of transportation, social behaviors, and the built environment.

Summary

The multi-level teaching strategy of *London Trash* addressed student diversity, enlightened targeted discussions and aligned the course structure with methodologies appropriate to complex sustainability issues. The art history collaboration brought fresh

content and perspectives realized through a wealth of reference materials, research techniques, and critical analyses. Fine art examples often clarified design concepts, especially psychosocial issues. The discovery of material culture literature revealed the intersection of interior design processes and products with the social behaviors of consumption and consumerism. Through disciplined looking, scholarly analysis, unstructured experiences and cultural immersion, a study abroad course can offer unique opportunities to investigate sustainable design in a global context.

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First Year Design Studio Inquiries: Form, Identity, Culture

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ABSTRACT

Introducing first-year students to foundational design issues provides opportunities for exploring the ordering of space based on formal inquiries, identity inquiries and community inquiries. This introductory studio uses an important relationship between the variety of individual life perspectives of the students, their desire to make order of the world and their need to develop strong and lasting relationships within a given community.

Formal Inquiries: Order and Complexity

Finding the relationship between order and complexity is the question we first ask of the students. It is a question that requires the ability to understand an overall unity; the entire structural implications of form in relationship to the individual pieces that articulate and reinforce this unity. This is especially important because like the projects that follow, it inherently asks how different parts and characteristics of form develop a vocabulary that articulates congruity.

Identity Inquiries: Order of Individual Complexity

While the students are working on the first assignment, they collect 12 different cultural artifacts. The only requirement of their artifact selection is that it has personal

significance to them. With each artifact they develop a Cultural Artifact Sheet illustrating the artifact, identifying material, dimensional qualities, and narratives about the artifact's personal, cultural and historical significance. Upon completion of the first assignment, students use the collection of artifacts to develop the second project.

Artifacts tell a story of the individual through the development of the "Storied Vitrine". The students give their collection of artifacts to a partner. Given someone else's artifacts each student designs an inhabitable vitrine that "tells" a story of the individual whose artifacts are housed within the space. Understanding how proximity and relationship of artifact changes the meaning of the overall story, students also develop ideas about how different formal characteristics reinforce or impose a certain narrative meaning and structure to the arrangement of artifacts.

Cultural Inquiries: Complexity of Community Order

Relating the development of these individual storied vitrines to the first project's desire to create complexity through differentiated parts, students design a community of storied vitrines that represent their understanding of the community found among their classmates. The arrangement of designed objects, versus found objects used in the previous project, links back to organizational structures asking students to question their understanding of how community is made physical in the design of the built environment.

Representation

Through this process students are introduced to technical representation skills. The first assignment introduces them to drafting and model building skills. With the introduction of a simple program and a larger space the second project introduces them to scale and

conventional architectural drawings while reinforcing their model building skills. Lastly, the third project introduces the notion of a site, reinforcing model-building skills, and introducing them to three-dimensional architectural drawings such as paraline and perspective drawings. By joining the representational skills to the design problems, students learn that the craft of representation offers insight into design solutions.

NARRATIVE

Introducing first-year students to foundational design principles provides opportunities for exploring the ordering of space based on formal inquiries, identity inquiries and community inquiries. This introductory studio uses an important relationship between the variety of students' life experiences, their desire to make order of the world, and their need to develop strong and lasting relationships within a given community.

Course Structure and Learning Strategies

The course structure relies on the development of its main learning objectives through a series of three projects. Each project outlines more detailed learning objectives that relate back to the overall course objectives. The strongest strategy for developing student engagement relies not only on the course structure but also on the personal narratives of each of the individual students. The different projects develop conceptual and critical design inquiry skills, representational skills, correlations to professional tools and processes, and the building of a strong community of designers (both students and faculty). The course uses a project-based learning strategy (studio environment) augmented with demonstrations of representation skills, two field trips, writing and development of a sketchbook.

The structure of the course engenders the development of creativity discussed in *Out of Our Minds* (Robinson, 2001): importance of the medium, control of the medium, ability to play and take risks, need for critical judgment. Switching between the different learning modalities found in acquiring representational skills and the development of design inquiry and process, allows the student to develop Robinson's first two attributes found in the medium of interior design and the last two found in play and critical

judgment. The two are never completely separated, for even during the process of acquiring skills of the medium, students develop representation strategies that suit their project and current skill set.

Formal Inquiries: Order and Complexity

Using a quote from *Elements of Design: Rowena Reed Kosteelow and the Structure of Visual Relationships* (2002) the first project starts with a discussion and project inquiry into the structure and order of the visual world. Students uncover the relationship between complexity and order. It is an inquiry that requires the ability to understand an overall formal unity in relationship to the individual pieces that articulate and reinforce this unity. This is especially important because like the projects that follow, it inherently asks how different parts and characteristics of form develop a vocabulary that articulates congruity. Students develop an awareness of "the elements of design, of structure, of the organizational forces which control them." (as cited in Hannah, p. 7) Through faculty-provided images of differing degrees of order, students develop a series of sketches, diagrams and hard lined drawings communicating their perceived understanding of the image's order. Through these drawings students identify points, lines and planes in the two-dimensional field as a way of finding (and sometimes imposing) order. Students then translate their two dimensional drawings into two three-dimensional models; one using linear elements and one using planar elements. The different models investigate and analyze how 3-D form creates order through basic design principles discussed in Ching's Form, Space and Order (2006).

At the end of each of the assignments students write a 500 to 750 word essay communicating how their projects used the different principles found in Ching to create order. These essays became the basis for their oral presentations.

Identity Inquiries: Order of Individual Complexity

While the students are working on the first assignment, they bring to class three different cultural artifacts every week. The only requirement for their artifacts selection is that they have to have personal significance to the student. With each artifact they develop a Cultural Artifact Sheet illustrating the artifact, identifying material and dimensional qualities, and narrating the artifact's personal, cultural and historical significance. Upon completion of the first assignment, students use the collection of artifacts to develop the second project. The cultural artifact sheets become an introductory exposure to specification sheets.

Upon commencement of the second project students are asked to read two different articles, one on the Spanish installation artist Christina Iglesius (Blazwick, 2002) and the other an essay on the meanings of chairs (Kingwell, 2006)

before exchanging their cultural artifact sheets with another classmate. They develop a cohesive narrative of the student's history. Students explore how different objects and their relationship to each other communicate different meanings.

The biographies of the students' lives rely on their artifacts' ability to tell a story of the individual through the development of the "Storied Vitrine". Given someone else's artifacts, each student designs an inhabitable vitrine that spatializes the story of the individual whose artifacts are housed within the designed space. Exploring how proximity and relationship of artifact changes the meaning of the overall story, students

also explore how different formal characteristics reinforce or impose a certain narrative meaning and structure to the arrangement of artifacts.

The design of the “storied vitrine” utilizes and reinforces formal strategies explored in the first assignment. However, now narrative and program integrate with formal and compositional strategies to design objects.

Cultural Inquiries: Complexity of Community Order

Upon completion of the second project – the storied vitrine – the class accumulates several designed objects. Each of the vitrines houses artifacts that tell the story of an individual. For the final assignment students select nine of the different vitrines and design an exhibit. Just as the arrangement of found objects in the vitrines communicate a narrative about the individual student, the organization of the nine vitrines communicates a narrative about the entire class as a community. Organizing the story lines of the different vitrines becomes an exercise in understanding and spatializing the diverse identities and cultures constituted in the class. This project reinforces the ideas developed in project two at a different scale and level of complexiy.

In order to reinforce the content of the first two projects, students develop three two-dimensional drawings and three-dimensional models that invoke three different experiential qualities: fear, anxiety and the sacred. Through etymological searches of these three words, students understand how language, seemingly rigid and static, become multivalent through nuanced reading of the word. A correlation between slippage of language and slippage of personal experience allows students to understand that design solutions are not static and given but determined by identification of design intent through articulation of specific parameters. Emphasizing

the often-conflicted relationship between design parameters breaks down the desire to find the “right” answer and allows students to engage in play and critical inquiry. Students identify parameters imposed by the outside environment (circulation, programmatic considerations, code restrictions) as opposed to designer imposed parameters (expressed experiential qualities of space, development of spatial narratives.) It is the introduction to the distinction Kahn makes between “Form” and “Design”. (Brownlee, De Long, 1991).

Representation

Through this process students acquire technical representation skills. The first assignment introduces them to drafting and model building skills. With the introduction of a simple program and a larger space the second project introduces them to scale and conventional architectural drawings while reinforcing their model building skills. Lastly, the third project introduces the notion of a site, reinforcing model-building skills, and introducing them to three-dimensional architectural drawings such as paraline drawings and perspective drawings. By joining the representational skills to the design problems, students learn that the craft of representation offers insight into design solutions.

Assessment

One of the most important learning objectives for the course is to help students develop critique skills. The ability to critique their individual work provides a strong foundation for developing projects on their own. Part of the learning objective is developed through the various assessment strategies used in the course. All of the projects have a rubric identifying the important aspects of each project. Students rely on the rubrics to develop self-assessments and peer-assessments skills half way through each project.

At each public presentation of the project outside jurors use the same rubric to assess the student presentations. By comparing the different rubric outcomes, students begin to calibrate their perception of design with other voices.

One of the most important concepts assessed throughout the semester is the notion of complexity and order. The ability to create order through formal qualities, spatial organization, functional qualities and narrative structure asserts the students' understanding of ordering principles of design. Discussing and assessing order in the different forms illustrates how order emerges in designed space. Students develop ideas that not only have strong order but also include layers of complexity. Once again these layers of complexity are discussed and assessed in the different design inquiries. With each project students grasp the balance between complexity and order.

Assessing the success of the projects follows the trajectory of these discussions, written essays, spatial explorations and project representations. Assessment both communicates the student successful learning outcomes while allowing for an objective discussion about the projects based on the relationship between these two broad attributes of design.

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Content analysis of introductory interior design college textbooks; A study revisited

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ABSTRACT

In an article published in 1995, the authors identified the most frequently used introductory interior design college textbooks and reported on the similarities and differences in the content of these texts (Potthoff and Woods, 1995). Thirteen years later, this study is being repeated with the goal of identifying consensus among the authors for the various topics of importance to introductory interior design courses today and to identify new topics that have been added which reflect changes in the profession, advances in technology, and updated CIDA standards.

A one question online survey was sent to the members of the Interior Design Educators Council (IDEC) who are registered with the organizations Member Center Online Directory in October of 2008. The question being, “Please tell us which interior design college textbooks you use in the first two semesters (introductory courses) of your program?” Surveys returned were used to identify the ten most frequently used introductory interior design college textbooks.

Following the methodology from the original study, these top texts will be examined on a topic-by-topic basis using the content analysis technique designed by Holsti (1969). This method of analysis allows for data to be categorized in a quantitative manner, documenting the number of pages of text devoted to each of the major and sub categories as determined by a review of the table of contents and the main body of text.

The major categories identified in the original study include historical overview, interior design profession, design theory, design communication, design process, human factors, planning residential interiors, planning commercial interiors, codes and regulations, historical preservation, interior support systems, ecological concerns, site analysis and building form, materials, structural systems and interior finishes, furniture, accessories, and future directions.

It is important that introductory interior design texts adopted by design educators present information relevant to current issues in interior design. Comparing the content of current texts against those of a decade or more ago should reflect changes in the profession and accreditation standards. Recommendations for inclusion of information not well represented can be made. In addition, reporting the findings on the amount of pages dedicated to a topic can aid design educators in the selection of the most appropriate book or books to fit their curriculum.

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NARRATIVE

Purpose

It is essential that introductory interior design texts adopted by design educators present information relevant to both historical and contemporary issues in interior design. Comparing the content of current texts against those of a decade or more ago should reflect changes in the profession and accreditation standards. In an article published in 1995, the authors identified the most frequently used introductory interior design college textbooks (see Table 1) and reported on the similarities and differences in the content of these texts (Potthoff and Woods, 1995). Thirteen years later, this study is being repeated with the goal of identifying consensus among the authors for the various topics of importance to introductory interior design courses today and to identify new topics that have been added which reflect changes in the profession, advances in technology, and updated CIDA standards.

Table 1
The 10 top ranking books from original 1995 study

1	Pile, J. (1988). *Interior Design.*
2	Kilmer, R., & Kilmer, W. (1992). *Designing Interiors*.
3	Faulkner, R., & Nissen, L., (1986). *Inside today's home* (5th ed.)
4	Nielson, K., & Taylor, D. (1990). *Interiors, an introduction.*
5	Allen, P., & Stimpson, M. (1994). *Beginnings of interior environment* (7th ed.)
6	Ching, F. (1987). *Interior design illustrated*.
7	Nissen, L., Faulkner, R., & Faulkner, S. (1994). *Inside today's home* (6th ed).
8	Ching, F. (1985). *Architectural graphics*.
9	Nielson, K. (1994). *Introduction to interiors*.
10	Panero, J., & Zelnik, M. (1979). *Human dimension and interior space*.

Methodology

An email message was sent to individuals of the Interior Design Educators Council (IDEC) who were registered with an email address in the IDEC Member Center Online Directory in October of 2008 (see Table 2). The message requested their participation and contained a website link to survey software at Qualtrics.com. Follow up requests for participation were sent by email in January and February of 2009. The survey contained one open-ended question and was programmed to collect answers anonymously as well as prevent a user from taking the survey more than once by initializing the "prevent ballot box stuffing" feature of the software. The number of respondents can be seen in Table 3.

The survey question was, "Please tell us which interior design college textbooks you use in the first two semesters (introductory courses) of your program. Just the title and edition is fine, we will look up authors, ISBN numbers, etc." Responses to the survey yielded the identity of the most used introductory interior design college textbooks (see Table 4).

Following the methodology from the original study, these top texts will be examined on a topic-by-topic basis using the content analysis technique designed by Holsti (1969). This method of analysis allows for data to be categorized in a quantitative manner, documenting the number of pages of text devoted to each of the major and sub categories as determined by a review of the table of contents and the main body of text. The major categories identified in the original study include historical overview, interior design profession, design theory, design communication, design process, human

factors, planning residential interiors, planning commercial interiors, codes and regulations, historical preservation, interior support systems, ecological concerns, site analysis and building form, materials, structural systems and interior finishes, furniture, accessories, and future directions.

Results

There is some discrepancy between the number of individuals with email addresses listed on the IDEC Member Center Online Directory and the number of individuals who are registered members of the organization. Although the IDEC membership list is not coordinated monthly, the membership director was able to provide an estimate of 627 members in October 2008 when the email distribution list was generated. However, the number of individuals with email addresses listed in the directory at that time was 759. Forty seven emails were discounted because they were either returned as non-deliverable (28) or the individual stated they are not teaching (3) or the email could not be delivered due to incorrect email format (9) or the individual responded to the email and not to the link (7).

Table 2
Requests to IDEC membership
Email invitations sent requesting participation in the survey via link to Qualtrics.com

n	Member Region
191	*South*
129	*East*
182	*Midwest*
104	*Southwest*
153	*Pacific West*
759	*Total email invitations sent*
- 47	*Emails discounted*
712	*Total email invitations delivered*

Table 3

Response from IDEC membership

Number of individuals responding to the survey

n	
712	*Total email invitations delivered*
258	*Number of individuals who responded to the survey*
36.24%	*Percentage of individuals who responded to the survey*

A total of 258 survey responses were returned (36.24%). Ninety seven (37.59%) of those responses reported, “I do not teach introductory courses” and the remaining 161 responses reported using 421 book titles. Considering the fact that many of the 161 responses cited using more than one book, a total of 122 individual book titles were revealed.

Sixty-eight (55.73%) books received only one response, 32 (26.22%) received 2-4 responses, and 22 (18.05%) received 5 or more responses. Those books receiving more than 10 responses (11 books; 9.01%) are listed in Table 4. It is these top ten books that accounted for 46.32% percent (195 responses) of the total 421 responses and will be analyzed in the second part of this study. It should be noted that there are two books that rank first and two books that rank second. These books returned an equal amount of responses and are thus tied in rank.

It is of interest to note that 5 books that ranked in the top 10 in the original study have updated editions that rank in the top 4 (due to a tie of number of responses) of this study. J. Pile (1988) *Interior design* ranked first in the original study and third in this study. Nielson, K., & Taylor, D. (2006). *Interiors: an introduction* (4th ed.) ranked fourth in the original study and tied for first in this study. Also tied for first in this study is Jones,

L., & Allen, P. (2008) *Beginnings of interior environments* whose 1994 (7th ed) co-authored by Allen, P., & Stimpson, M., ranked fifth in the original study. Other books that share the top rankings in both studies include Ching, F. (1987) *Interior design illustrated* (ranked 6 in original, tied for 2 in this study with the 2004 edition co-authored with Binggeli, C.) and Ching, F. (1985) *Architectural graphics* (ranked 8 in original, tied 2 in this study with the 2002 edition).

Books that have fallen off of the list include Kilmer, R., & Kilmer, W. (1992) *Designing interiors* which ranked second in the original study and is reported still in use with 10 (2.38%) responses (ranked 11). Faulkner, R., Nissen, L., & Faulkner, S. (1986) *Inside today's home* (5th ed) which ranked third in the original study and is reported still in use with 4 (0.95 %) responses using the 1994 edition. Panero, J. & Zelnik, M. (1979) *Human dimension and interior space* ranked tenth in the original study and is reported still in used with 6 (1.43%) responses.

New entries to the list include Ching, F. (2007) *Architecture: Form, space, & order* (3rd ed.) 22 responses (5.23%), Maureen, M. (2007) *Interior design visual presentation: A guide to graphics models & presentation techniques* (3rd ed.) 17 responses (4.04%), Slotkis, S. (2006). *Foundations of interior design* 14 responses (3.33%), Kilmer, W. & Kilmer, R. (2001). *Construction drawings and details for interiors: Basic skills* (1st ed.) 12 responses (2.85%), and Karlen, M., Ruggeri, K., Hahn. P. (2003). *Space planning basics* (2nd ed.) 11 responses (2.61%).

To look at the list of the top 10 books assembled in this study, one may infer a typical curriculum for the introductory interior design student in the first two semesters of

the program: a comprehensive/ general book of interior design, a drawing/graphics book, and a space planning book.

Table 4
The 10 top ranking books from this 2009 study

421 responses

	Rank		
1	1	28 responses (6.65%)	Jones, L., & Allen, P. (2008). *Beginnings of Interior Environments.* (10th ed.)
2	1	28 responses (6.65%)	Nielson, K., & Taylor, D. (2006). *Interiors: An Introduction.* (4th ed.).
3	2	22 responses (5.23%)	Ching, F. (2002). *Architectural Graphics*. (4th ed.).
4	2	22 responses (5.23%)	Ching, F. (2007). *Architecture: Form, Space, & Order.* (3rd ed.)
5	3	21 responses (4.99%)	Pile, J. (2007). *Interior Design*. (4th ed.)
6	4	20 responses (4.75%)	Ching, F. & Binggeli, C. (2004). *Interior Design Illustrated.* (2nd ed.)
7	5	17 responses (4.04%)	Maureen, M. (2007). *Interior Design Visual Presentation: A Guide to Graphics Models & Presentation Techniques.* (3rd ed.)
8	6	14 responses (3.33%)	Slotkis, S. (2006). *Foundations of Interior Design*.
9	7	12 responses (2.85%)	Kilmer, W. & Kilmer, R. (2001). *Construction Drawings and Details for Interiors: Basic Skills.* (1st ed.)
10	8	11 responses (2.61%)	Karlen, M., Ruggeri, K., Hahn. P. (2003). *Space Planning Basics.* (2nd ed.)

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Socio-cultural consideration of interior finishing in a cultural context: The dichotomy between ceramic use and socio-cultural effects in an emergent modern society, the case of Tunisia.

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ABSTRACT

This comparative study looks at ceramic as ornamentation by comparing its use and design between the end of the nineteenth century (the last period of the Moslem empire in Tunisia), and ceramic tile use in contemporary Tunisian society. The theoretical framework includes situating the historical context and its aesthetics by presenting Moslem aesthetic and thoughts that constitute a conceptual base for all forms of Islamic art. The analytical methods used in this study borrow methodological tools from both the fields of social sciences and mathematics. The data collection consists of visual photography of homes with ceramic tiles used both inside and on the exterior of the building, and of interviews with various actors involved in creating ceramic installations along with the users of the interiors. The analysis is performed first using interviews, followed by an analysis of the symmetry of the studied designs. This analysis of symmetry verifies our observations on the one hand, and raises the issue of contemporary use of Islamic aesthetics in ceramic ornaments during the Ottoman

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period, on the other. The results include understanding new issues and dimensions that integrate the actual context in Tunisia.

NARRATIVE

This study considers the multi-dimensional aspects of ceramic ornamentation within interior environments in the domestic architecture of Tunisia. The primary aim of the study is understanding and interpreting the use of ceramic materials as ornamentation in the Tunisian residence in the contemporary modern era. Secondary issues include how the use of ceramic ornamentation is affected by the cultural, architectural and aesthetic significance of ceramic tile geometry and how historically this has been appropriated as an integral component of domestic architecture in Tunisia, and how its use has increasingly been reduced to ornamental application alone.

This research proposes that compositional principles that govern ceramic ornamentation have cultural significance, but that in the contemporary residential materiality of Tunisia this is not evident. The study presents and gathers referential data that is necessary to read the aesthetic code of Tunisian architecture, presenting grids and interpretations that create understanding the geometric symbolism underscoring Tunisian Islamic ceramic patterns. This interpretation includes both material and immaterial aspects of conserving heritage and how ceramic tile is used in modern applied ceramic installations in the Tunisian home. Traditional knowledge of geometry and historic uses of tile is becoming lost as new contemporary uses limit tile to

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application without valuing the historic and cultural contexts within which the ceramic use was intended.

Theoretical framework - issues

Art and Islamic ornament draw their essence from a Muslim mentality following image ban imposed by the *hadiths*[1] . As this is respected as a basis of design, artists tend to reject it in favor of applying principles that reflect their own vision of the world, one dominated by Greek philosophy and of muslim theology (Papadopoulo, 1976). Artists will create an idealized view of the world through their art, and create an abstraction through technique, this being identical to the evolution of modernism at the end of the 19th century (Papadopoulo, 1976). Artists see the geometric principles of tunisian ceramics in terms of major concepts such as Plato's hierarchy of colours and shapes, and how God' uniqueness stems from "*Acharite theology"* and an ambiguity between autonomy and representation. If the expression of the Islamic aesthetic is reflected in the ornament through an ambiguity between the autonomy and representation, architecture is defined by a type known as "introverted", which is an essential characteristic in Muslim domestic architecture. The arrangement of spaces is determined by a principle of addition, resulting in the formation of a complex called "unity."[2] Depending on the function and the needs of the architecture, the model varies, involving a combination of these units by the use of simple principles such as symmetry, as for example, the house plan and the madrassa plan, the number of court in a house

1 oral traditions relating to the words and deeds of the Islamic prophet Muhammad.
2 1. hypostyle room, 2. the cell room ,3. room apartment, long, deep and multifunctional,4. the central area of the dome, used primarily in religious buildings.

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reflects the social status of people[3] (See Figures 1 and 2). Following the same principle of addition, the decorative ornament in Tunisia covers the inner surface in two ornamental registers: horizontal and vertical. (see Figure 3).

Figure 1 House plan

Source Ammar, 2001,p110

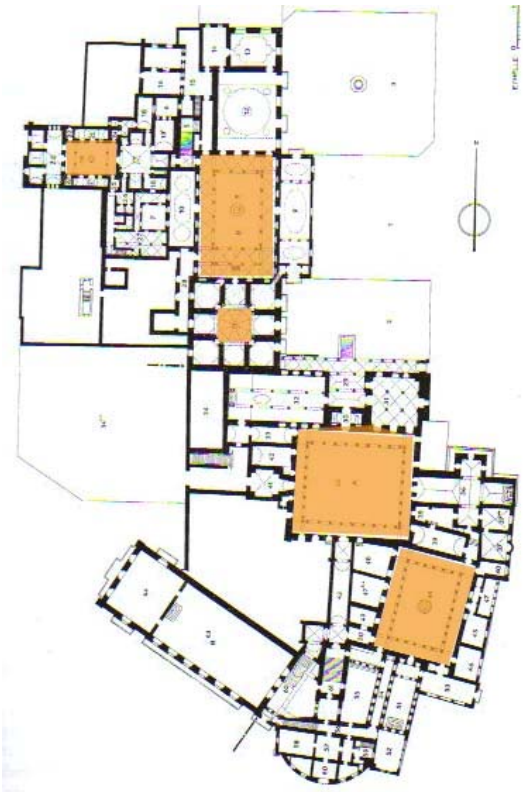

Figure 2: Bardo palace plan, according to Revault.J, 18 and 19th s

Source Aammar, 2001, p 189

3 Thus, the popular house consisted of a single court proceeding in which all the domestic activities of daily living (washing, laundry, preparation of pasta and semolina, for example), while a mansion or a palace with many. (The palace consists of a collection of houses grouped around the teacher.)

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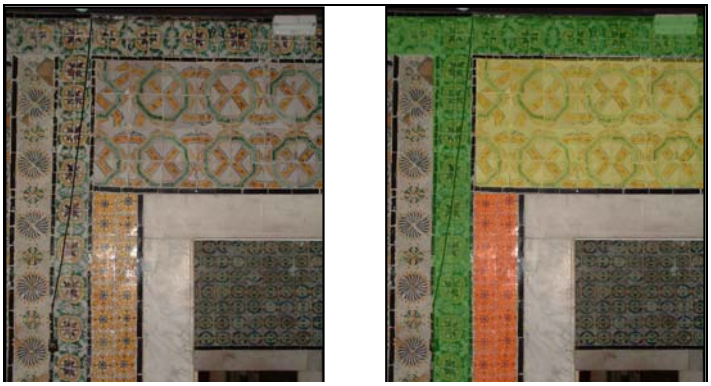
Figure 3 Lasram House (Source Leila Tissoaui, 2006)



An aesthetic cleavage in Tunisia

In this study, the essential character of the ornament in the domestic architecture of the 19th century is examined and how today meaning is given to this ornament trough the observation of its contemporary use on the exterior of residences. The study focuses on how the break of with historic tradition has led to a crisis of meaning, direction and values related to cultural identity, an identity easily observed in the evolution of the built environment (Bompart,1995; Serageldin,1995). Due to colonization and the historical realities of an emerging contemporary society, the local cultural, architectural and aesthetic references to the historic ornamental order that was manifest in Tunisian architecture in the past is disappearing [4](Stambouli, 1996). And yet, if the transmission of culture is through collective memory and experience then this is necessary in Tunisia where ceramic use is concerned, both for historic value and for cultural development[5]. Unfortunately the opposite is happening, wherein in Muslim architecture and design the

4 This notion of aesthetic specificity is defined in the master's work when discussing Islamic architecture.
5 *Ibid.*

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current trend is to apply the geometric forms in a purely applied form of imitation rather than use them for their full value as aesthetic parts of the whole interior environment.

In Tunisian architecture, the confrontation of two models – the first one, said "introvert", that advocates the primacy of the surface over the shape, in the sense that the surfaces act as a ‘cover’ over the volume, the latter defined by the addition of the unit as defined by the interior courtyards (See figures 4,5 and 6). The second model, Western but especially European, is more ‘extroverted’ wherein the ornament is not limited to the surface in two dimensions (Figures 7 and 8). This confrontation makes the building framework widely heterogeneous and invaded by the "kitsch" (Stambouli, on 1996, Santelli, on 1985).

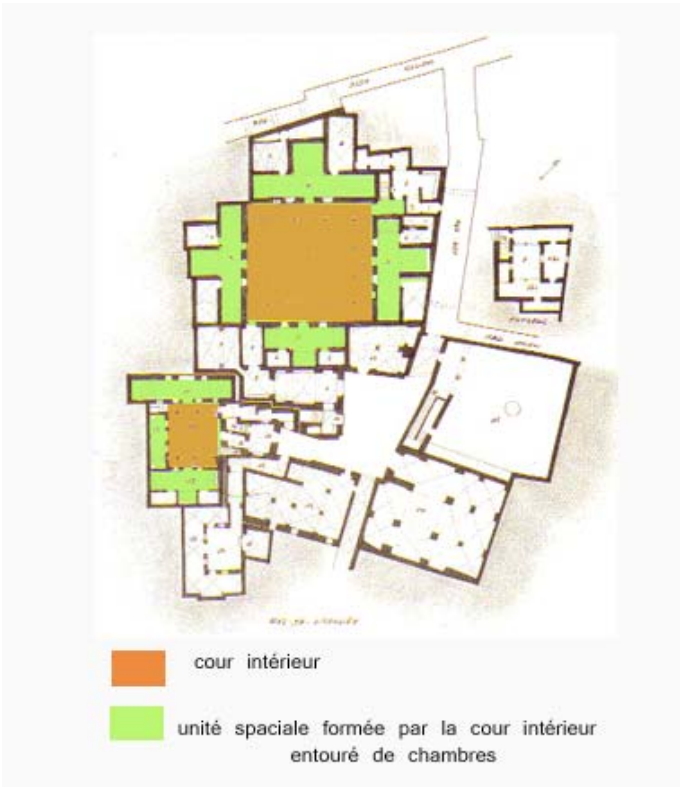

Figure 4 plan maison Ben Abdallah

Source : Binous, 2001

Légende : Leila Tissaoui,

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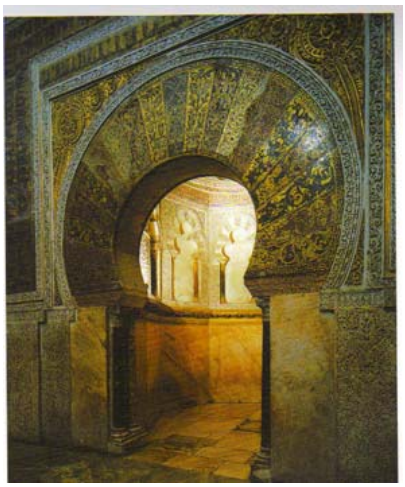

Figure 5 : Grande mosquée de Cordoue, Espagne (971-976),P 103

Source :Mozzati.L, 2003

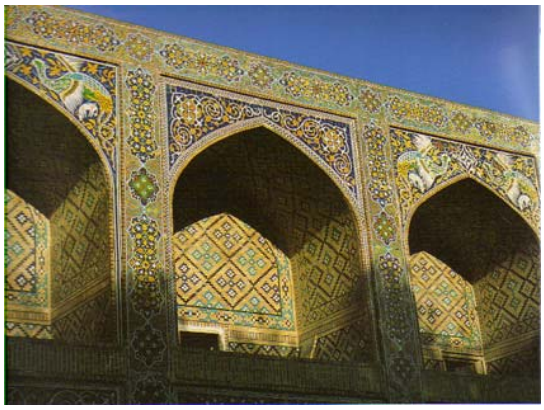

Figure 6 : Madrasa de Nadir Diwan Bey, 1630

Source : Mozzati.L, 2003, p261

Figure 7 : immeuble Disegni(1908) par Auguste Peters

Source : Akrout-Yaiche, 2004,p58

Figure 8 : facade d'immeuble(1909-1910)

Source : Akrout-Yaiche, 2004,p57

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The research study

The study uses a comparative method of ceramic ornament in its use and its design in the late 19th century (the last marking period of the Muslim empire) with present time contemporary use in domestic houses. This comparison was done to understand historic context juxtaposed against the meanings that are attributed to ceramic tile use in the current domestic architecture by the different actors (owners, architects and artisans) who use it in contemporary Tunisia. The study consists of a two parts: the first part consists of an analysis of photographs of the historic periods discussed and of the ceramic ornamentation used both inside and outside houses. The second part presents the comparative study of results of the analysis done of data collected via questionnaires sent to architects, villa owners and ceramic artisans.

The analytical methods used in this study include methodological tools from the social sciences and mathematics. The data collection consists both photographs of homes with ceramic tiles (both inside and on the building exterior) and of interviews with both the various actors involved in creating ceramic installations and the users of the interiors. The analysis is two-fold: an analysis of the interviews and a second analysis of the geometric symmetry of the designs photographed. This second analysis provides a verification of observations done, and raises the issue of contemporary use of Islamic aesthetics in ceramic ornaments during the Ottoman period.

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Results

Some of the findings include:

- The analysis suggests that all Tunisian use of ornament in architecture is bound by the concept of intimacy and an aesthetics that grapples with the ambiguity between an "autonomous world " and a " represented world ". In today's contemporary Tunisian society these two concepts seem detached. Tile use as ceramic ornament remains bound to its tactile dimension and its use as 'dressing'.
- In this study one salient issue is the disappearance of the metaphysical elements in the use of ceramic ornament.
- The new contemporary emergence of the architect coupled with a reduced importance of religious symbolism limits ceramic tile to surface ornament in Tunisian design.
- While there is a change in color use it is not so evident in the ceramic pattern design. (figure 9); and yet, there is a new relationship with color.(fig 12)
- The use of ceramic as ornamentation is historically one of identity, and as an element of the heritage and of Tunisian identity, as an integral part of the architectural identity, more than purely ornament.
- The emergence of new uses such as reconstitution and renovation using existing material that is recuperated is emerging as a phenomenon. Old historic ceramic works are being reused for new, ornamental uses in a sustainable manner. This

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puts the use of ceramic tile into a functional use, and integrates broader socio-economical considerations. (Fig 11)

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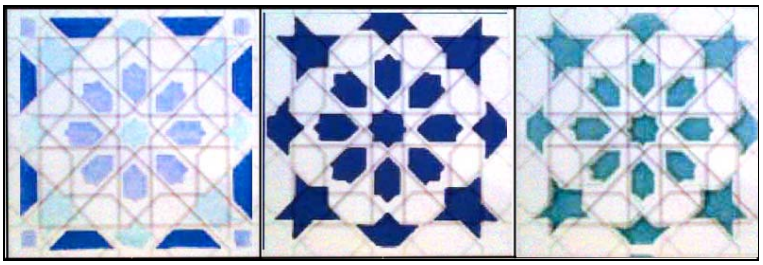

Figure 9 New interpretation of color along heritage and traditional aesthetic concepts.

Source : electronic catalogue *Kedidi céramique*, 2006, p. 9.

Figure 10 : window contours, houses 1, 2**.**

Source : Leila Tissaoui, 2005

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Figure 11 : frescos, recuperation of ceramic tiles

Source : Leila Tissaoui, 2005

Figure 12 : Interior courtyard, Dar Daoud, Tunisia.

Source: Jaber Salah, *Maisons de la médina, Tunis*, pp. 234-235

Future research could include how Tunisia might reconsider its ceramic traditions in light of the ambiguity and disconnect observed in the study and how the collective memory might be worth reconsidering. A second emergent feature of the study is the actual consideration of ceramic itself in today's technological world, meaning that new research could be done considering the relationship between ornament and architecture, considering around computing as a tool of reflection in design process and as a potential means of reconstructing the past using pattern and image technologies.

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The Complexities of Educating for Sustainability in the Interior Design Studio

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ABSTRACT

The purpose of this paper is to describe and discuss an evidence-based service-learning interior design studio project aimed at retrofitting an existing student family housing in a land-grant university to enhance its sustainability and facilitate sustainability practices and co-curricular education of the residents.

Evidence-based design relies on reliable data from a variety of sources to inform design decisions and thus improve the effectiveness of designed spaces (Hamilton, 2006); service-learning pedagogy intentionally layers learning and service objectives seeking the positive transformation of both students and clients (Eyler & Giles, 1999). Combination of these strategies set students for an 8-week research-intensive effort to understand and diagnose existing social and physical conditions of the student housing community and then generate informed design proposals for the client, the campus housing authorities. The client requested short-term design enhancements and a long-term vision for creating a sustainable residential learning community on campus. Course learning objectives included acquiring interior design skills; emphasizing programming; learning about sustainability; and providing service to the campus community.

The project was offered jointly in a combined upper/graduate-level interior design studio course and a graduate-level landscape architecture studio that conducted a

parallel projects. This multidisciplinary approach allowed students to share information and field activities, and to learn from each other. Students were challenged by the client to explore unconventional ideas. Faculty encouraged them to frame the project from their understanding of these issues, make adjustments to the existing program, and generate evidence-based design proposals. Interior design students worked in teams to review literature; seek precedents for the project; review codes and sustainability standards; assess existing conditions and LEED compliance; and interacted with residents and clients to conduct observations and protocol-driven surveys for identifying client expectations and user needs.

Outcomes of the project included six high-quality design proposals with strong sustainability content that were presented to residents, client, faculty, and campus authorities. Proposals addressed a range of issues such as fostering community connectedness; learning sustainability within the community; and facilitating a green lifestyle for residents. Interior design and landscape architecture proposals were collected into a comprehensive book that has already been used by the client to upgrade student housing and envision possibilities for advancing sustainable housing on campus.

Follow-up interviews indicate the experience was beneficial for the client and transformative for the students, who claimed gaining deeper knowledge and appreciation for sustainability. Nonetheless, throughout the project students were challenged by the simultaneous need to be creative, address the multiple constraints and design cues suggested by their programming research, and serve the needs of residents and client. Understanding that sustainability problems are not bound within

any one discipline led interior design student teams to expand the scope of their projects beyond expectations and include unsolicited components such as sustainable products brochures, LEED score cards, sustainability education materials, and tentative landscape and architecture proposals. From this experience we learned that addressing sustainability in the interior design studio is complicated by the comprehensive scale and multidimensional approach required to solve sustainable design problems.

NARRATIVE

Purpose

The purpose of this paper is to describe a multi-faceted experience aimed at teaching sustainability through an evidence-based and service-learning interior design studio project. The project sought to retrofit an existing student family housing on a land-grant university campus and facilitate sustainability practices and co-curricular education of the residents through design intervention.

Context

In response to the climate change crisis, a growing number of American colleges and universities are committing to advance sustainability through education, research, operations, and outreach as contemplated in the Talloires Declaration (AULSF, 1990) and the University and College Presidents Climate Commitment (ACUPCC, 2007). Interior Design educators specifically recognize the need to prepare future generations to practice in our changing world by citing a global approach that includes “the concepts, principles, and theories of sustainability as they pertain to building methods, materials, systems, and occupants” (CIDA, 2009, p. 11). Educating for sustainability in the Interior Design studio is therefore more than learning to apply sustainable design standards and practices toward creation of ‘green’ buildings. It also requires deeper understanding of sustainability and its social implication.

This goal is best served through human-centered design (HCD)—designs that satisfy the needs, values and aspirations of the people who use them on a daily basis (Kling & S.L., 1998). Applied to the built environment, a HCD approach seeks to learn about the complexity of the social practices within an institution and its communities who

aim to design a building. HCD requires evidence-based design processes, which follow "an explicit chain of logic that can be directly linked to facts, research findings, or field observations" to inform design decisions (Hamilton & Watkins, 2008, p. 5) and improve the congruence of design with the needs and expectations of the building occupants.

Deep understanding of sustainability is supported by service-learning pedagogy, which intentionally layers learning and service objectives seeking the positive transformation of both students and clients (Eyler & Giles, 1999). Service-learning is

> a form of experiential education where learning occurs through a cycle of action and reflection as students work with others through a process of applying what they are learning to community problems and, at the same time, reflecting upon their experience as they seek to achieve real objectives for the community and deeper understanding and skills for themselves (Eyler & Giles, 1999, p.?)

Process

Combination of these strategies challenged students during an 8-week project offered in parallel in a combined upper/graduate-level interior design studio course and a graduate-level landscape architecture studio. The client, the campus housing administration, requested short-term design enhancements and a long-term vision for creating a sustainable residential learning community on campus, and challenged the students to explore unconventional ideas. A student family housing community with eleven two-story residential buildings and a common house, built in 1956, were the focus of this intervention.

Project learning objectives aimed at a comprehensive synthesis of critical thinking, interior design knowledge, and technical skills, with emphasis on HCD programming, sustainable design concepts and strategies, and collaborative work. Students worked in

teams to review literature; seek precedents for the project; understand and diagnose social and physical conditions of the existing community; and identify client expectations and resident needs through observations, interviews, and protocol-driven surveys.

Sustainability education was explored through inquiry into sustainable campus housing trends and benchmarks; assessment of the community's LEED compliance; visit to an eco-friendly collaborative (cohousing) community; and research on resident environmental practices and perceived obstacles for sustainable living. Collaboration among disciplines allowed students to share information and field activities, and to learn from each other. Faculty encouraged them to frame the project from their understanding of these issues, define their own design objectives, and generate evidence-based design proposals for consideration of the client and community residents.

Outcomes of the project included six interior design and six landscape architecture proposals addressing comprehensive sustainability issues through design. In addition to enhancing the sustainability of residential units, common house, and common areas, designs supported fostering community connectedness, learning about sustainability, and practicing a green lifestyle within the community. Student proposals were collected into an inclusive book and presented to residents, client, faculty, and campus authorities. In addition to assessing student proposals, faculty later conducted group interviews with students and with the client to obtain feedback on their perceptions of this experience.

Findings

Critical interpretation of collected evidence and its application to design solutions was clear in the six student proposals. All projects addressed specific design objectives

that emerged in the course of the research, such as increasing building density as a sustainable site strategy, and increasing the flexibility of residential unit and common house layout to extend their use over time without need for further renovations. Attending to findings on the demographic diversity and in the interest of social sustainability, designs aimed to support and enhance community interaction and learning along building breezeways, open spaces, and common house. Finally, designs focused on facilitating green practices by residents in response to findings from observations, surveys and interviews.

For example, a team decided to conduct a tentative assessment of the community's LEED performance and then crafted a proposal to upgrade conditions and improve its potential LEED credit rating. Another team considered the importance of sustainability education and proposed retrofitting the common house into an expanded sustainability education center to serve the university at large. A third proposal addressed the multicultural character of the existing community and redesigned the common house to allow richer cross-cultural exchange and foster learning about, and practicing, sustainability from different world perspectives.

Focused interior design strategies included proposals to relocate clothes washing and drying and allow for more sustainable air-drying practices; incorporate recycling, composting, and goods exchange centers throughout the buildings; and renovate building breezeways and other common areas to better foster resident interaction. Attention to residential unit and common house interiors led to proposals to upgrade materials, finishes and equipment. These included non-VOC paints, recyclable and

high-recycled content flooring and surfacing products, low-flow and variable-flush bathroom fixtures, and high performance light fixtures, fans, and solar tubes.

In the spirit of service-learning, follow-up interviews indicate the experience was beneficial for the client and students, who in general claimed gaining deeper knowledge and appreciation for sustainability and the collaborative process. Following this project the client, the campus housing administration, used student-identified materials to upgrade an existing dormitory, implemented herb gardens and a compost program in the study community as proposed by landscape architecture students; and set aside a $10,000 budget for further sustainability enhancements at this and other student family communities. Participation in the experience led to more informed choices and greater support for sustainability programs already under way, as well as hiring an interior design student intern to help advance sustainable housing on campus.

In particular, greater awareness of sustainability concepts and strategies was identified by students as a key learning of this project. Greater enthusiasm for sustainability as a result of this experience was claimed by many, some of which said being inspired to adopt greener lifestyle practices. Understanding that sustainability problems are not bound within any one discipline led interior design student teams to expand the scope of their projects beyond expectations. They included unsolicited components such as sustainable products brochures, LEED score cards, sustainability education materials, and tentative landscape and architecture proposals. Following participation in this project, four interior design students, one sixth of our class, went on to take the LEED examination.

While indicative of the high level of motivation for and engagement with the project and its topic, these self-imposed requirements placed additional demands on student time and complicated their decision-making process. Throughout the project students were challenged by the simultaneous need to be creative, address the multiple constraints and design cues suggested by their programming research, and serve the needs of residents and client. Constant negotiations were needed to address the inherent complexity of a multifaceted project and the streams of new issues that emerged as more information was brought to bear on the project. Though evidently rich and beneficial, the experience was hindered by the side effects of collaboration such as conflicting needs and wants under pressure of project deadlines and the accountability demanded by serving real users and clients.

Conclusions

Through this service-learning and evidence-based project, student responses suggested that student awareness of sustainability was increased. In addition, it was revealed that positive change in personal and professional behavior was a result of, and consistent with, internalization of sustainable design knowledge. Service provided to the university contributed to advancing the institutional sustainability agenda and potentially enhancing the quality of life for the community residents.

Preparing students for practice in a world threatened by environmental changes requires introducing sustainability as a permanent objective of the design studio. This includes engaging students in experiences that are collaborative, promote civic engagement, and require critical thinking and creative problem-solving through use of evidence-based, human-centered design methods. Nonetheless, as learned through

this experience, addressing sustainability in the interior design studio is complicated by the comprehensive scale and multidimensional approach required to solve sustainable design problems. Faculty must be willing to take this risk and develop innovative pedagogical methods that address the interrelationship between sustainability and design education.

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THE HIDDEN CURRICULUM:
STUDENT PERCEPTIONS OF PRIVACY AND COMPETITION
IN THE INTERIOR DESIGN STUDIO

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Abstract

This pilot study seeks to identify interior design student perceptions about experiences of privacy within an open studio environment. Using an instrument developed by researchers in Turkey (Demirbas and Demrikan, 2000), the researcher evaluated student perceptions of privacy within the studio-based learning environment, the most widely used type of educational experience for design students in the U.S. and Canada. Additional questions developed by the researcher were used to solicit student opinions about experiences of competition within the studio environment as well as about student perceptions about design competition projects. The call for research on competition within the studio environment and whether it supports learning has been made by researchers in interior design within the past year and earlier (Tucker, 2007; Hill, 2007; Anthony, 1999). Furthermore, several researchers have questioned the open studio format as the best environment in which to teach design. (Anthony, 1999; Anthony and Ahernetzen, 1993, and Groat and Ahrentzen, 1996).

Little research has been conducted to determine if the studio model, as adopted from architectural education, provides an appropriate venue for the education of an interior designer. In fact, Anthony has shown that women react more negatively to the studio environment, the jury process, and competition in general than do men (Anthony,

1999). More recently, Tucker and Hill have called into question the climate created by competition in the interior design studio (Tucker, 2007; Hill, 2007).

The first phase (pilot study) of this research study involved eighty-one students from a land-grant university spanning all years of a four-year interior design curriculum. The research used a mixed-method approach to identifying student attitudes about the design studio. A survey instrument was used in conjunction with more extensive open-ended interview questions. The second phase of the project involves a multi-school approach that identified programs with both dedicated studio desks and “hot” desks.

Many of the students of interior design found competition distracting and were not motivated to produce better work. While some students found the sense of competition invigorating, most did not. Furthermore, students identified their desk as a place where they could create privacy and this calls into question the notion of “hot” (or unassigned) desks used in most interior design programs. Most interestingly, as students progressed through the curriculum, they became more comfortable with competition as a feature of their educational experience.

The second phase of this research will include multiple universities including both interior design programs with “hot” desks and those with dedicated studio desks.

NARRATIVE

PURPOSE

This study seeks to identify interior design student perceptions about experiences of privacy within an open studio environment and the experience of learning within this environment. Using an instrument developed by researchers in Turkey (Demirbas and Demrikan, 2000), the researcher evaluated student perceptions of privacy within the studio-based learning environment, the most widely used type of educational experience for design students in the U.S. and Canada. Additional questions developed by the researcher were used to solicit student opinions about experiences of competition within the studio environment as well as about student perceptions about design competition projects. The call for research on competition within the studio environment and whether it supports learning has been made by researchers in interior design within the past year and earlier (Tucker, 2007; Hill, 2007; Anthony, 1999). Ward (1990) has questioned the “hidden curriculum” of a studio-based approach to design education. The hidden curriculum refers to what gets communicated to students in the unsaid—how to act, how to be succesful, and overall behavioral/social norms for the environment. Despite recent calls for change and a great deal of literature about the problems inherent in the studio system, interior design programs across the country and abroad have adopted this model as central to an undergraduate (and sometimes graduate) interior design education.

METHOD

Little research has been conducted to determine if the studio model, as adopted from architectural education, provides an appropriate venue for the education of an interior designer. In fact, Anthony has shown that women react more negatively to the studio environment, the jury process, and competition in general than do men (Anthony, 1999). More recently, Tucker and Hill have called into question the climate created by competition in the interior design studio (Tucker, 2007; Hill, 2007). Ward (1990) has questioned the unspoken or hidden messages communicated by a studio-based educational environment. He proposes five “hidden curricula” media through which studios tend to operate: studio knowledge, social relations, hierarchy, competition, and hierarchy and competition (Ward, 1990).

Studio knowledge, according to Ward, is not neutral; it follows political and social realities of the profession as a whole and changes over time. Social relations describe the inherent power relations and hierarchy found in the academy and modeled on professional design offices. True dialogue is made impossible through the unspoken hierarchy of the studio. Although often an aspiration, the design studio rarely allows for authentic dialogue to occur. “Competition is the prevailing ethos in the whole of our education system, and it is particularly prevalent at the tertiary level. It is a major motivating factor in the design studio (as also it is in practice).” (Ward, 12) As a result “’Good design’ is this tautologically defined as having precisely those aesthetic and functional qualities which are prized by the dominant culture, but which to the minority cultures are unacceptable.” (Ward, 12) One can argue that women—until recently—

have been in a minority culture in design, particularly architecture to which the studio tradition can be traced.

This project explores the notion of a hidden curriculum as perceived by interior design students within a studio environment. The first phase (pilot study) of this research study involved eighty-one students from a land-grant university spanning all years of a four-year interior design curriculum. The research used a mixed-method approach to identifying student attitudes about the design studio. A survey instrument was used in conjunction with more extensive open-ended interview questions and behavioral mapping and observation.

Students were asked to assess their experiences within the interior design studio. Questions addressed privacy, student use of the studio space, student recommendations for improvement, and competition experiences—both experiences of competition with other students or groups and the experience of working on competition projects.

IMPORTANCE OF TOPIC

Many interior designers are proud to be different from architects and relay the importance of working collaboratively and listening to clients as a key difference of their approach to design. Despite this, interior design programs throughout America have adopted the studio model of instruction used in architecture. This study seeks to determine if this environmental setting contributes to a sense of competition between students thus undermining a primary goal of an interior design education--collaboration.

FINDINGS/DISCUSSION

A significant finding of this research is that the response to the studio environment varied substantially from year to year, thus identifying each class (year) as a distinct cohort. As students progressed through the curriculum, experiences of competition within the studio became more pronounced (second year 33%, third year 33%, fourth year, 60%). Furthermore, as students became more competitive, they tended to like team projects less (senior year 73% answered “sometimes” while in the third year 50% answered “mostly” or “always”)[1].

Interestingly, as the experience of competition levels increased, so did the students desire to work alone either in the studio or at home. While only 43% of sophomores and 40% of juniors preferred to work alone, 69% of seniors preferred this option to working in studio with others.

In all three years, students most often identified their own desk as the place that they consider to be their personal space. Several students indicated a need for rules or announcements to be made regarding respect of personal space. These included such statements as “I think more rules, so that people respect each other’s time. Example: no cell phones, no music out loud, no excessive talking about non-studio related topics” and “a higher respect for quietness in the studio.” Noise was the most common complaint of the open studio environment.

Based on Ward’s research into the hidden curriculum, the studio environment—as derived from the Beaux Arts model—supports the inherent features of the unspoken agenda as he defined them: studio knowledge, social relations, hierarchy, competition,

[1] At the time of the survey data collection, sophomores had not yet had a team project.

and hierarchy and competition. In direct contrast to this are some of the fundamental features of interior design and the interior design program accreditation criteria. Notably, interior design programs are required to provide students with team approaches to design solutions, experiences of conflict resolution and active listening skills. Genuine communication and dialogue are characteristics desirable in a professionally trained interior designer. It seems to follow that a physical model for the studio environment would support these objectives rather than those held by the architectural model.

SUMMARY

The primary conclusion from this pilot study is that the studio environment and its inherent "hidden curriculum" contribute to increased feelings of competition as students progress through the studio sequence. Many of the students of interior design found competition distracting and were not motivated to produce better work. While some students found the sense of competition invigorating, most did not. Furthermore, students identified their desk as a place where they could create privacy and this calls into question the notion of "hot" desks[2] used in most interior design programs. This particular group of students has dedicated desks that they use throughout the semester.

FUTURE RESEARCH

The next phase of this research will be expanded to include multiple universities including both interior design programs with "hot" desks and those with dedicated studio

[2] The program studied in the pilot project has dedicated studio desks for all students. Many programs use a "hot" desk system where all the students share a set number of desks.

desks. This study did not examine the specific curriculum of the program. As expanded to other schools, this might be another element to include.

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Exploring "Success": Dorothy Draper and the Means-End Approach

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ABSTRACT

The discipline of the history of the profession of Interior Design has witnessed significant growth since the beginning of the 21st century. British scholars have led the charge with an impressive body of work,[1] while America's enthusiasm for the "celebrity designer" has encouraged a number of biographies of famous figures.[2] What continues to be absent from the literature is an explanation as to why certain interior designers were "successful." In this case, success is defined by a national or international reputation. The prevailing perception is that interior designers were slaves to the capricious whims of the consumer market. But, is this true? This paper suggests that a model from the consumer behavior sciences may offer a method for uncovering success.

A recent analysis of literature reveals five distinct concepts (gender, taste, consumerism, identity, and modernism) that demonstrated great value in uncovering the

[1] Susie McKellar and Penny Sparke, eds., Interior Design and Identity (Manchester, UK: Manchester University Press, 2004); Pat Kirkham and Penny Sparke, eds., Women Designers in the USA, 1900-2000 (New York: Yale University Press, 2000); and, Brenda Martin and Penny Sparke, eds., Women's Places: Architecture and Design 1860-1960 (London: Routledge, 2003).

[2] See Adam Lewis, Van Day Truex: The Man Who Defined Twentieth Century Taste and Style (New York: Viking Studio, 2001); Adam Lewis, Albert Hadley: The Story of America's Preeminent Interior Designer (New York: Rizzoli, 2005); Stephen Salny, Francis Elkins: Interior Design (New York: W. W. Norton & Company, 2005); Penny Sparke, Elsie de Wolfe: The Birth of Modern Interior Decoration, ed. Mitchell Owens (New York: Acanthus Press, 2005); James Abbott, Jansen: 20th Century Decorators, ed. Mitchell Owens (New York: Acanthus Press, 2006); and Carleton Varney and Dan Shaw, In the Pink: Dorothy Draper, America's Most Fabulous Decorator (New York: Pointed Leaf Press, 2006).

female designer's experiences with, and contributions, to society.[3] The grouping is not a surprise when one considers that many decorators were women who used their taste as a commodity to sell products or services to American housewives seeking opportunities for self-expression during a century defined by modernism. Even though authors now use these concepts to aid in the construction of theoretical frameworks to explore the relationship between women and design, none have identified the concepts' relationships with the discipline of consumer behavior.

Thomas Reynolds and Jerry Olson's Means-End Approach for marketing and advertising strategy links the five concepts as a way to understand the success of a product.[4] The authors rely on cognitive psychology to craft their model. They depend on relationships between three separate elements: the attributes of a product (means), the consequences for the consumer based on those attributes, and the personal values (ends) reinforced by those consequences. Currently, the model responds to manufacturers' needs to sell products. However, if the attributes are representative of a design philosophy as opposed to an eventual profit margin, then the model has the potential to uncover critical relationships between the values of the designer and the consumer.

The author uses Dorothy Draper as a case study. The results indicate that her success centered on her gender, class, design philosophy, and design style. Her ability to connect with the values of the consumer is central to the discussion and of particular interest since Draper managed to address the values of both the middle and upper

[3] See John Turpin, "The History of Women in Interior Design: A Review of Literature," Journal of Interior Design 33, no. 1 (Fall 2007): 1-16.
[4] See Thomas Reynolds and Jerry Olson, Understanding Consumer Decision Making: The Means-End Approach to Marketing and Advertising Strategy (Mahwah, NJ: L. Erlbaum, 2001).

classes with a singular style. Furthermore, Draper's romanticism challenged the modernist viewpoint championed by historians throughout the 20th century. The popularity of Draper's work suggests that she offered an alternative to the Modern Movement that historians have heretofore ignored.

By exploring the "success" of figures in interior design, the discipline has the opportunity to shore up its historical and theoretical foundations and, more importantly, debunk the notion that all interior designers are simply responsive to consumer markets. The adaptation of Reynolds and Olson's model offers a starting point that could unfold a new layer of history for Interior Design.

NARRATIVE

INTRODUCTION

The discipline of the history of the profession of Interior Design has witnessed significant growth since the beginning of the 21st century. British scholars have led the charge with an impressive body of work,[5] while America's enthusiasm for the "celebrity designer" has encouraged a number of biographies of famous figures.[6] What continues to be absent from the literature is an explanation as to why certain interior designers are considered "successful." For this discussion, success is defined by a national or international reputation. The prevailing perception is that interior designers have been and continue to be slaves to the capricious whims of the consumer market. But, is this true? This paper suggests that a model from the consumer behavior sciences may offer a method for uncovering success. Dorothy Draper (1888-1969) is used as a case study.

LITERATURE REVIEW

A recent analysis of literature reveals five distinct concepts (gender, taste, consumerism, identity, and modernism) that demonstrate great value in uncovering the female designer's experiences with and contributions to society.[7] The grouping is not a surprise when one considers that many decorators were women who used their taste as

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[5] Susie McKellar and Penny Sparke, eds., Interior Design and Identity (Manchester, UK: Manchester University Press, 2004); Pat Kirkham and Penny Sparke, eds., Women Designers in the USA, 1900-2000 (New York: Yale University Press, 2000); and, Brenda Martin and Penny Sparke, eds., Women's Places: Architecture and Design 1860-1960 (London: Routledge, 2003).

[6] See Adam Lewis, Van Day Truex: The Man Who Defined Twentieth Century Taste and Style (New York: Viking Studio, 2001); Adam Lewis, Albert Hadley: The Story of America's Preeminent Interior Designer (New York: Rizzoli, 2005); Stephen Salny, Francis Elkins: Interior Design (New York: W. W. Norton & Company, 2005); Penny Sparke, Elsie de Wolfe: The Birth of Modern Interior Decoration, ed. Mitchell Owens (New York: Acanthus Press, 2005); James Abbott, Jansen: 20th Century Decorators, ed. Mitchell Owens (New York: Acanthus Press, 2006); and Carleton Varney and Dan Shaw, In the Pink: Dorothy Draper, America's Most Fabulous Decorator (New York: Pointed Leaf Press, 2006).

[7] See John Turpin, "The History of Women in Interior Design: A Review of Literature," Journal of Interior Design 33, no. 1 (Fall 2007): 1-16.

a commodity to sell products or services to American housewives seeking opportunities for self-expression during a century defined by modernism. Even though authors now use these concepts to aid in the construction of theoretical frameworks to explore the relationship between women and design, none have identified the concepts' relationships with the idea of exploring success.

MEANS-END APPROACH: Discussion and Critique

Reynolds and Olson's Means-End Approach for marketing and advertising strategy depends on relationships between three separate elements: the attributes of a product (means), the consequences for the consumer based on those attributes, and the personal values (ends) reinforced by those consequences (See Figure 1).[8] The primary intent is to demonstrate how and why a product is selected by a consumer, which leads to a situation in which the designer attempts to design his/her product based on data regarding consumer behavior. However, if the attributes are representative of a design philosophy as opposed to an eventual profit margin, then the model has the potential to uncover critical relationships between the values of the designer and the consumer. With modifications the model has the potential to not only link the five concepts previously discussed, but also uncover why a designer was considered successful.

[8] See Thomas Reynolds and Jerry Olson, Understanding Consumer Decision Making: The Means-End Approach to Marketing and Advertising Strategy (Mahwah, NJ: L. Erlbaum, 2001).

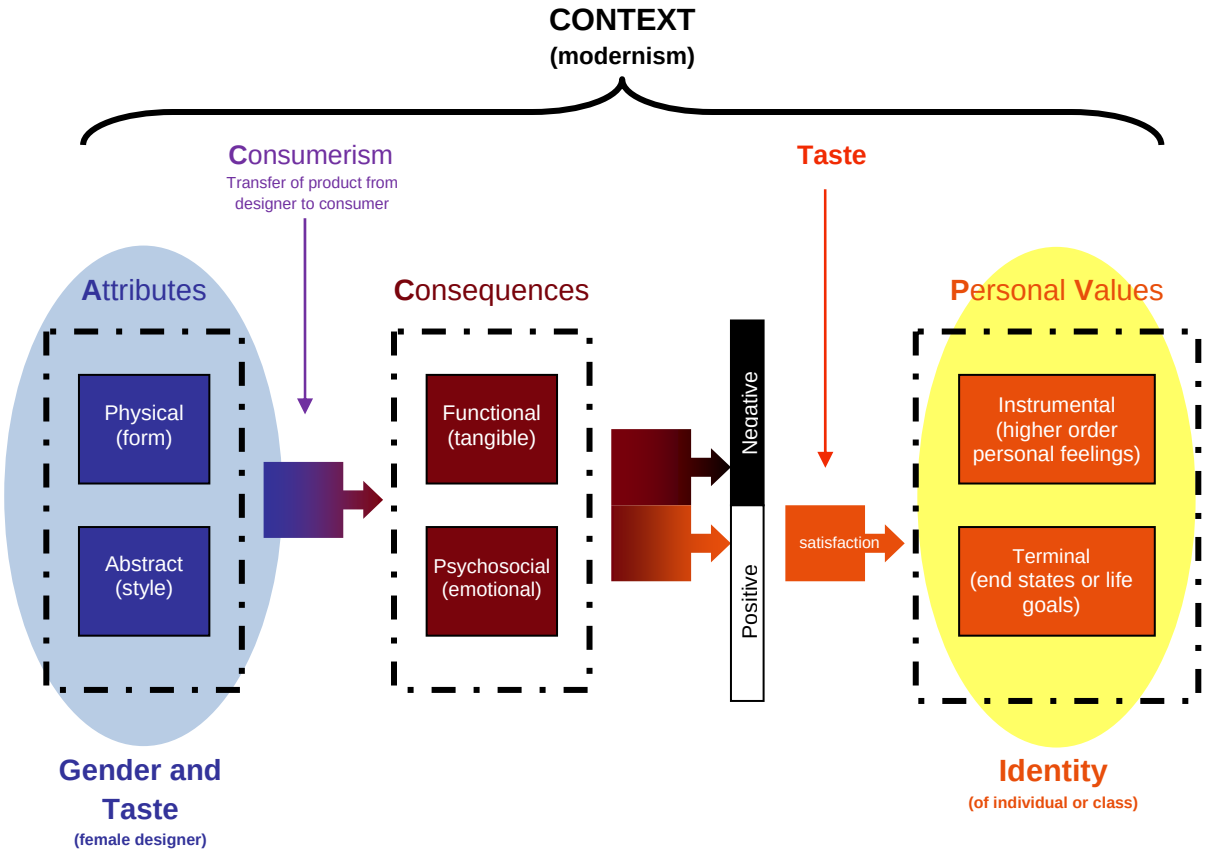

Figure 1. Means-End Approach with five major concepts.

In order to "activate" the model, three issues must be addressed. First, the designer's philosophy must be understood as critical to the final design (attributes) of the product. A design philosophy guides the design process in a much different manner than consumer data. Second, the life experiences of the designer must be analyzed to address the authenticity of the philosophy. In other words, did the philosophy arise from the individual or was it contrived to respond to fads or trends. Finally, a greater connection needs to be made between the values of the designer and the values of the consumer. This is a critical difference between the two models. The current model asks "What can I do to make this product sell?" The new model asks "What do I want this

product to look like?" and "How do I want it to affect consumers' lives?"[9] In addition, the context of both designer and consumer are critical to the evaluation due to its power in shaping values. With these considerations, the model changes accordingly (Figure 2).

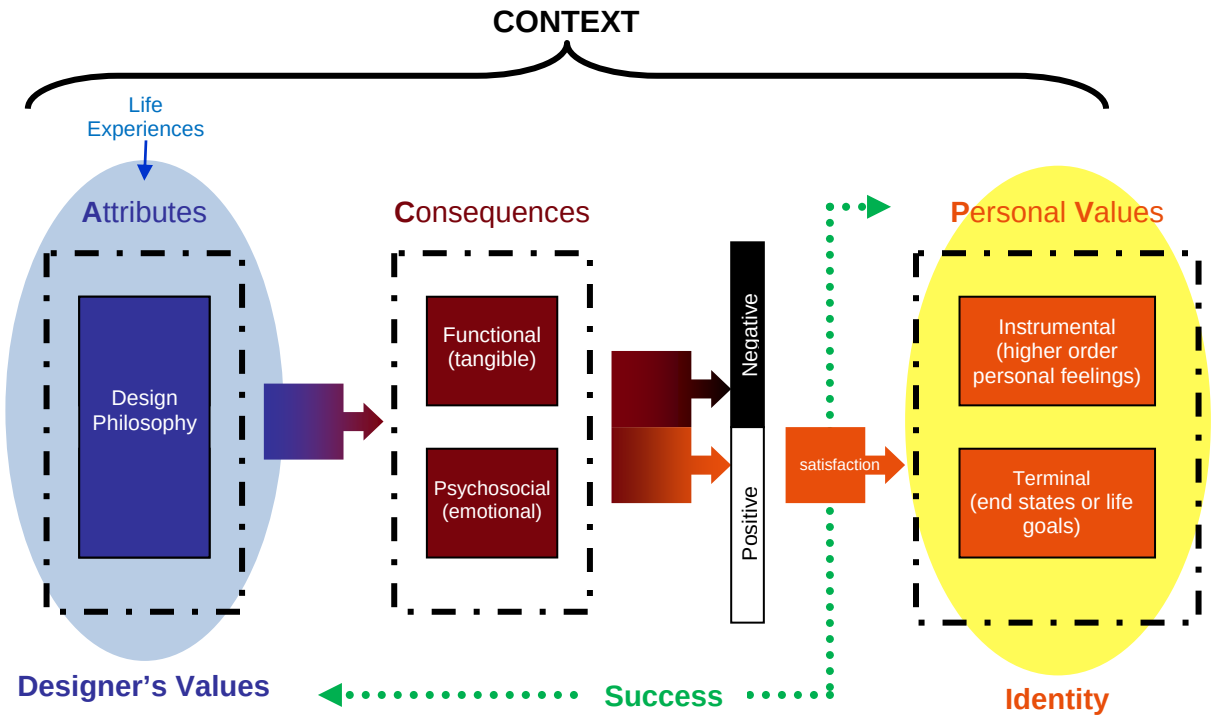

Figure 2. Revised Means-End Approach

CASE STUDY: Dorothy Draper

Dorothy Draper, interior designer, proves to be an informative case study for this model, in part, because she is a member of the upper class who designed for both the middle and upper classes. Her ability to design for her peers and be successful is

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[9] We can ask the latter questions because a previous analysis of Dorothy Draper's theology (a way of seeing the world) and transformation of consciousness (shift psychological outlook) were identified as core values of Draper's design philosophy. See Paul Greenhalgh's Modernism in Design (London: Reaktion, 1990) and John Turpin's "Dorothy Draper and the Moderns: A Comparison of Value" in the Interior Design Educators Council's 2005 IDEC Conference Abstracts (http://www.idec.org/pdf/05ConferenceProceedings.pdf): 53-54.

perhaps not a surprise because they share similar values; however, her ability to connect with the middle class suggests a social sensitivity.

During the 20th century the middle class continued to develop their identity. One of their central values was steady progress toward a better way of life.[10] They lived knowing that the American dream was possible as evidenced by the mass fortunes acquired by individuals in the late 19th century. Consequently, the middle class sought the advice of their social superiors and the class they hoped to join one day. Draper—deemed a tastemaker because of her gender and class—answered the call and delivered advice to the middle class based on her design philosophy (symbiotic relationship between human environment and human behavior) and style (romanticism). From 1925, beginning of her career, to 1945, the middle class counted on Draper to tell them how to act and decorate because according to Draper, they were "halves of the same apple."[11] (See Figure 3) However, the postwar middle class began exhibiting "limitless faith … in itself and its future."[12] The suburbs offered a fresh start in all aspects of life, from new friends to new furniture. The phenomenon was one of newness.[13] The Old Guard no longer motivated their behavior. Even though Draper had always championed the less formal lifestyle, the middle class began to view her as a member of the upper class who dispensed advice based on that station. Consequently,

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[10] See Burton J. Bledstein and Robert D. Johnston (eds.), The Middling Sorts: Exploration in the History of the American Middle Class (New York: Routledge, 2001).
[11] Dorothy Draper, Entertaining Is Fun (New York: Doubleday, Doran & Company, 1941): preface.
[12] Loren Baritz, The Good Life: The Meaning of Success for the American Middle Class (New York: Alfred A. Knopf, 1989): 183.

[13] Many authors note that Americans wanted to put the past behind them. Marcus notes the desire of a "brand new life in a brand new world." See George Marcus's Design in the Fifties: When Everyone Went Modern (Munich: Prestel, 1998), 56-57. Baritz, in *The Good Life*, uses the term "newness." It is unknown if she was the first to use this term to demonstrate the phenomenon across social and design disciplines. This is, nonetheless, the source for this term.

Draper's "success" began to decline slowly in the 1950s as the middle class claimed their own identity and emulated the upper class far less than before. The fact that the

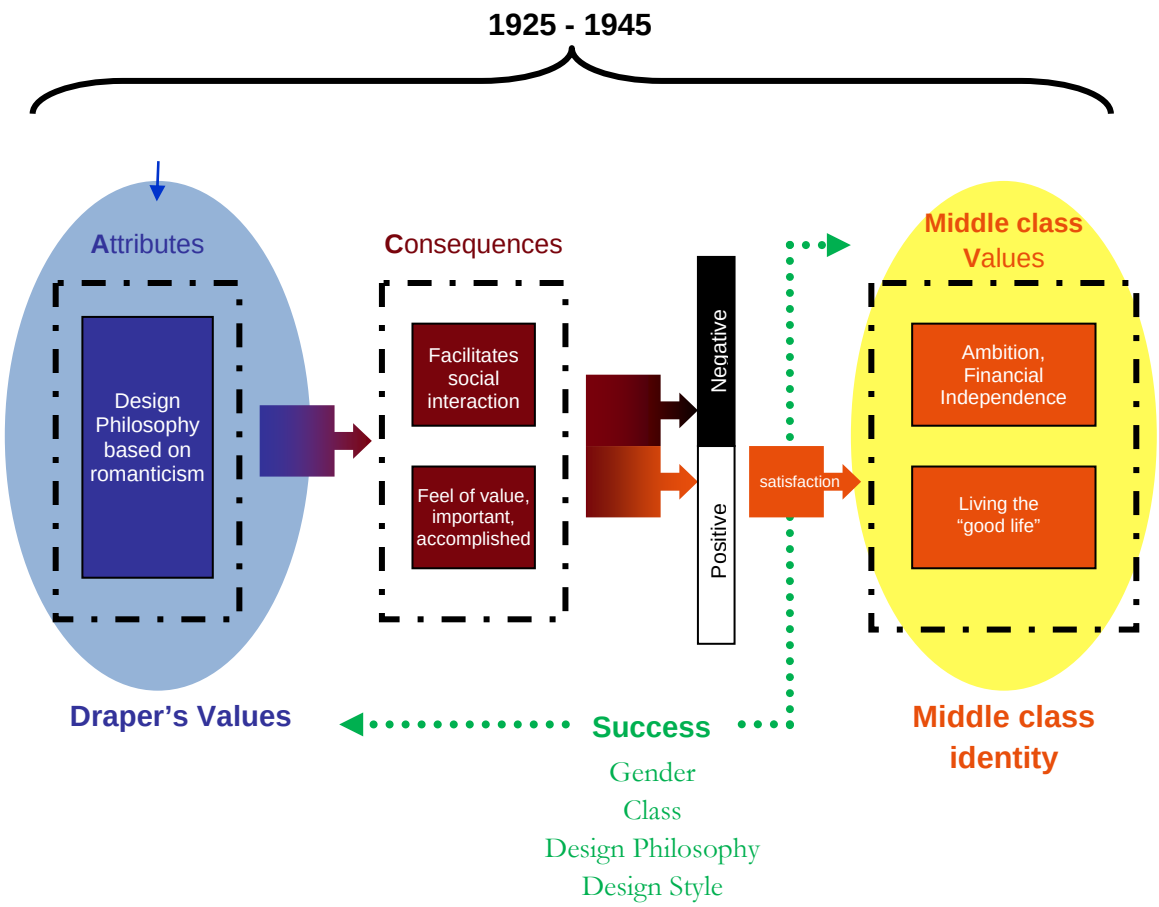

Figure 3. Application of Means-End Approach using Draper's as a case study.

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original model breaks down when the values between the designer and the consumer are no longer in sync provides evidence that Reynolds and Olson's model needs to recognize the link between the two.

CONCLUSION

An analysis of Draper's body of work indicates that her success centered on her gender, class, design philosophy, and design style. The values embedded in each resonated with consumers' values, at least until the 1950s. The design philosophy is a key component in this discussion. Since many interior decorators/designers did not articulate a clear philosophy, researchers must run their subjects through the entire model in order to uncover that philosophy and the embedded values. Further research with different subjects must be conducted in order to validate the proposed model.

By exploring the "success" of figures in interior design, the discipline has the opportunity to shore up its historical and theoretical foundations and debunk the notion that all interior designers are simply responsive to consumer markets. The adaptation of Reynolds and Olson's model offers a starting point that could unfold a new layer of history for Interior Design.

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Wikis: Tractable Technology for the Design Curriculum

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ABSTRACT

Technology has become a ubiquitous part of the educational experience. The efficacy of technology in the classroom varies. Some applications, such as Blackboard and Webct, are costly for the institutions and cumbersome for the students. Wikis offer an accessible, economical alternative or addition to extant virtual classroom options. Although wikis are not ideal vehicles for every type of work, there are a number of features that make wikis a good fit for much of the material addressed in Interior Design curriculums. This presentation will address the benefits and limitations of the integration of wikis into Interior Design classes, along with an interactive demonstration and discussion.

Wikis are free, online-editable websites than can provide an online environment for collaborative learning (Ferris & Wilder, 2006). The most visible public wiki is Wikipedia. Class wikis work in a similar fashion, but they can be private or gated. Faculty can determine both who can participate and the degree to which these individuals can contribute. Students can then add written material, images, references, or website links, as well as edit previous contributions.

The benefits of the inclusion of wikis into an Interior Design curriculum are numerous- from cost effectiveness to ease of use. Wikis are easy to use for both the student and the instructor. From the instructor's perspective, they are quick to set-up and straightforward to monitor. Unlike Blackboard or Webct, wikis are free from any

administrative hierarchy. Wikis are also robust (Augar, Ritman, & Zhou, 2004). Unlike more complex systems, wikis are available whenever the internet is accessible. There is no limit to the number of contributors who can participate. Mentors, jurors, consultants, etc. can also be invited to participate. From the student's perspective, an edit toolbar can make them as easy to work on as a Word document (Augar, et.al, 2004). In addition, the inclusion of visual material, an essential component of much of our work, is also simple whether through attachments or links. Most importantly, there are pedagogical benefits to integrating wikis into courses. It is now widely accepted that active learning helps students learn and remember material more effectively (Newman & Scurry, 2001). Wikis are participatory; they require active learning. Unlike the more passive activity of in-class student presentations, these websites require students to engage with the material that has already been posted in order to do their work. This can save class time as well as increase the volume of material available to the student, and this information remains accessible to the student for an unlimited time period.

Wikis have clear limitations. Given the basic nature of the format, a wiki cannot provide the same functionality of other technologies. They are not course management systems; for example, there are no provisions for testing or providing grades. In the context of design studios, wikis are best suited for the creation and distribution of research and reference material. In lecture-based classes, the applications for wikis are greater- posting reports, creating illustrated timelines, or creating materials databases. Current millennial students learn by using a wide variety of media (Carlson, 2005); wikis can be a meaningful addition to these.

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Newman, F. & Scurry, J. (2001). Online technology pushes pedagogy to the forefront. *Chronicle of Higher Education*. *47*, B7.

NARRATIVE

Technology has become a ubiquitous part of the educational experience. The efficacy of technology in the classroom varies. Some applications, such as Blackboard and Webct, are costly for the institutions and cumbersome for the students. Wikis offer an accessible, economical alternative or addition to extant virtual classroom options. Although wikis are not ideal vehicles for every type of work, there are a number of features that make wikis a good fit for much of the material addressed in Interior Design curriculums. This presentation will address the benefits and limitations of the integration of wikis into Interior Design classes, along with an interactive demonstration and discussion.

Wikis are free, online-editable websites than can provide an online environment for collaborative learning (Ferris & Wilder, 2006). The most visible public wiki is Wikipedia. Class wikis work in a similar fashion, but they can be private or gated. Faculty can determine both who can participate and the degree to which these individuals can contribute. Students can then add written material, images, references, or website links, as well as edit previous contributions. Usage can be in document mode or thread mode. Document mode facilitates development of editable, collaborative, unsigned documents, while threads are signed messages that are not editable (Augar, Raitman, & Zhou, 2004).

The benefits of the inclusion of wikis into an Interior Design curriculum are numerous- from cost effectiveness to ease of use. Wikis are easy to use for both the student and the instructor. From the instructor's perspective, they are quick to set-up

and straightforward to monitor. Unlike Blackboard or Webct, wikis are free from any administrative hierarchy. Wikis are also robust (Augar, et.al, 2004). Unlike more complex systems, wikis are available whenever the internet is accessible. There is no limit to the number of contributors who can participate. Mentors, jurors, consultants, etc. can also be invited to participate. From the student's perspective, an edit toolbar can make them as easy to work on as a Word document (Augar, et.al, 2004). In addition, the inclusion of visual material, an essential component of much of our work, is also simple whether through attachments or links. Most importantly, there are pedagogical benefits to integrating wikis into courses. It is now widely accepted that active learning helps students learn and remember material more effectively (Newman & Scurry, 2001). Wikis are participatory; they require active learning. Unlike the more passive activity of in-class student presentations, these websites require students to engage with the material that has already been posted in order to do their work. This can save class time as well as increase the volume of material available to the student, and this information remains accessible to the student for an unlimited time period.

Wikis may not be the centerpiece of the teaching strategy for every course, but there are a great number of possibilities and variations of uses for them within a design curriculum. This program has used Wikis in several different ways.

During fall semester 2008 first semester students enrolled in History of Interiors posted weekly mini-assignments to the wiki. These consisted of finding information about the historical setting conditions of the periods, including social, political, economic, and technological conditions. In addition, topics such as artistic achievements, clothing, entertainment, significant persons, and for later periods,

specific designers/architects were assigned. Students were required to include citations. Information may come from on-line sources or library sources. Because the enrollment typically exceeds 60, multiple students had the same topic. However, they could not post the same information and images to the wiki. Consequently, it paid off to post the assignment as early as possible. Evaluation was based on timely submission (every posting is tracked by date and time), accuracy, comprehensiveness, and complete citations. To encourage students read others' submissions, students were required to respond to short essay questions on unit exams.

In the Second Year Studio class, students used the wiki to compile background information for team projects. The Fall 2008 project was an apartment in urban St. Louis designed for a client from another country. Members of each team were responsible for collecting and posting information about characteristics of the culture and housing features of the specified country that could impact the interiors of the dwelling unit. Evaluation of team member's wiki contributions were facilitated by automatic identification of dates, times, and number of words and edits.

The Third Year Studio class also used the wiki for the research portion of the studio. The project was a residence in a local new urbanist development. Students were assigned research topics including New Urbanism, design precedents, and the particular stylistic requirements of this development. More than one student was assigned each topic. This required most of the students to integrate their material into any information that was already posted- a more engaging task than simply submitting new information. The resulting document served as reference for the group as a whole. This allowed students continued access to their classmates' research for the duration of

the project. This was an improvement over in-class presentations both in terms of continued access and use of class time.

In contrast to the collective wiki of the third year students, members of the current Fourth Year Studio class have created individual wikis. Because each student has developed her own project, an individual wiki is appropriate. Each student is required to have at least one outside ‘mentor’. The students are using the wikis as a location to document their ongoing relationships with their mentors. Images of works in progress, meeting notes, and direct correspondence are maintained on the site. Membership of the instructor allows for regular evaluation.

Based on our experiences, wikis have also clear limitations. Without a single creator, maintaining order and organization can be challenging. Students take ownership of their individual contributions, but often the big picture sought by instructors is overlooked by contributors, particularly when using the *document mode*. In addition, although dates, times, number of edits, and number of words can be tracked, distinguishing specific contributions in the document mode is difficult. In contrast, tracking specific contributions in the *thread mode* is straightforward, but organizing information is more problematic. Also, students expressed frustration with the relatively unsophisticated editing capabilities, including difficult image insertion within text. As a result, some students resorted to e-mailing their contributions to their peers and instructors. Others voiced a preference for a single, more powerful on-line tool that could combine features of e-mail, Blackboard, and the wiki. They remarked that they were disconcerted at having to interact with multiple on-line sites. In addition, there

were complaints that the wiki notified members each time a new contribution was made, resulting in a flood of e-mails.

Given the basic nature of the format, a wiki cannot provide the same functionality of other technologies. They are not course management systems; for example, there are no provisions for testing or providing grades. In the context of design studios, wikis are best suited for the creation and distribution of research and reference material. In lecture-based classes, the applications for wikis are greater- posting reports, creating illustrated timelines, or creating materials databases. Current millennial students learn by using a wide variety of media (Carlson, 2005); wikis can be a meaningful addition to these.

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Assisted Living Facilities: Effectiveness of Space Planning, Amenities and Life Style

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ABSTRACT

Everyone wants to live at home. Young, old, fit, unfit, short or long term disability, people unanimously state that they want to live in their own home and control their lives. There are circumstances, however, in which older individuals and families make the decision to seek supportive housing options. With this change in residence, many adults are forced to make choices about possessions and lifestyle. Activity theory indicates that as people age, participation in activities accompanies a high quality of life and contributes to improved self esteem. More importantly, research findings indicate that the activities must be meaningful to the individual and can be solitary, informal or formal in nature. Living environments, therefore, must provide amenities that not only foster social engagement but allow individual pursuits. Researchers found that hobbies, crafts, volunteer work, housework and home repairs, caring for pets, sharing life with family and friends, and generally getting out and about were important activities. Findings from the Arkansas Health and Housing Survey indicated that Baby Boomers believe they will be more active both inside and outside the home than the preceding GI and Silent Generation cohorts. More specifically, the respondents indicated that they will eat out, visit family, drive a car, and work at a paid job as well as cook at home, participate in games and hobbies, own a pet, and entertain friends more than the older

generations. These findings suggest that not only will demand for supportive housing increase but that changes in assisted-living design will be necessary to better fulfill the needs of future cohorts.

NARRATIVE

Everyone wants to live at home. Young, old, fit, unfit, short or long term disability, people unanimously state that they want to live in their own home and control their lives (Bruin, Crull, and Cook, 1999). However, there are circumstances, such as changes in health status, finance, and family composition, in which older individuals and families make the decision to seek supportive housing options. With this change in residence, many older adults are forced to make choices about lifestyle. Living environments, therefore, must provide amenities that not only foster the creation of home and desired levels of social engagement but facilitate individual pursuits. The purpose of this paper is to evaluate the fit between activities older adults expect to engage in and the provisions of Assisted Living facilities.

Activity theory indicates that as people age, participation in activities accompanies a high quality of life and contributes to improved self esteem. More importantly, research findings indicate that the activities must be meaningful to the individual. While many congregate living environments provide scheduled activities, the research findings also indicate that activities do not have to be formally organized to have beneficial outcomes; solitary, informal and formal forms make equally positive contributions (Kossuth and Bengtson, 1988). Researchers found that hobbies, crafts, volunteer work, housework and home repairs, caring for pets, sharing life with family and friends, and generally getting out and about were important to older adults. Activity theory was extended by Robert Atchley and he suggests that engaging in activities and practicing skills that are

familiar and important reinforces the internal and external structures that are critical to the maintenance of identity and self-worth (Atchley, 2000). These activities have a temporal quality and engagement must be ongoing.

More specifically, findings from the Arkansas Health and Housing Survey indicated that Arkansas Baby Boomers, those born between 1943 and 1963, believe they will be more active than the preceding GI and Silent Generation cohorts (Smith, Webb, Miller, and Williams, 2006). The respondents indicated that they will eat out, visit family, drive a car, and work at a paid job outside of the home as well as cook at home, participate in games and hobbies, own a pet, and entertain friends in the home more than the older generations. These findings suggest that, along with an increased demand for supportive housing, changes in assisted-living design will be necessary to better fulfill the needs of future cohorts. Housing and, more importantly, homes must facilitate human interactions and activities.

The question, then, is whether or not current conventions in the design of assisted living facilities engagement in the activities identified as being important to the Baby Boom cohort. A convenience sample was acquired through a Google search using “assisted living” and “floor plan.” The search yielded more than 66,000 hits and a total of 27 facilities with single bedroom layouts were examined. Apartment layouts were analyzed for square foot allotments, types of spaces, access to out-of-doors, and storage. The homepage for the facility was examined for amenities that would further facilitate these

activities; these included activity or multipurpose rooms, individual or shared garden space, additional storage, transportation, and so on. The results indicate that private living spaces and facility amenities do not facilitate the pursuit of meaningful activities.

In the private apartments, living and living/dining spaces did not adequately provide for pursuits such as entertaining; between 88 and 266 square feet were provided for these functions with an average of 161 square feet. Kitchens averaged 63 square feet and only 17% (n=5) had a stove; these apartment types often contain half-size appliances. The small size allows for only minimal storage limiting many of the items needed for simple entertaining. Closets were inadequate for storage of anything other than apparel and in many of the apartments even that was limited. There were no alcoves or areas conducive to work space for sewing, arts/crafts, or places to store a card/game table. Sleeping areas ranged between 100 and 260 square feet with an average of 160 square feet. Most of the sleeping areas provided space only for a bed, nightstands, and dresser or other storage. A few contained a small area for a chair. Only 11% (n=3) of the apartments had direct access to the out-of-doors thereby limiting the ability to have plants, for personal gardening, or to allow a pet access to green space. Pets were permitted in 14% (n=4) of the facilities while one facility had organized pet visits.

Facility amenities allowed for only minimal engagement in activities. All of the facilities examined had some type of activity room; this space was used for crafts, music, religious services, and special events. Almost 75% (n=17) of the residences had

dedicated exercise rooms. Only 6% of the facilities (n=2) provided some garden space and a single site had organized garden activities. One facility provided a weekly plant service and another provided weekly flowers. None of the facilities referenced supplemental storage spaces for supplies necessary for autonomous tasks (i.e., quilt frame, sewing machine, wood carving tools). The activity rooms, while they could be used for individual purposes, have shortcomings. There are scheduling conflicts with other activities and secure storage or permanent workspace is typically not available. Almost one fourth of the residences did not provide transportation. The remaining residences provided scheduled transportation for specific, planned events.

There are obvious benefits to congregate living options: increased social opportunities, availability of prepared meals, and assistance with Activities of Daily Living are among the most critical. However, the findings suggest that existing physical facilities do not necessarily support aging Baby Boomers' anticipated needs for meaningful activities, both planned as well as autonomous.

Facility design could be improved through: (1) the addition of adequate closet space in apartments for storage of different types of craft/activity equipment, (2) the inclusion of small nooks or alcoves that could be permanent locations for personal work, (3) permanent work areas either within the activities area or in adjacent space, (4) secure storage for ongoing projects and personal equipment or tools, (5) increased direct access to the out of doors, (6) inclusion of patios or balconies for plants, (7) more

flexible and increased access to transportation, and (8) a careful review of philosophy of care that reflects the changing needs of this population. This last recommendation will be critical to the long term success of such living environments. The philosophy of the congregate living facility should reflect the needs and desires of the anticipated population and, therefore, should guide the design and construction of the facility.

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Interior Design: A Unique and Independent Profession

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ABSTRACT

Purpose

Interior decoration became interior design in the building boom after World War II. Although by 1975, interior design had acquired most of the components of professionalization, it suffered from a self- image problem. In using architecture as a gauge for progress toward professionalization, it inadvertently placed their profession in a subordinate position.[1] In this paper, I argue the efforts and conflicts inherent in the process of licensure acted as the final catalyst for interior design's professionalization. I also suggest what made interior design unique and independent from other professions.

Methods

To investigate interior design's professionalization I performed a meta-analysis of the theories of professions as formulated by Freidson,[2] Abbott,[3] and others to gauge interior design's professionalization. In addition, because I believe the professionalization of interior design began in the 1950s, as living history, I interviewed leaders of design organizations and performed an analysis of documents archived at American Society of Interior Design (ASID).

Framework

A professional: (1) uses a distinct and unique body of knowledge that is cognitive, esoteric, technical and applied; (2) conveys that knowledge by formalized

advanced training; and (3) has autonomy over his/her work (Freidson, 1994). The work involves the utilization of specialized knowledge in order to assess, diagnose, and find diverse solutions to complex problems (Abbott, 1988). Professional organizations are instrumental in expanding the knowledge base, defending the profession from usurpers, and advancing the profession (Freidson, 1994). By 1975, interior design had met these components, but they suffered from a self-image problem. Interior design must understand what makes it unique from other professions to change that image.

Importance to Interior Design

I believe, what makes it a unique profession is its focus on client or user needs, function, and safety in the micro-environment. This viewpoint comes from three sources: (1) the theory of behavior, which focuses on how people occupy spaces to optimize safety and function; (2) its development in home economics[4] programs of the 1950s; and (3) its feminization. Vytlacil described feminine traits as "sensitivity to existing context, willingness to accept and incorporate varying opinions… [and] strong skills in team and consensus-building" (Vytlacil, 1989, 268).[5] These components are what make interior design a unique profession and demonstrate that it developed independently.

The new market, of tenant spaces in high-rise buildings and tract-homes in suburbia, was ignored by architecture until the recession in mid-1970. Interior decoration had expanded to fill this market and transformed into interior design, but interior design used architecture as a gauge of professionalization. Not only did interior design compare itself to architecture, but in 1989 it negotiated the parameters of licensure in the Joint Accord with the American Institute of Architects (AIA). The

changes to the building codes in 1981 captured the new market for architects. These changes necessitated the need for licensure to protect interior design as an independent profession.

The self-image problem stems from the profession being so new and undergoing constant transformation and from using architecture as a gauge. I believe that the conflicts that Abbott discussed as inherent to the process of professionalization and the efforts for licensure were what transformed interior design into a profession.

NARRATIVE

Purpose

Although by 1975, interior design had acquired most of the components of professionalization, it suffered from a self- image problem. Using architecture as a gauge in the professionalization of interior design exacerbated the self-image problem by inadvertently placing interior design in a subordinate position to the older profession.[6] To counteract this negative image, this paper uses the theory of professions to compare interior design's development. It traces the history as a profession to establish how it developed as an independent profession. It examines the theory base that gave interior design a unique viewpoint in the built environment. In addition, I argue the efforts and conflicts inherent in the process working toward licensure acted as the final catalyst for interior design's professionalization.

Method

To investigate interior design's professionalization, I performed a meta-analysis of the theories of professions as formulated by Freidson,[7] Abbott,[8] and others. I established a framework of the components of professionalization, then compared interior design's benchmarks to those components. There are few scholarly books or articles written about interior design's professionalization. The articles reviewed were from the *Journal of Interior Design Education and Research* by Harwood,[9] Guice,[10] and Pearslee, James and Simmons.[11]

The history of interior design is a living history, because according to ASID's White Paper of 1987,[12] interior design developed as a profession during the building boom beginning in the 1950s. My research included interviews with the leaders of

interior design organizations, the American Institute of Architects (AIA), and interior designers' active in the legislative process. In addition, I analyzed various published and unpublished documents from professional organizations websites, information booklets, white papers, handouts, and memorandums. The organizations included the American Society of Interior Design (ASID), International Interior Design Association (IIDA), National Council of Interior Design Qualification (NCIDQ), Council for Interior Design Accreditation (CIDA, previously FIDER), Interior Design Educators Council (IDEC), American Institute of Architects (AIA), Architectural Record Examination (ARE), National Architecture Accreditation Boards (NAAB), and National Council of Architectural Review Boards (NCARB).

Additional methods used were case studies about licensure in the jurisdictions of Washington, D.C., Virginia, and Ohio. I interviewed key practitioners and examined documents archived at ASID national headquarters about the jurisdictions. These documents included letters, memoranda, e-mails, copies of pending legislation, handouts prepared by coalitions, and hand-written notes of telephone conversations with the coalitions.

Framework

The summary of the theory of professions states that while a profession is difficult to define, most include: (1) a distinct and unique body of knowledge that is cognitive, esoteric, technical and applied; (2) knowledge is formalized by advanced training; and (3) the professional has autonomy over his/her work (Freidson, 1994). The work involves the utilization of specialized knowledge in order to assess, diagnose, and find diverse solutions to complex problems (Abbott, 1988). The components of

professionalization include establishing a formalized education, accrediting that education, establishing a nationwide examination, and developing professional organizations. These organizations are instrumental in expanding the knowledge base, defending the profession from usurpers, and advancing the profession (Freidson, 1994). By 1975, interior design had met these components, but they suffered from a self-image problem.

As mentioned in the introduction, the professionalization of interior design started with the building boom that began after World War II, which transformed the built environment. A new market developed which consisted of undeveloped tenant spaces in newly constructed high-rise building, strip buildings, and even tract-homes in suburbia. Interior decoration transformed into interior design by developing new services to fit this new market.

From the 1950s through the 1970s, the education of interior design expanded in number of programs, scope of knowledge, and rigor class work to develop a new profession and fill a gap in service with university trained interior designers. Usually these programs were in home economic departments.[13] This location is important because home economics established the theory on which interior design is formulated - the scientific study of human beings based on sociological and psychological models. This separates the profession from architecture, which is based on the theory of aesthetics.

To demonstrate how important the theory of behavior is to interior design, in June of 2008, a search on Google produced 1,340,000 hits on the theory of behavior/interior design. A search on the theory of aesthetics/interior design produced 451,000 hits. To

understand the difference in viewpoint from architecture, the same search for architecture produced 351,000 hits for behavior and 1,450,000 hits for aesthetics. I believe the location of interior design in the home economic programs is part of what makes interior design a unique profession. It uses the theory of behavior to focus on client or user needs, function, and safety in the micro-environment.

In addition, I believe that the feminization of interior design enhances and complements the theory of behavior. Vytlacil discussed feminine traits of female architectural student in her article "The Studio Experience". She states that females have "sensitivity to existing context, willingness to accept and incorporate varying opinions… [and] strong skills in team and consensus-building" (Vytlacil, 1989, 268)[14]. When paired with user needs and concerns about function from theory of behavior, this gives interior design a unique viewpoint and service. It also puts feminization of the profession in a positive light because it reinforces and strengthens the theory on which the profession is based.

While interior design continued to expand and develop through the 1970s, few architects were interested in offering services for the interior of existing buildings. In the mid 1970s, a recession devastated the United States and few new buildings were being designed or constructed. In 1981, changes to the building codes captured remodeling of existing spaces for architects and engineers.[15] In addition, throughout the 1980s, AIA members trained building officials "to their duties" of only accepting documents for permit with architect or engineers seals[16]. Since 1981, the changes to the building code and new enforcement measures had affectively stopped interior designers, in jurisdictions without licensure, from independent practice of the profession they had

developed. Because of the changes to the building codes licensure became necessary for interior designers to practice.

As stated in the introduction, by 1975, interior design had fulfilled the components of professionalization. In that practitioners had formed professional organizations, formalized and accredited education, established a nationwide qualifying examination, and was moving toward licensure in an effort to stop the untrained and unqualified practitioner from doing interior design. But, interior designers still doubted their professionalization and unfortunately used architecture to gauge their progress. Haverhand's article "A View from the Margins" demonstrates how it is not healthy to use another profession as a comparison, because it places the newer profession in a subsidiary position.

I believe that the self-image problem stemmed from three aspects, (1) using architecture as its gauge, (2) the profession was new and undergoing constant transformation and (3) it was a female dominated profession. Not only did interior design compare itself to architecture, but the leadership of the national organizations negotiated the parameters of interior design legislation in the Joint Accord of 1989 with its major competitor for interior design services, the AIA.

Abbott, in his book about the theory of professions, discussed that the conflicts were part of the professionalization process and those conflicts changed each profession engaged in the conflict. The conflicts with the AIA and within the interior design profession made interior design examine itself, refined its definition, and learned to speak clearly about health, safety, and welfare issue in relation to interior design

services. It is my opinion it was its conflicts in the effort for licensure, which transformed interior design into a profession.

Why this is Important to Interior Design

This paper knits together information available from many different sources, but I have tried to formulate a coherent chain of evidence establishing the founding and the professionalization of interior design. (1) It is a profession, in that it had fulfilled the components of professionalization by 1975. (2) It developed independently from architecture in home economic departments of the 1950s to fill a gap in service for the interior of existing buildings. (3) The theory on which it is base is the theory of behavior from its development in home economics. (4) The feminization of interior design reinforces the theory of behavior by offering the end-user unique services in the built environment. Last, but not least (5) The changes to the building codes in the 1980s made licensure for interior design necessary in every jurisdiction in order to keep it an independent profession.

In addition, it must be noted that another profession has tried to usurp these new services for itself and interior designers has often acquiesced to their demands. The profession did not spring from the Adams Rib of architecture, but grew from a separate source and fulfilled a market demand that the older profession did not fill. When the economy turned down in the late 1970s the building codes changed and captured remodeling of existing buildings for architects and professional engineers.

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Understanding Furniture Decision Making Process and Design Preference using Web-Based VR Technology

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ABSTRACT

PURPOSE AND CONTEXT

This research is a web-based investigation utilizing advanced computer/network technology in order to understand factors considered for furniture purchase and furniture style preference. In interior design, specifically for residential environments, furniture has significant meaning, not only because household furniture is the second largest portion in personal consumption expenditure following a house (Lihra & Graf, 2007; US Census Bureau, 2005; Toosi, 2002), but because furniture is a mode to project one's self-image (Altman & Chemers, 1984; Cooper, 1976). Despite the significance of furniture, little is known about different factors affecting consumers' selection of furniture and preferred furniture styles. The purposes of this research are (1) to find important features that consumers consider for residential furniture purchases and (2) to identify consumers' preferences for furniture design in terms of style, which will finally lead to a better understanding about furniture purchase behavior.

METHOD

For the current study, an on-line accessible VR integrated system VRIS was developed. The VRIS allows users to try mix-and-match combinations of furniture items from a 3D model database.

A total of 624 people, 284 males and 340 females, participated in this research. Eight possible factors of consideration for furniture choices were extracted from focus

group interviews: style, color, price, construction quality, ease of maintenance, comfort, material, and match with other items. Living room furniture models (total 117 items- 51 sofas, 38 chairs, and 28 tables) from three styles (modern, casual, and traditional) were selected by a focus group consisting of furniture marketing and design experts.

Using a series of questionnaires, participants reported 1) their perception of importance of eight considering factors in sofa, chair, and table purchases; 2) preferred furniture design options by selecting candidates for purchase; and 3) their final choice of purchase. The collected data was statistically analyzed using SPSS.

SUMMARY OF RESULTS

The results of this research demonstrated significant effects of gender and employment status (student group vs. non-student group) in considering factors for furniture purchase and style preferences. While female respondents' consistent furniture style preferences were not influenced by their employment status, males' employment status was found to have a significant effect on their style choices.

Also, results indicated that furniture purchase is more important for females and they are more sensitive than males. For sofa and chair purchases, females reported that they consider color and style more than price and construction quality. However, price and construction quality were more important over style or color for males. Results also show that females prefer traditional and casual styles.

In conclusion, as an effort to combine research and practice, we attempt to provide useful information for interior practitioners as well as the furniture industry by examining people's priority of considerations and furniture style preferences.

NARRATIVE

INTRODUCTION

This research is a web-based investigation utilizing advanced computer and network technology in order to understand factors considered in furniture purchases and furniture style preferences. In interior design, especially for residential environments, furniture has significant meaning, not only because household furniture purchase are the second largest expenditure following a house (Lihra & Graf, 2007; US Census Bureau, 2005; Toosi, 2002), but because furniture is a mode to project one's self-image (Altman & Chemers, 1984; Cooper, 1976). Despite the significance of furniture, little is known about the influencing factors of furniture selection and furniture style preferences.

The purposes of this research are to (1) find salient factors that consumers take into consideration for their furniture purchases and (2) identify consumer preferences for furniture design which will lead to a better understanding about furniture purchase behavior.

CONTEXT

Furniture occupies a significant part of every residential environment. Psychologist Carl Jung (1967) noted that self archetype can be displayed through self-expression in built form. Home, as a representative of built form, is considered an expression of self-image (Cooper, 1976).

While it is often difficult for ordinary people to own a house which reflects their own desires and hopes, furniture provides a better chance to project self-image with more options and better affordability. However, furniture is still a significant financial

commitment for most people. With its long life cycle and bulky nature, choosing a piece of residential furniture is often a challenge.

The known challenges for consumers to find ideal furniture are linked to furniture suppliers' business failures by not meeting the needs in the furniture market. Despite the importance of furniture to both consumers and suppliers, there has been little research regarding factors influencing furniture choice and shopping behaviors (Schuler & Buehlmann, 2002). Two known issues hindering researchers in furniture-consumer studies include complex factors associated with furniture purchases and difficulties in obtaining consumer feedback on furniture combinations in a real setting.

A recent study by Oh et al. (2008) proposed an innovative method to perform furniture market research utilizing a Web-based virtual reality system. Oh et al. suggested that furniture purchase experience simulated in a virtual environment can effectively map and understand consumers' decision-making processes. Virtual reality (VR) refers to real-time, interactive, 3D computer visualization technology that is known to provide the user with more engaging experiences. Previous studies established that virtual experience is vivid, involving, and active, and that affective psychological states can occur (Li et al., 2001).

METHODS

Living room furniture consisting of sofa, chair and table was studied because living room furniture accounts for the largest sector in terms of sales value (Household Furniture Market Report 2008). Among possible considerations when choosing furniture, eight factors were extracted from focus group interviews: style, color, price, construction quality, ease of maintenance, comfort, material, and match with other

items. A total of 117 living room furniture models (51 sofas, 38 chairs, and 28 tables) from three style categories (modern, casual, and traditional) were proposed by a focus group with five experts in the interior design and furniture marketing industry.

Participants were recruited via email invitation to www.vr-solution.com site. After a greeting and participant registration, they are asked to complete a series of questionnaires in one side of the Web interface. The other side has a 3D virtual showroom (see Figure 2). The questionnaires include items involving personal importance of the eight considering factors for furniture purchase in a 7-point Likert scale. VRIS has participants select furniture items in the order of sofa, chair, and table section. In each section, participants select items from a furniture list to view in the virtual room and to "save them" for review before making a final selection. The last section asks participants to choose a final furniture set after further examining the selected items together.

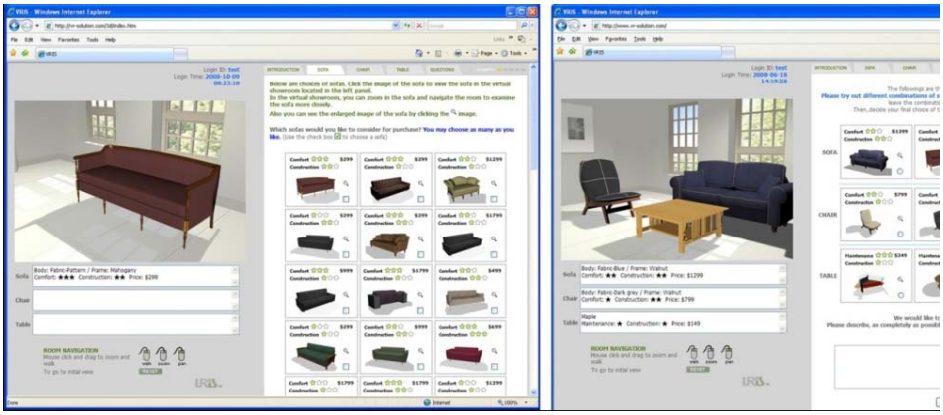
Figure 1. List of furniture samples

VRIS technology

For the current study, an on-line accessible VR integrated system, 'VRIS' was

developed. The VRIS allows users to try mix-and-match combinations of furniture items from a 3D model database. Our previous study demonstrated that user satisfaction and decision confidence with a VR system was significantly higher than when using 2D catalogue type interfaces (Yoon et al, 2008).

Figure 2. Screenshots of VRIS



Data collection and analysis

Data was collected between 2004 and 2006. Participants were invited to the VRIS site (www.vr-solution.com) and their responses were collected through the system. SPSS statistical package was used to analyze the data with multiple methods including Descriptive statistics, T-Test, ANOVA, and Cross-tabulation. Analyses were performed with alpha set at .05.

FINDINGS

Participants

A total of 624 subjects, comprised of 284 males and 340 females, participated in the research. Characteristics of this sample are presented in Table 1.

Table 1. Sample Characteristics

Demographic Variables		Average age	Total 624
Gender	Female	23.01	340
	Male	23.07	284
Employment status	Student	21.7	518 (244 male, 274 female)
	Non-student	31.95	106 (40 male, 66 female)
Age	-25		502
	26-50		114
	51-		6
Ethnicity	White		445
	African American		33
	Asian or pacific islander		56
	Hispanic		70
	Other		20

Gender & Employment Status Effects on Perceived Importance of Factors

In one-way analysis of variance (ANOVA), for all eight considering factors for furniture purchases, significant gender effects were found (p=.05). Females reported higher ratings than males throughout the total list of factors. Results indicated that females tend to be more sensitive to each considering factor when buying furniture than males. Importance ratings also demonstrated that furniture matters significantly more to females than males. For both male and female respondents, ‘comfort’ was rated as the most important factor to consider for a sofa and chair.

Additionally, females reported that color and style are more important than price and

construction quality when purchasing a chair and sofa, whereas males reported that they consider price and construction quality over style and color. Calculated standard deviations showed that female respondents have very homogeneous opinions regarding color and style.

The relationship between employment status and the perceived importance of the eight factors was investigated. Between the student and non-student group, no significant difference was found in female respondents' answers regarding considering factors. However, depending on their employment status, males reported different priorities when buying a sofa, chair or table. Overall, for the non-student group with regular incomes, mean scores of importance were significantly higher than students with the one exception of "price". However, no statistical difference between female student group and female non-student group was found.

Furniture style preference

Results demonstrated that the relationship between gender and furniture style preference. Females chose a greater number of furniture items as candidates among sofas, chairs, and tables. Also, among eight sofas (three traditional styles and five casual styles), statistically significant female preferences were observed while in three different items (one casual, one traditional, and one modern), strong male preference was observed. This shows an overall tendency of female preference for casual and traditional styles. We also found that male student group did not prefer traditional style whereas males in non-student group preferred for traditional chairs.

Final furniture selection

A Frequency Analysis displayed that casual chairs, casual sofas, and modern tables were most popularly chosen by respondents. It was also found that males tend to select more modern chairs and females prefer casual styles more.

Using a Cross-tabulation analysis, we found that the overall non-student group preferred casual styles whereas the student group preferred modern styles. There was a significant difference between the student group and non-student group among males. However, employment status did not play a significant role for females in furniture style preference.

DISCUSSION AND CONCLUSION

When considering the current decline in the furniture industry (Buehlmann & Schuler, 2001; Oh. et al., 2004), understanding consumer priority of considerations and furniture design preferences can provide useful information for the furniture industry. In addition, this study has implication for interior design research because the methods and findings can be applicable to future studies in understanding consumer decision making and design preference of furniture.

In summary, this research found several significant gender and employment status effects in furniture purchase behavior. Females' perception on the degree of importance and furniture style preference were more consistent regardless of employment status, whereas males' responses are significantly influenced by their status of employment. Also, females tend to consider furniture purchases more important than males.

Interestingly, the finding demonstrates that females consider color and style first whereas construction quality and price are more important to males. In addition, traditional and casual styles were significantly more preferred among females. Such findings can play a significant role for manufacturers and related designer practitioners by understanding consideration factors that influence consumers' furniture purchase behavior.

As an effort to combine research and practice, we attempt to provide useful information for interior design practitioners as well as the furniture industry by examining people's priority of considerations and furniture style preferences.

ACKNOWLEDGEMENTS

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Utilizing Virtual Environments to Advance Evidence-Based Design in Restaurant Interiors

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ABSTRACT

Today's advanced computer simulation technology offers an innovative way to boost the movement of evidence-based design, an emerging protocol that allows designers and clients to make informed decisions with research and evaluation. A case study demonstrating how high-fidelity Virtual Reality Environments, also known as Virtual Environments (VE), can be utilized to understand user behaviors and responses to the environment. The aim of this study is to advance the broader application of evidence-based design by improving customer satisfaction for restaurant interiors, which will directly influence client profitability.

In this experimental study, customer seating preferences were investigated in relation to customers' privacy-seeking tendency. Privacy, a psychological trait that is known to influence the relationship between environments and people's behaviors (Bitner, 1992), was examined in relation to seating preferences to obtain information for designers and clients. We attempted to understand if, and to what extent, restaurant customer privacy preferences affect their satisfaction of the dining experience for the simulated restaurant environment by measuring the following variables: privacy preference, seating preference, and satisfaction with assigned seats. Research utilized Pedersen's privacy questionnaire (1979) rated by semantic differential scales and Wulf's seat preference (1977) measure rating each table on a Likert scale.

A medium-sized (1,000 sqf) restaurant was designed to have 12 four-top tables with different conditions, due to the presence of an architectural anchor–window or wall, the degree of exposure to other tables, and the degree of traffic. A Virtual Environment is a three-dimensional digital mockup of space displayed to the user from an ego-oriented view using real-time 3D computer graphics. The VR simulation was projected on a 8'x6' real projection system for the participants to feel a higher sense of presence in the simulated environment (Yoon et al, 2008). Sixty-six undergraduate students attending a Midwestern University participated in this virtual environment simulation study.

The findings from multiple regression analyses and frequency tests include the ranking of preferred tables, as well as their characteristics. The privacy trait was not a strong indicator of seating preference. This paper discusses further findings and suggestions for improved customer satisfaction, which practically apply the findings to design solutions for restaurant interiors.

Utilizing Virtual Environments to Advance Evidence-Based Design in Restaurant Interiors

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NARRATIVE

Purpose

Evidence-based design protocol has recently gained increased attention in architectural and interior design practices. Hamilton (2003) defines evidence-based design as a decision-making process based on the best available knowledge from research and practice in making critical design decisions, together with an informed client. This study explores the broader and more affordable evidence-based design approach for commercial interiors using virtual reality technology. Our case study demonstrates how high-fidelity Virtual Reality Environments, also known as Virtual Environments (VE), can be utilized to understand restaurant user responses using a simple social science research method. With this experimental study, the ultimate goal is to explore a new area for advancing the broader application of evidence-based design.

Background

Virtual Environments for Evidence-Based Design

Today's advanced computer simulation technology offers an innovative way to boost the movement of evidence-based design, an emerging protocol that allows designers and clients to make informed decisions with research and evaluation.

If it is possible, there is no better way to do evidence-based design than testing the actual environments with real users. Although full-scale mockups may be successful

at allowing the designer to visualize quality and constructability issues prior to the final design being installed (Gopinath, 2004), there are feasibility concerns, in addition to the substantial costs.

Computer-based simulations with a degree of functional realism (Gopinath, 2004; Shaaf, 1997), the so-called “virtual mockups” or “virtual prototypes,” have started to be adapted for evidence-based design practices. Environmental psychologists and marketers have shown that simulated environments lead to results similar to what would be found in actual environments (Bateson and Hui, 1992; Nasar, 1989).

Seating Preferences in a Restaurant

Table and seating configuration is considered a significant factor that influences restaurant customers’ psychological and behavioral aspects (Robson, 2004), and successful table management is one revenue management strategy in restaurants (Kimes et al., 2002). Privacy is known to be an important psychological trait related to seating choices. Privacy is defined as “selective control of access to the self or to one’s group” (Altman, 1975), and people seek privacy at their comfort level by not only reducing contact with others but also increasing it (Pedersen, 1992).

Customer seating choices in response to their privacy preferences can be considered important information toward designing a desirable physical environment. In addition to general information from previous studies on privacy and seating choices, the evidence-based approach often requires a new study to answer the issue because every case has its unique physical context.

Methodology

In order to explore VE's potential toward broader evidence-based design, a virtual mockup of a local restaurant design project was developed to investigate customers' feedback on different table locations in regard to their privacy preferences. Figure1 shows the research process.

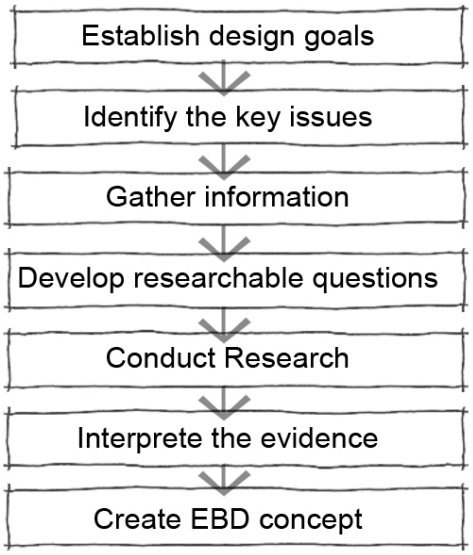

Figure1. EBD approach

The identified project goal is maximum customer satisfaction via effective table configurations based on understanding of customers' privacy preferences. For the current study, customer privacy/seating preference was identified as a key design issue: the design must effectively facilitate privacy needs and seating preferences in order to promote customer satisfaction. In addition to literature review on privacy and seating choices, the following hypotheses were formulated to be tested:

- H1: There will be commonly preferred and avoided table locations by customers.
- H2: Individual privacy preference will influence customers' preferences in table locations.

The proposed hypotheses were tested using a series of survey questionnaires during and after the participants' experience with the virtual restaurant. Research utilized Pedersen's privacy questionnaire (1979) rated by semantic differential scales and

Wulf's seat preference (1977) measure rating each table on a 7-point Likert scale. Finally, design adjustments can be proposed to improve satisfaction on the less preferred seats based on the evidence.

Developing the Virtual Environment

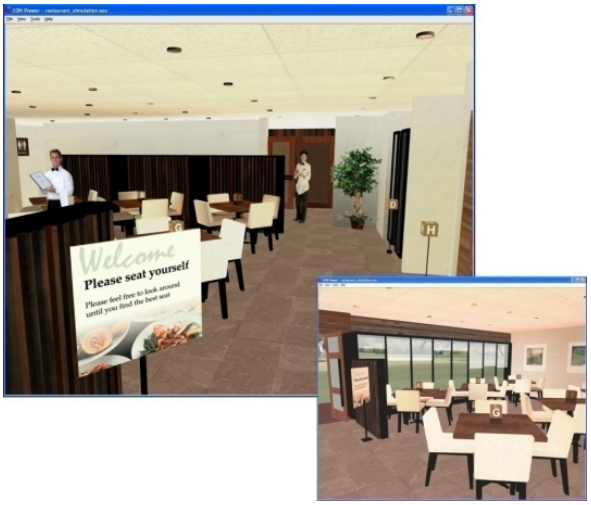

Figure 2. Screenshots of VR simulation of the restaurant (entrance view –left, window view-right)

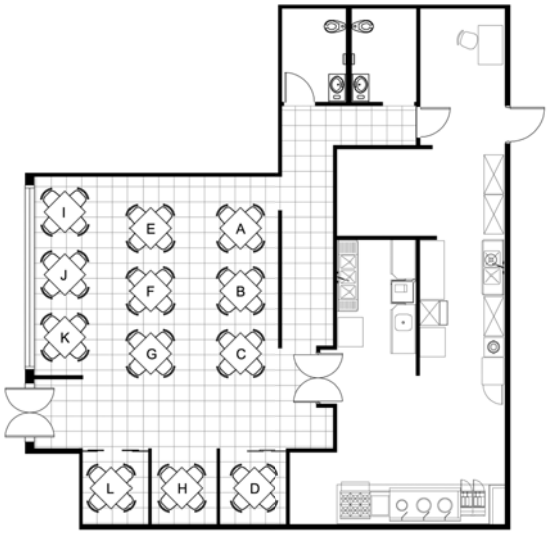

Figure 3. Restaurant dining hall layout

A medium-sized (1,000 sqf dining hall) local restaurant project in mid-Missouri was chosen for our case study. The initial layout with seats was proposed for the current study. Figure 2 shows a screenshot of the VE representing the proposed design. The VR simulation used a real projection system for participants to feel a higher sense of being inside the simulated environment. Sixty-six undergraduate students (27 males and 39 females) attending a Midwestern university participated in the experiment. The survey questions were answered while they "walked" through the space using a joystick or after the navigation.

The dining area of a local restaurant was modeled after the actual design proposal. Table configuration was suggested to simulate various physical conditions. Twelve combinable square tables (36”x36”) were placed in the space (Figure3). The 2D CAD drawings of the restaurant were first converted to 3D Studio MAX. The 3D model was created in 3D Studio Max and then exported to EON Reality using EON Raptor plug-in for real-time interactivity. The 3D model and lighting was refined in both 3D Studio Max and EON Reality to make the simulated environment more realistic.

Results and Discussion

H1: There will be commonly preferred and avoided table locations by customers.

Descriptive analysis was used to examine participants’ preference ratings of table location. Table I was found as favorite, followed by Table J. Both table locations are

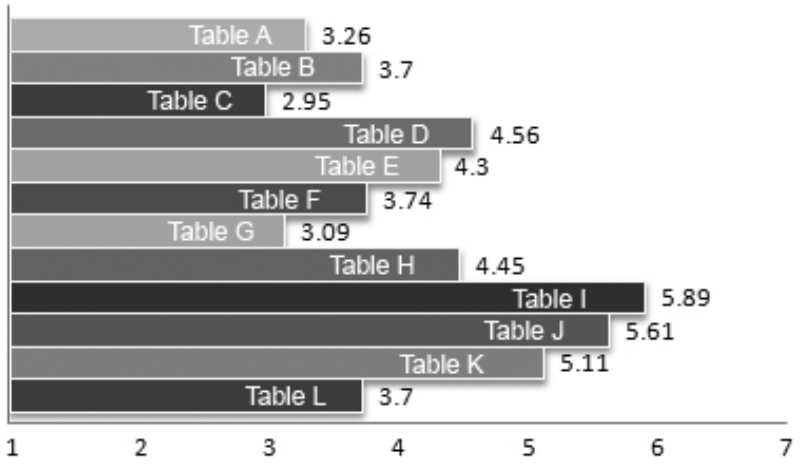

Figure 3. Table preference with mean scores
(1=never like to sit, 7=like to sit best)

more private than the others, while the table next to a window (Table I) was preferred to one next to a wall (Table E). Tables A and G were rated as least favorite tables,

followed by C. Tables near the restroom (A) or entrance (G) were found to be the worst locations. Both are in high-traffic areas with less privacy. Table C, next to the kitchen, was also rated very poor because of less privacy, but traffic was expected to be less than A or G. The H1 hypothesis was statistically examined by an analysis of variance (ANOVA). Participants reported significant differences among the preference ratings by each table ($p<0.05$). The hypothesis was supported.

H2: Individual privacy preference will influence customers' preferences in table locations.

The desire for a private table was examined by a series of regression analyses. Table preferences were operationalized by measuring satisfaction on two table locations: high privacy (Table I) vs. low privacy (Table F). Overall results indicated that individuals' privacy preferences are not a strong predictor for their seating preferences.

Our case study confirms the intuition that customers' varying experiences are influenced by where they sit in a restaurant. Individuals' desired privacy was also studied to the effect on restaurant customers' seating preferences. However, we found that regardless of the level of desired privacy, there are common seating characteristics preferred among individuals seeking different levels of privacy--tables situated against a window or wall to anchor them to secure personal space are most preferred, whereas tables in higher traffic areas such as near restrooms, entrances, or kitchen are least preferred.

Additional evidence was found the significant impact of table layout for the store profitability. For the reference price of $20, participants answered that they were willing to pay more if they were seated where they would like to be seated (M=$1.74, S.E.=0.28). One-sample t-test results indicated that there was a significant difference

from $0.00 (p<.000). Based on the evidence, design adjustments can be made to improve satisfaction on the less preferred seats, such as add plantings or partitions to block traffic. Adding a raised floor can also be considered to provide more privacy by differentiating sightlines.

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Understanding the Meaning of Color Environments: A Virtual Environment Exploratory Study

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ABSTRACT

Color in one's environment is known to bring emotional, social, and physiological reactions to people. Despite its significance, understanding meaning of color in environments is challenging mainly because of the difficulty in testing real color environments with virtually unlimited possible color combinations. As the context of color usage changes its impact on human responses, studying color and human responses has limited value if colors are isolated from actual environments (Mahnke, 1999; Hard & Sivik, 1999). To challenge these complications, this study explores Shigenobu Kobayashi's color image scale with real-scale, high-fidelity computer simulations. The goal of this study is to provide a practical framework for empirical research on the psychological/emotional relationship between color environments and people's perceptions of these environments.

The study utilizes Kobayashi's color theory (Kobayashi, 1981, 1987, 1990) focusing on the association of colors and words (i.e., adjectives) describing feelings and psychological emotions. Kobayashi provides a 180 "Image Word Database" of feelings connected to over 1000 color combinations devised by the use of multiple statistical analyses using the semantic differential method. While the large amount of color research has focused on emotional effects of single colors, the Color Image Scale deals with color combinations for practical application. During the last four decades,

Kobayashi’s color image scale has been widely adopted throughout major industries in many eastern countries including Japan and Korea.

A focus group consisting of six professional interior designers deducted twelve adjectives via an iterative examination process to carefully select adjectives and color schemes that best present distinguished color environments suitable for a bedroom setting. The twelve adjectives selected were cheerful, domestic, elegant, feminine, fresh, natural, pleasant, robust, simple and appealing, sunny, tranquil, and vivid.

A QuickTime VR environment was developed to represent a bedroom setting. Computer mediated 3D models were created and rendered in Autodesk 3D Studio Max 9 with Vray for photorealistic simulation of color and light. They were then converted into QuickTime VR enabling real-time navigation. The simulation was projected on a large screen. Participants were asked to browse the simulated space using a joystick that allowed them to “look around the room”.

Self-report questionnaires and interviews were used to obtain response data. Participants were asked how well the selected words describe the color environment using a 7-point adjective rating scale. Additional data about the acceptability of the Virtual Environment was obtained via post-experiment survey. Multiple statistical analyses were used to examine the association of adjectives and color schemes. Findings and implications are presented along with preliminary work for a subsequent follow-up sample of elders.

NARRATIVE

1. Purpose

This study is part of the larger quest to gain evidence-based knowledge of the meaning of color environments for the elderly residing in a long-term care facility. For researchers and practitioners, the ultimate aim of this study is to test the color image scale developed by Kobayashi using interactive 3D graphics technology (VR) technology with a college student sample prior to a follow-up study with elderly subjects.

Despite the literature acknowledging the significance of color effects to people emotionally and psychologically, little is proven by empirical testing of what different color environments mean to people. The impact of color can be amplified so design practitioners and facility administrators have a basis to make informed decisions in color application. Empirical studies on color environments are complicated due to two main factors: (1) there are virtually unlimited numbers of color combinations that can be tested and (2) there are difficulties in testing in a real environment with subjects. Addressing these complications, our study explores Shigenobu Kobayashi's Color Image Scale with life-size, high-fidelity computer simulation. With the current study, we attempt to provide a practical framework for empirical research on the psychological/emotional relationship between color environments and people who perceive the environments.

2. Research Method

Kobayashi (1981, 1987, 1990, 1998) of Nippon Color & Design Research Institute has developed the “Color Image Scale” to understand how a single color and combinations affect people’s emotion with 180 words describing feelings and psychological emotions. His systematic research methodology and practical application guidelines have been widely accepted by major industries in many countries in Asia as well as Europe. With the 180 “Image Word Database”, Color Image Scale suggests over 1,000 associated color combinations in four application fields: fashion, interior design, product design, and visual media.

In our study, we designed a controlled experiment in which we examined the subjects’ responses to 12 color schemes. The computer generated color environments were displayed on a 96” wide rear-projection screen. Human-Computer Interaction research has established that increased display size provides a higher sense of realism (Ni et al., 2006).

Our goal was to investigate how subjects perceive different color environments in relation to Kobayashi’s theory and suggested adjectives associated with the color combinations.

2.1. Environment

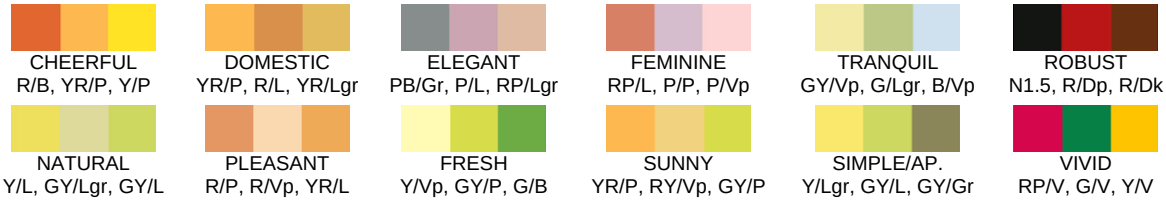
In order to develop color environments, 12 color palettes were extracted from Kobayashi’s Color Image Scale (1990) by a focus group consisting six interior design professionals. First, the focus group drew adjectives from the 180 image word database that considered suitable for elderly residential environments. Each word is associated with nine 3-color palettes. A color palette for each adjective was selected by interior

design professionals. The rationale for color selection was to find a combination that best matches with the adjective. Then, the chosen color palettes were digitized and applied to 3D computer models. The colors used in the Color Image Scale are in a hue/tone system consisting 12 tones in 10 chromatic colors and 10 achromatic colors. While the Munsell system uses the Hue Value/Chroma (H V/C), the Color Image Scale uses only two terms of Hue and Tone (H/T). Table 1 shows the codes for the 11 hue-12 tone system. The 12 color palettes for the current study are presented in Table 2.

Table 1. Notation system for Color Image Scale (H/T)

Hue	R(red), YR(Yellow-Red), Y(Yellow), GY(Green-Yellow), G(Green), BG(Blue-Green), B(Blue), PB(Purple-Blue), P(Purple), RP(Red-Purble), Neutral
Tone	V (Vivid), S(Strong), B(Bright), P(Pale), Vp(Very pale), Lgr(Light grayish), L(Light), Gr(Grayish), Dl(Dull), Dp(Deep), Dk(Dr), Dgr(Deark graysh)

Table 2. Color palettes selected for the study



Based on room layout and measurements of a local retirement home facility, we developed a room with basic bedroom furniture in 3DS Max 9 and Vray, a photorealistic rendering engine for accurate color and light simulation. Selected colors were assigned to floor, walls, and furniture. An Xrite color calibrator was used to accurately display the colors in rendering via computer monitor as well as the projection screen.

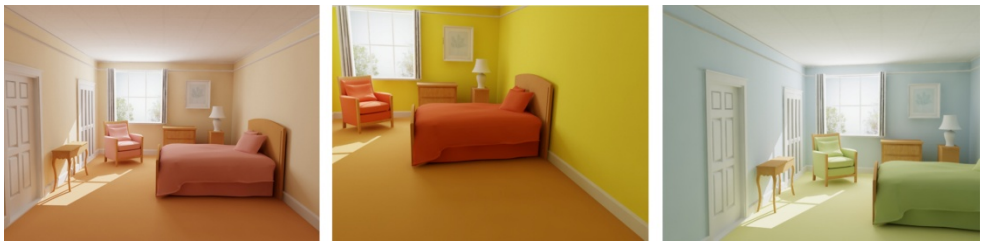


Figure 1. Sample color environments with different viewing angels:
(left-pleasant, middle-cheerful, right-tranquil)

The environment was displayed on an 8'X6' screen with a 1024X768 dpi rear-projection system (ANSI 2500). Using Quicktime VR, also known as 'immersive imaging', photographic renderings of the 3D computer model was converted into real-time interactive scenes at 360 º. The scene was rendered with a wide-angle lens to provide a 65 º field of view for a higher level of immersion and more spatial awareness (McCreary & Wiligies, 1998). In addition, a rear-projection system allows viewers to approach much closer to the screen without casting shadows on the screen.

To check the manipulation of the room simulation, participants were asked to rate how closely they perceive the simulated environment is to a real room on a scale ranging from 1 to 7. Result indicated that the VR simulation was perceived as a real room (*M=5.53*, *SE=0.14,* $p<0.001$).

2.2. Experiment

Participants

Voluntary student subjects were recruited at a Midwestern university: 34 subjects (17 males and 17 females) aged 19 to 25 participated in the study. Subjects were very homogeneous in travel and ethnic background.

Procedures

Upon arrival at the VR lab experiment site, a participant was asked to sit on the chair placed 48” from the display to achieve a 90º physical field of view. The participant was asked to “look around” the simulated room using a mouse and to answer a series of survey questions.

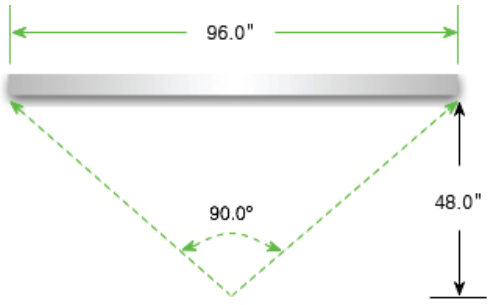


Figure 2. Experiment setup

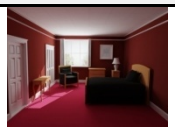
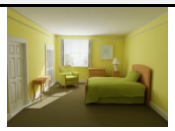
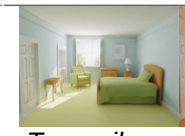
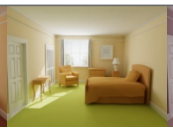
The survey questionnaire was composed of 12 adjectives with a 7-point rating scale from 1(totally disagree) to 7 (totally agree) for each color environment. The experiment took about 10 to 20 minutes to complete for each participant. To reduce carry-over effects, alternate orders of 12 color schemes were randomly assigned to participants.

3. Results and Discussion

This study investigated if and to what degree subjects agree with suggested adjectives associated with each color palette when applied to a bedroom environment. Collected data was statistically analyzed using SPSS. A series of one-sample t-tests were performed to determine how the adjectives and color environments were statistically correlated. In addition, to test the significance of the mean differences between male and female participants, a series of one-way analysis of variance (ANOVA) were calculated. If, and to what extent, the adjectives associated with corresponding color schemes were examined with alpha set at .01. Based on the level

of statistical significance and calculated mean scores of ratings, we identified four groups in terms of the association between the color schemes and adjectives: 1) not significantly agreed, 2) strongly agreed, 3) somewhat agreed, and 4) disagreed. Table 3 shows the t-test results on the adjective ratings for different color schemes.

Table 3. T-test results

Adjective-color scheme One-sample t-test, *p*=.01		Color schemes 1=totally disagree, 4=neutral, 7=totally agree
Not significant		 *Robust*  *Simple & Appealing*
Significant	Strongly agreed	*Feminine* *Vivid* *Fresh*
	Somewhat agreed	 *Tranquil* *Pleasant* *Domestic*  *Sunny* *Elegant*
	Disagreed	*Natural*

'*Robust*' and '*Simple & appealing'* color schemes were not statistically related to the suggested adjectives. Instead, the closest word to '*Simple & appealing'* color scheme was 'vivid' (*M*=5.91, *SE*=.22), *t*(33)=8.77, *p*=.000. Strong associations between the adjectives and color schemes were observed for '*Feminine*' (M=6.43, SD=1.01), t(33)=14.248, p=.000, '*Vivid*' (M=5.80, SD=1.45), t(33)=2.82, p=.008, and *Fresh* (M=5.54, SD=1.27), t(33)=7.20, p=000. Respondents reported significantly disagreed with '*Natural'* color scheme looking natural.

A profile analysis was conducted to present and analyze data from the adjective rating scale for the 12 color schemes. By plotting computed means, it is possible to compare overall differences or similarities in responses among the color environments.

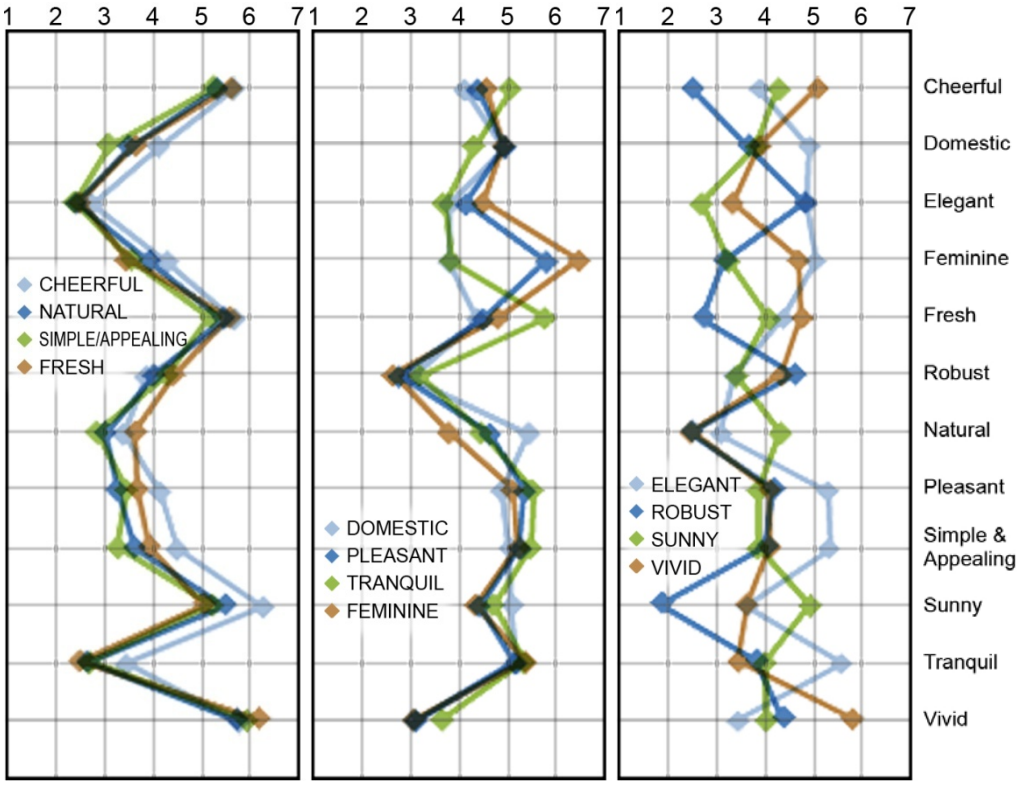


Figure 3. Profile analysis results (1=Totally disagree, 7= totally agree)

The profile analysis results (Table 3) demonstrated that respondents had similar feelings for '*Cheerful', 'Natural', 'Simple & Appealing'* and '*Fresh*'. These four color schemes had consistently higher rating scores for cheerful, fresh, and vivid ratings while lower scores for elegant and tranquil. '*Domestic', 'Pleasant', 'Tranquil'* and '*Feminine'* exhibited a similar pattern in the ratings with low scores for robust and vivid*. 'Elegant', 'Robust', 'Sunny',* and '*Vivid'* profiles did not display significant similarities in the ratings. No gender effect was found among the ratings on feelings. However, a significant gender difference regarding interests in color environments was found. A result of a one-way analysis of variance (ANOVA) displayed that female participants (*M=6.59,*

SD=.48) are more strongly interested in color environments than males (*M=5.50, SD=.98*). *F*(1,32)=16.85, *p*=0.00. Participants reported that the experiment was very enjoyable (*M*=5.97, *SD*=.81), fun (*M*=5.94, *SD*=.81), and they would like to voluntarily participate in this type of experiment in the future (*M*=5.88, *SD*=.91).

Phase one of this study allowed us to test the feasibility of our new research method using advanced computer graphics technology to realistically represent color environments and Kobayashi's theory for our future research with elders. Our future phase two study will include a satisfaction factor to further explore the meaning of color environments.

Acknowledgements

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THE SPIRIT OF EXPLORATION:
THE GATEWAY TO NEW FRONTIERS

PANEL PRESENTATIONS

ABSTRACTS AND NARRATIVES

Under Fire From Within: Interior Design's Continuing Struggle for Professional Identity

Allison Carll White, FIDEC
University of Kentucky

Josette Rabun, FIDEC
University of Tennessee

ABSTRACT

Importance of the Topic and Purpose

Interior design educators have long been involved in efforts to move the profession forward and increase its value in the eyes of the public, including the development of educational standards and national competency testing. These and other efforts have been instrumental in moving interior design towards a more professional status (Martin, 2008). Yet issues of the value that interior design brings to society continue to plague our profession. As Whitfield and Smith (2003) suggest: "Effectively, anyone can practice design and term themselves a designer. As such, the occupational title lacks definition" (p. 116). Such ambiguity can only serve to confuse public and student perceptions of the role of the interior design profession and undermine the value of professional interior design programs at colleges and universities. Thus, the purpose of this panel presentation is to examine recent challenges to the identity of the interior design profession in terms of education, experience, examination, and legal recognition/regulation by other design entities and to suggest strategies for educators trapped in the middle of the conflict surrounding CIDA, NCIDQ, and regulation.

Context

Recent attacks by the Institute of Justice (Martin, 2008) and the Interior Design Protection Council (IDPC, 2008) on behalf of the National Kitchen and Bath Association (NKBA) and other design entities confirm the public's inability to differentiate between interior design and interior decoration. In a position statement approved February 29, 2008, the NKBA states: "We would submit that no industry is more readily accessible to the public than the interior design profession. . . . . [T]here are numerous consumer publications, websites and television programs (and networks such as HGTV) which educate the public on the role of interior designers and the qualifications of the various disciplines" (p. 4). NKBA goes on to offer support for "various pathways of entry into the profession", thus rejecting CIDA-accredited programs as the sole basis for training (2008, p. 5). To further protect their "turf", NKBA has instituted their own accreditation and testing standards. According to IDPC (2008), approximately 50 higher educational units hold NKBA accreditation, 9 of which have dual accreditation with CIDA. Consistent with NKBA's more residential emphasis, the majority is housed in two-year programs. Again, these efforts are confusing to students in CIDA-accredited programs where interior design's focus on education, experience, and examination, and the designer's role in protecting the health, safety, and welfare of the public are stressed.

Method

Using a framework on occupations and the public provided by Grimm and Knornus (1973), the panel will explore these conflicting issues that impact interior design education at all levels, including education, examination, and regulation and

suggest operational strategies. The conference focus of "Where are we now? Where are we going?" will be central to the discussion.

Relevance to Interior Design

Despite previous efforts, the interior design profession continues to struggle to justify its value, but this time, some of the challenges are coming from within. Efforts to maintain and enhance our status must be addressed if the profession is to reach a new frontier.

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NARRATIVE

Under Fire From Within: Interior Design's Continuing Struggle for Professional Identity

Statement of Purpose

The purpose of this panel presentation is to examine recent challenges to the identity of the interior design profession in terms of education, experience, examination, and legal recognition/regulation by other design entities and to suggest strategies for educators trapped in the middle of the conflict surrounding CIDA, NCIDQ, and regulation.

Review of Literature

Based on professionalization theory, Martin (2008) has outlined the process necessary to move from a practice to a profession. These steps include a name change (i.e., interior decoration to interior design); education requirements; comprehensive examination; professional organization membership; a code of ethics; legal recognition/regulation; and continuing education. Yet these steps alone are not sufficient to differentiate interior design from interior decoration in the minds of the public or many of our prospective students.

Grimm and Knornus (1973) propose an analytical framework for studying occupations in their social environments, taking into account both subjective (stereotypical) and factual elements. The authors note that past research "establishes strong correlations between an occupation's prestige and public evaluations of its intrinsic tasks, income, and intelligence needed" (p. 71). They suggest that occupations that have failed to achieve full professional status have not convinced the public that

they possess scientifically based knowledge, an extensive educational requirement, autonomous working conditions, and a strong service commitment, a criteria that Anderson, Honey, and Dudek (2008) argue is still lacking in interior design. Of particular importance is the ability of the profession to demonstrate its "irreplacability and indispensability to society" (p. 80) in both the public and legislative arenas, the very issue on which the profession is now being challenged.

The findings of an earlier study by Thielbar and Feldman (1969) revealed that stereotypes guide the assessment of occupational prestige, which was confirmed in a 2003 study by Whitfield and Smith. In their examination of intercultural comparisons of the social standing of the design professions, the authors used the following criteria to measure perceived social standing: 1). level of social standing; 2). level of education; 3). level of income; 4). level of responsibility; 5). usefulness as a profession; and 6). proportion of women in the profession. Although the sample group consisted of designers and non-designers from Australia and South Korea, the results of the study are nonetheless revealing, particularly in terms of the Western respondents. The findings indicate that "the design subjects consistently rated the design occupations higher [on all dimensions] than the public group" (p. 121). Further, the Australian public rated the design professions on the lower ends of the service to the community and usefulness as a profession dimensions. Whitfield and Smith concluded that "the concern . . . regarding lack of recognition and understanding of the design professions appears to be justified" (p. 132). Thus, despite the interior design profession's continuing efforts to elevate its value in the minds of the public, other design entities continue to challenge the profession's claim, suggesting there is still much work to do.

Context

Interior design educators have long been involved in these efforts to move the profession forward and increase its value in the eyes of the public, including the development of educational standards and national competency testing. Yet issues of the value that interior design brings to society continue to plague our profession. As Whitfield and Smith (2003) suggest: “Effectively, anyone can practice design and term themselves a designer. As such, the occupational title lacks definition” (p. 116). Such ambiguity can only serve to confuse public and student perceptions of the role of the interior design profession and undermine the value of professional interior design programs at colleges and universities.

In a position statement approved February 29, 2008, the NKBA states: “We would submit that no industry is more readily accessible to the public than the interior design profession. . . . . [T]here are numerous consumer publications, websites and television programs (and networks such as HGTV) which educate the public on the role of interior designers and the qualifications of the various disciplines” (p. 4). Thus, instead of formalized education, experience, and examination as the standard for entering the interior design profession, the Interior Design Protection Council (IDPC) is promoting the criteria of “intelligence, imagination, and integrity” (IDPC, 2008). These factors only serve to “muddy the waters” in the public’s ability to differentiate between interior design and interior decoration. The fact that the interior design profession has a separate and distinct body of knowledge, stringent education requirements, a monitored experience program (IDEP), and currently is regulated in 25 states, territories, and the

District of Columbia is largely known only by those practicing the profession (J. Kenney, personal communication, February 18, 2009).

To further confuse the issue, NKBA offers support for "various pathways of entry into the profession," thus rejecting CIDA-accredited programs as the sole basis for training (2008, p. 5). NKBA now offers their own accreditation and testing standards. According to IDPC (2008), approximately 50 higher educational units hold NKBA accreditation, 9 of which have dual accreditation with CIDA (D. Moody, personal communication, January 12, 2009). Consistent with NKBA's more residential emphasis, the majority is housed in two-year programs. Again, these efforts are confusing to students in CIDA-accredited programs where interior design's focus on education, experience, and examination, and the designer's role in protecting the health, safety, and welfare of the public are stressed.

An argument mounted by the Institute of Justice and the Interior Design Protection Council (IDPC, 2008) on behalf of the National Kitchen and Bath Association (NKBA) and other design entities disputes the claim that interior designers protect the health, safety, and welfare of the public, an assertion that Martin (2008) effectively refutes. The case that is being brought to the courts, however, suggests that interior design regulation/certification denies First Amendment rights to freedom of speech and economic liberty (Carpenter & Ross, 2008). According to the NKBA (2008), "Such laws harm the public by artificially inflating consumer prices, erecting unnecessary barriers to entry into the profession, giving government-imposed advantages to those already practicing and failing to demonstrate any social benefit" (p. 3). These arguments run contrary to what is being taught in CIDA-accredited programs and create further

confusion. Interior design's ability to positively affect the user's quality of life must be stressed in the classroom as well as the public and legislative arenas.

Process

Using the framework on occupations and the public provided by Grimm and Knornus (1973), the panel was viewed as a means to initiate discussion on the issues that impact interior design education at all levels, including education, examination, and regulation and to suggest operational strategies "that will bind us together into a confident, recognized, and valued profession" (Anderson, Honey, & Dudek, 2007, p. xii).

The panelists will address such concerns as "What are the professional obligations of interior design to the general public? What is our role among the design professions, and what are we doing to improve our image with the public who relies on occupational stereotypes in judging professional status? Carpenter and Ross (2008) have accused the interior design profession of making dubious claims in reference to their role in providing public health and safety. ASID has tried for more than 30 years to attain professional status based on this claim. The time has come for interior design professionals to become aware of the issues and to formulate strategies that will convince the public that interior design is a profession with a distinct body of knowledge that requires extensive training and examination. The conference focus of "Where are we now? Where are we going? is central to this discussion.

Conclusion

Despite previous efforts, the interior design profession continues to struggle to justify its value, but this time, some of the challenges are coming from within. Based on society's perception and threats from other design entities, the question must be raised:

Who in the world are we and what *demonstrated* value do we bring to society? Efforts to maintain and enhance our status must be addressed quickly if the profession is to reach a new frontier.

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Stimulating Creativity: Writing in the Interior Design Curriculum

Tasoulla Hadjiyanni, Ph.D., Denise Guerin, Ph.D.,
Caren Martin, Ph.D., and Stephanie Zollinger, Ed.D.

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ABSTRACT

Purpose

Although writing has long been established as a creative endeavor (Benganolli & Rackham, 1982), little has been explored about the use of writing in interior design education (Eakins, 2005). The questions are: “What kinds of writing inform the discipline of interior design?”, “How does writing relate to the creative side of this visual field?”, and “What are the implications of this relationship for interior design educators, students, practitioners, and researchers?” In the *spirit of exploration*, this panel of four interior design faculty members explores answers to these questions via sharing exercises, techniques, problems, and ideas that afford writing a prominent role in interior design pedagogies.

Framework

The four presenters are part of their university’s Writing-Enriched Curriculum (WEC) program that aims to fully integrate writing in their interior design curriculum. This project is based on the assumption that effective writing is contextual, and it depends on the purposes and genres of a given field. Operating from within this framework and the

idea that writing is the articulation of thinking—thinking in the way that those educated in interior design do—the interior design faculty members began identifying:

(1) writing activities or genres that are typical of and critical to interior design,

(2) characteristics of effective writing,

(3) ways to support and develop the instruction of writing,

(4) sequenced design writing curricula that allow writing skills to build,

(5) assessment strategies to evaluate writing, and

(6) techniques through which to engage students.

Importance of the Topic

According to the National Commission on Writing (2006) “the importance of writing—for critical thinking and communication skills, for success in school and the workplace, for self-realization, and for its central place in school reform—cannot be overemphasized (p. 29).” Traditionally however, the design fields have relied on visual means to challenge students’ creative development. Lately though, interdisciplinary attempts to strengthen *visual rhetoric*, the connections between words and images, have proven fruitful in improving students’ creativity in both visual fields like landscape architecture (Martin, Damon, Spraker, & Malek, 1992) and word-based fields like professional communication and literacy (Faigley, 1998).

Relevance to Interior Design

Both writing and creativity are integral to interior design education, university initiatives, and Council for Interior Design Accreditation standards. Part of the challenge is using writing as a medium for both generating and conveying creative ideas in a field that encompasses: a) many forms of writing, ranging from evocative conceptual

statements to specifications; b) diverse sets of vocabularies that tackle issues from socio-cultural needs to technological innovations; c) variability in courses and emphasis areas that includes studios, history, and technology courses; and d) audiences of varying backgrounds, educational levels, and knowledge of the design process.

Aiming to explore writing's role in interior design education, panel members will answer the three questions initially posed by articulating the challenges and opportunities in linking creativity to design thinking and writing. During the discussion, participants will contribute their experiences to help unravel how to capture the *visual rhetoric* that permeates interior design curricula.

NARRATIVE

Purpose

Although writing has long been established as a creative endeavor (Benganolli & Rackham, 1982), little has been explored about the use of writing in interior design education (Eakins, 2005). The questions are: “What kinds of writing inform the discipline of interior design?”, “How does writing relate to the creative side of this visual field?”, and “What are the implications of this relationship for interior design educators, students, practitioners, and researchers?” In the *spirit of exploration*, this panel of four interior design faculty members from the Interior Design program of the University of Minnesota explores answers to these questions by sharing exercises, techniques, problems, and ideas that afford writing a prominent role in interior design pedagogies, particularly as a way to explore creativity.

Guiding the panel’s approach to the problem of using writing to stimulate creativity is Margaret Boden’s (1990) premise in her book *The Creative Mind*, that “What makes the difference between an outstandingly creative person and a less creative one is not any special power, but greater knowledge (in the form of practiced expertise) and the motivation to acquire and use it” (p. 24). Pushing creative boundaries, the panel argues, must be grounded in an in-depth exploration and understanding of the issues surrounding the project on hand. Although a discussion of research methods is beyond the scope of this panel’s purpose, the presentations will shed light on the connections among facets of knowledge, ways to acquire knowledge, and the written words used to both describe and push knowledge to the next level.

Framework

The four presenters are part of the University of Minnesota's Writing-Enriched Curriculum (WEC) program that aims to fully integrate writing into the interior design curriculum. This project is based on the assumption that effective writing is contextual and it depends on the purposes and genres of a given field. Operating from within this framework and the idea that writing is the articulation of thinking—thinking in the way that those educated in interior design do—the interior design faculty members began identifying:

(1) writing activities or genres that are typical of and critical to interior design,

(2) characteristics of effective writing,

(3) ways to support and develop the instruction of writing,

(4) sequenced design writing curricula that allow writing skills to build,

(5) assessment strategies to evaluate writing, and

(6) techniques through which to engage students.

Given the complexity of interior design curricula (the fact that courses range from studios to large-group discussions and topics cover anything from history to lighting and ethics), the presentation focuses on highlighting the many challenges and opportunities embedded in using writing to stimulate creativity in interior design.

Panel Description

Each of the four panelists will touch on a different course and share exercises, techniques, and ideas. Hadjiyanni begins the discussion with conceptual design. Long recognized as one of the most creative parts of the design process, concept development is also one of the most difficult to navigate (Aspelund, 2006; Moore, 1995).

Adding to this phase, notions like cultural differences complicates the teaching of concept even more. Through this presentation, examples are shared of how writing can be used to help students sharpen their understanding of the dynamic and ever-evolving nature of cultural interactions and the many ways through which one can be a member of a cultural group (Hall, 2000). Drawing from interdisciplinary literature, students often use or devise words that synthesize and internalize the knowledge they gained about a specific immigrant culture's norms and traditions especially as these inform the group's adjustment to life in the U.S. Engaging the written word helps students claim ownership of knowledge and increases their chances for effective communication of their conceptual ideas. For example, d*isruptemorphosis*, refers to the change that happens after a disruption in one's life course, which is typical in cases of displacement or immigrant movement from one country to another.

Zollinger will present a discussion of descriptive writing. According to Eakins (2005) description is a picture in words, based on personal observation of the characteristics that identify places, things, persons, or processes. The general characteristics of descriptive writing include elaborate use of sensory language; rich, vivid, and lively detail; figurative language such as simile, hyperbole, metaphor, symbolism and personification; and, *showing*, rather than *telling* through the use of active verbs and precise modifiers. With this in mind, Zollinger will present examples of how descriptive writing can be creatively incorporated into the design history courses. Through carefully crafted test questions and project assignments, the overall goal is to fine-tune students' descriptive writing skills so that they can generate not only a record or an impression but a mood, an aura, and range of meaning. Ability to do so increases

their facility with written words and concepts that underlie creative thought, i.e., they learn to express themselves by writing about precedent and applying it to creative concepts.

Martin reviews two assignments from lecture courses that require writing as creative and concise expression by sophomore-level students. In the context of innovation theory (Rogers, 1995), the first assignment, from DHA 2612 - Interior Materials and Specifications, asks students to: a) synthesize and apply knowledge about the environment and sustainability relevant to current contextual issues, b) identify a “change agent” of sustainability, and c) conceptualize their personal role as “early adopters” of a sustainable framework to design solutions. This encompassing approach encourages students to formulate personal values in context of current events, intended to serve as an internalized environmental ethic. The second assignment, from DHA - 2613 Lighting Design and Life Safety Issues, focuses on students developing a design concept for an object they design. Students identify and describe an automobile that “speaks” to them aesthetically as the creative basis for the design of a luminaire that embodies the same aesthetic qualities (i.e., elements and principles of design). The assignment culminates in an exhibit that includes a full-scale working prototype of the luminaire in combination with a poster that is used to “sell” the luminaire to the jurors. The poster promotes the luminaire’s name and highlights its benefits via written and graphic information. This juried competition contributes to the students’ application of a crucial and ongoing aspect of interior design, the ability to sell one’s ideas (Piotrowski, 2008). Both of these assignments contain writing components that enhance the overall creative process as well as exercise expression and cognition through creative writing.

Guerin closes with a discussion of how writing can be used to inspire creativity in the least expected phase of the design process—programming. *Visual rhetoric*, the connections between words and images (Faigley, 1998), is used to develop a visual presentation of a written work, the pre-design program. In the pre-design portion of the senior thesis course, students complete comprehensive problem identification through data collection and analysis. They develop a program for their design project that will be used to solve the problem the following semester. As there is a real client involved, students must present their program to the client by developing their written document into a visual presentation that entices, informs, and excites the client. Visual presentations of several examples will be shown and their success at combining writing with creativity will be discussed.

Importance of the Topic

According to the National Commission on Writing (2006) "the importance of writing—for critical thinking and communication skills, for success in school and the workplace, for self-realization, and for its central place in school reform—cannot be overemphasized" (p. 29). Traditionally however, the design fields have relied on visual means to challenge students' creative development. Lately though, interdisciplinary attempts to strengthen *visual rhetoric*, have proven fruitful in improving students' creativity in both visual fields like landscape architecture (Martin, Damon, Spraker, & Malek, 1992) and word-based fields like professional communication and literacy (Faigley, 1998).

Relevance to Interior Design

Both writing and creativity are integral to interior design education, university

initiatives, and the Council for Interior Design Accreditation (CIDA) standards. Part of the challenge is using writing as a medium for both generating and conveying creative ideas in a field that encompasses: a) many forms of writing, ranging from evocative conceptual statements and promotion of ideas to specifications; b) diverse sets of vocabularies that tackle issues from socio-cultural needs and environmental challenges to technological innovations; c) variability in courses and emphasis areas that includes studios, history, and technology courses; and d) audiences of varying backgrounds, educational levels, and knowledge of the design process.

Aiming to explore writing's role in interior design education, panel members will answer the three questions initially posed by articulating the challenges and opportunities in linking creativity to design thinking and writing. During the discussion, participants will contribute their experiences to help unravel how to capture the *visual rhetoric* that permeates interior design curricula. By starting a dialogue around these issues, the panel hopes to inspire collaborations and concerted efforts among educators to improve ways by which to take advantage of the great potential tied to writing.

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Art as Creative Scholarship: Methodologies for Conceptualizing, Fabricating, Documenting, Describing and Disseminating

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ABSTRACT

Overview

This panel uses case studies of the panelists' own creative scholarship to shed light on methodologies for producing and disseminating art as peer reviewed creative scholarship in the context of interior design education. This requires going beyond either the research or the professional focus traditionally at the core of interior design education to examine the intersection of design and art. Expert panelists explore methodologies for conceptualizing, fabricating, documenting, describing and disseminating art as creative scholarship.

Context

Learning to create and disseminate art in the context of creative scholarship can be

problematic. A recent IDEC position paper provides a thoughtful and coherent exposition of issues and parameters related to educators' producing and disseminating both design work and art as creative scholarship in the context of tenure and promotion but does not address the production and dissemination of the work itself (IDEC, 2008). The need for discussion of methodologies in this area is underscored by the lack of documentation of art making as a part of the literature of interior design education; the creation of art is not listed in a recent publication of proposed index categories for interior design scholarship (Clemons & Eckman, 2004), nor is it listed in a recently published Body of Knowledge Matrix for interior design (Guerin & Martin, 2004). One author discusses art in the context of disciplines that share knowledge with interior design, but points out that, while contemporary art and conceptual art in particular inform interior design, art and interior design each have very different relationships with culture (Baker, 2005).

Less globally, even something that appears as simple as learning the norms and methodologies of juries for creative scholarship is not a transparent process. Juries for interior design creative scholarship often consist of three or more jurors who do not give feedback and who do not have identifying information for any of the artists. Conversely, direct interaction with a multi-person design jury is a norm in design education, providing a standard way for students to learn the norms and practices of a design field (Webster, 2007). In contrast, a single juror who does not provide feedback but has biographical information on each artist is a norm in the field of art (Price, 1981).

Content and Format

Following a brief discussion of some of the general problematic issues with learning to engage in art as creative scholarship, each expert panelist will discuss methodologies for one of these areas: conceptualizing, fabricating, documenting, describing and disseminating art in the context of creative scholarship for interior design educators. An outline of topic areas is attached as Figure 1.

Panelists

The expert panel consists of five practitioners of art as creative scholarship. All teach in interior design programs. Education includes degrees in interior design, art and architecture. Career experience includes working as interior design professionals, artists and illustrators. Mediums include painting, drawing, sculpture, installation, photography, metals, conceptual art, performance, video, art furniture, fiber, and multimedia. Recognition for creative scholarship includes international and national awards, publications, solo shows and juried shows.

NARRATIVE

Introduction

Creative scholarship has been identified as a valuable and substantial form of scholarship by the Interior Design Educator's Council (IDEC, 2008). However, social science research has traditionally been at the core of IDEC's scholarly culture; until a couple of years ago, the APA format was the required format for all written scholarship. Topic areas identified as the interior design body of knowledge (even the idea of a body of knowledge itself, for that matter) draw strongly from social science scholarly culture; a recent article in the Journal of Interior Design discussed the need for a common language within a discipline, but at the same time did not include art as a studio practice (as opposed to art as an object of historical or theoretical study) within a proposed list of interior design scholarship and knowledge areas (Clemons & Eckman, 2004).

The goal of this panel presentation is to bridge the chasm between IDEC's organizational goal of including art as creative scholarship and the reality of art as creative scholarship's exclusion from categories in the interior design scholarship and knowledge areas. The methodology is to compare and contrast art as creative scholarship with other types of interior design scholarship, illustrating the ideas through the use of case studies based on the panelists' own experience as both interior design educators and as artists.

Art and the Three Criteria for Interior Design Scholarship

Clemons and Eckman (2004) identify three criteria for interior design scholarship. Rather than challenging these criteria, this panel suggests how they can be broadened and refocused to include art as creative scholarship.

The first of the three criteria is: “1) contribution to the expansion or application of the interior design body of knowledge.” With art, knowledge is not always the primary goal; gaining understanding or insights is often more important, as it is in many disciplines within the humanities. However, knowledge is also generated within the creative process and may itself be a new application.

The second of the three criteria is: “2) endurance of the rigors of peer review.” This criterion is probably at the backbone of all cultures of scholarship, and blind peer review is one component of establishing rigor common to most scholarly communities. However, peer review can take other forms that respond to different aspects of creative scholarship while still maintaining rigor.

The third of the three criteria is: “3) dissemination in a format that can be retrieved and cited.” In the context of social science or humanities scholarship, the transparent citation of text based content is implicit in the idea of dissemination. However, while dissemination is a key aspect of creative scholarship, both retrieval and citation are by tradition often less than transparent; for instance, artists’ inclusion of veiled visual

quotations from other artists, without explicitly citing a source, can be expected and valued.

Framework and Topic Areas

The following discussion focuses on descriptive examination of the issues in each of five topic areas with an example from the work of one of the panelists, while the panel presentation itself will give the panelists additional opportunity to illuminate the issues through showing how their own work addresses creative scholarship in all of the topic areas.

Conceptualizing

Conceptualizing is an important part of most scholarship activities. Generating a workable hypothesis in social science scholarship, or generating a premise or thesis in humanities scholarship, are both aspects of conceptualizing that become part of the finished work. However, in art as creative scholarship, conceptualizing might even lead directly to a final product; in fact, within a branch of art called Conceptual Art, one might expect only a concept and no physical artifact whatsoever.

Mark Nelson spends a great deal of time conceptualizing as he develops narrative stories and fictional personae, imagining an alternative world that is the context for his art. He studies art monographs, books on theory, literature and popular culture,

amassing a file of documents and sources in the same way he would if he were writing a paper or article. As with statistical research, where raw data is not usually published in an article, the documents and sources support the final artwork without being included directly.

Fabricating

Fabricating may be the topic where creative scholarship diverges the most from other areas of scholarship. Creating a new branch of statistics, a new alphabet or a new form of data collection is not central to written forms of interior design scholarship. Conversely, developing new materials, processes or techniques while fabricating art can play a central role in creative scholarship. Nevertheless, the fabrication of art is similar to social science research in that an artist is working with a frame of reference from which the idea is tested through the fabrication process. While a statistically based research article is expectred to document a study's methodology, an artist traditionally can choose whether or not to explain their fabrication process.

Fabricating plays an important role in Maura Schaffer's art. She has incorporated both welding and sewing into a major body of sculptural and installation work made of metal and cloth, and her experimentation in the studio has led to alternative solutions, unique techniques, materials and methods which eventually make the final artwork possible. Additionally, Maura uses drawings and mockups during the act of fabrication to work through and transform the ideas she is addressing with her work.

Documenting

Documenting traditional interior design research involves writing as well as explanatory charts or other visuals. The visual documentation of art as creative scholarship usually involves photography or digital printing, whether performed by the artist or by someone engaged by the artist. In both areas, documentation is necessary for dissemination and retrieval and the quality of the documentation is also one of the factors assessed during peer review.

Bradley Whitney documents his sculpture and installation work through photography. Since Bradley is a fine art photographer as well, the documentation doubles as another aspect of his art. In addition to a symbiotic relationship between the artist as sculptor and the artist as photographer, there is also the technical body of knowledge that Bradley has needed to master in order to attain control of his work. Since how the art will present itself in the documentation can also be part of conceptualizing and fabricating, the documentation also becomes an integral part of Bradley's creative process.

Describing

Written scholarship is especially focused on the act of describing, since the written description is the primary result or artifact. With art, however, a written description

stands apart from the art work itself, and may be quite brief; sometimes, the only description is a title, the medium and the dimensions. The artist's statement is the most common type of description, and is often a first person narrative that explains the roles of conceptualizing, fabricating and documenting in the creation of the work.

Shari Park-Gates creates ink drawings of buildings and landscapes, as well as abstract drawings based on carefully designed exploratory objectives. The methodology she uses to generate written descriptions of her work is to recount the purpose or concept, objectives or outcomes, and the significance, relevance, or discoveries that ensue as a result of her creative process. Although describing her art in writing adds additional layers of understanding, her drawings still stand on their own as visual artifacts. Since she views art work as a universal language, her descriptions leave room for freedom when interacting with and interpreting the work.

Disseminating

As with other forms of scholarship, art as creative scholarship must be disseminated. Blind peer review for creative scholarship is similar to that for written scholarship, but often takes a jury format or might even be performed by a single curator and is more often reviewed holistically (Price, 1981). Art may also be peer reviewed by a jury or curator who also looks at the artist's resume and exhibition history, which is similar to what happens with an edited book. The prestige of the jurors or of a curator is a significant aspect of peer review in creative scholarship, and quite often, the same art

work is disseminated in different contexts with different requirements.

Tad Gloeckler has disseminated his work in a variety of peer reviewed venues. From the same art project, Tad might exhibit a three dimensional sculptural fabrication in a gallery, exhibit drawings documenting the fabrication in a drawing show, exhibit a poster promoting the gallery show in a competition as graphic design and then interact with the sculpture in a performance or artist's talk. For each venue, Tad reformats the documentation and the description to meet the expectations of the venue and the reviewers.

Conclusion

Creative scholarship shares many attributes of the traditional forms of scholarship in interior design, and expanding the meaning of terms such as peer review, dissemination, knowledge, rigor and documentation could allow the same descriptive language to apply to all of these forms of scholarship. On the other hand, many topics that must be explicit in written scholarship are often only implied in art as creative scholarship. Identifying these differences is a ripe topic for future interior design scholarship.

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THE SPIRIT OF EXPLORATION:
THE GATEWAY TO NEW FRONTIERS

POSTER PRESENTATIONS

ABSTRACTS AND NARRATIVES

Occupant satisfaction in a LEED-certified building

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ABSTRACT

Recent studies (Heerwagen, 2003; Heerwagen, 2005; Samet, 2003) have shown the benefits of sustainable buildings for human health and the environment, but few assess the satisfaction of the occupants of buildings designed using sustainable practices. According to Clements-Croome and Baizhan (2000) more occupants report a greater impact on productivity from dissatisfaction with their physical work environments than from job dissatisfaction or job stress. Organizations with satisfied employees typically have higher employee retention, higher productivity, lower operating costs, and lower ongoing capital costs (Corps, 2005).

This study evaluates occupant satisfaction in Kelley Engineering Center (KEC), a LEED-Gold certified facility on the campus of Oregon State University. These results are compared with the results of a pre-survey of the same population before they moved into the building. The new building houses laboratories, classrooms, and offices for 360 graduate students and faculty. Completed in August 2005, KEC was certified LEED Gold by the United States Green Building Council and is the “greenest” academic engineering building in the United States.

Both the pre-occupancy (n=30) and the post-occupancy evaluation (n=22) utilized responses based on a Likert scale and were disseminated on-line. The following

elements of buildings that are customarily considered to contribute to occupant satisfaction were explored: acoustics, thermal comfort, indoor air quality (IAQ), lighting, and space.

Results of the post-occupancy survey indicated, among other findings, that:

1) Compared with a satisfaction rate of 37% in the pre-test, overall occupant satisfaction with the Kelley Engineering Center was 59%.

2) Only 9% of respondents were satisfied with thermal comfort, and 4% with the acoustics in the new building.

3) Occupant satisfaction with indoor air quality in the green building was 41%, compared with 37% in the pre-test.

There is no evidence to support the conclusion that the low levels of satisfaction with acoustics and thermal comfort were attributable to the use of sustainable building practices and materials. Instead results indicate that participants were satisfied with sustainable aspects, including indoor air quality and amount of daylighting and electric lighting. Dissatisfaction with acoustics and heating appears to be a result of poor building layout, inappropriate HVAC system configuration, and lack of understanding by the end users of how the system works.

Open-ended questions were included in both on-line surveys, and representative responses are presented.

It is possible to design and construct buildings for LEED certification without satisfying the occupants with the ambient conditions of the facility. This creates a scenario whereby a cost-effective, energy-efficient, environmentally friendly facility could actually cost the owner more in personnel costs than would a traditional building.

Occupants who are dissatisfied with their built environment may be less productive employees (Clements-Croome & Baizhan, 2000), less concerned with supporting the sustainability aspects of the facility (*e.g*., recycling, turning off lights when not in use), and possibly more apt to seek employment elsewhere.

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NARRATIVE

Many studies have shown that occupants are healthier and more productive in green buildings (Boubekri, Hulliv & Boyer, 1991; Clements-Croome & Baizhan, 2000; Fisk, 2002; Heerwagen, 2001; Leaman & Bordass, 2005; Sundstrom, Town, Rice, Osborn & Brill, 1994; Wineman, 1986; Wyon, 2004) but few have explored the levels of satisfaction of the occupants of these buildings.

Economic and environmental impacts and costs are relatively easily measured. However, social value, ranging from satisfaction to morale and corporate image, is difficult to identify.

Organizations with satisfied employees typically have higher employee retention, higher productivity, lower operating costs, and lower ongoing capital costs (Corps, 2005). Occupant satisfaction with the built environment is of great value to interior designers because of its importance to building owners and managers. (Heerwagen, 2003).

The purpose of this study was to examine occupant satisfaction with Kelley Engineering Center (KEC) on the campus of Oregon State University. A pre-occupancy study captured occupant satisfaction with the non-green buildings where the faculty and staff worked prior to moving into the new facility. A post-occupancy survey captured occupant satisfaction with KEC. The following elements of buildings that contribute to occupant satisfaction were explored: acoustics, thermal comfort, indoor air quality (IAQ), lighting, and space.

This study addressed the following research questions:

1. Is overall occupant satisfaction higher in the LEED certified building than in non-green buildings?
2. Is occupant satisfaction with lighting higher in the LEED certified building than in non-green buildings?
3. Is occupant satisfaction with thermal comfort higher in a building constructed to LEED standards than in non-green facilities?
4. Is occupant satisfaction with acoustics higher in the LEED certified building than in non-green facilities?
5. Is occupant satisfaction with indoor air quality higher in the LEED certified building than in non-green buildings?

Satisfaction theory is a business-based marketing theory that focuses on delivery of satisfaction to consumers, business or society. Satisfaction theory provides a conceptual framework for measuring occupant satisfaction. In measuring occupant satisfaction with the built environment, researchers have utilized adaptation theory, a component of environmental psychology. They have examined health, well-being, and ability to complete objectives (Bechtel & Churchman, 2002; Bell, Greene, Fisher, & Baum, 1996).

The existing data set consisted of a pre-occupancy evaluation conducted in June 2005 to use as a comparison group with the data collected from the post-occupancy survey (Heerwagen, 2001). The population for this study consisted of the 70 faculty and staff members at Oregon State University in the School of Electrical Engineering and Computer Science.

The pre-occupancy data were collected during Spring Term 2005. This sample consisted of 18 faculty and 12 staff members. Post-occupancy data were collected during Spring Term 2006. This sample consisted of the 22 participants, 16 faculty and 6 staff, 31% of the entire population.

Data for both surveys were collected using an online survey instrument on Zoomerang (2005) and consisted of 53 questions. Thirty-seven questions utilized a 5-point Likert rating scale. Open-ended questions were also included to capture additional feedback. The survey included sections about office layout, office furnishings, thermal comfort, air quality, lighting, acoustics, and overall satisfaction. All questions on the pre-occupancy survey were included in the post-occupancy questionnaire with only verb tense modifications.

Analysis of the data was performed using the online survey tool Zoomerang in conjunction with the statistical package S-Plus. Using S-Plus the means and standard deviations for specific individual questions were obtained. An inter-item reliability analysis (Cronbach's alpha) was performed in S-Plus to test the reliability of all questions contained within one category.

An overview of the results is presented in *Figure 1. Figures 2 and 3* illustrate the responses for the pre-occupancy study and post-study respectively. *Figure 4* presents representative responses for the open-ended questions.

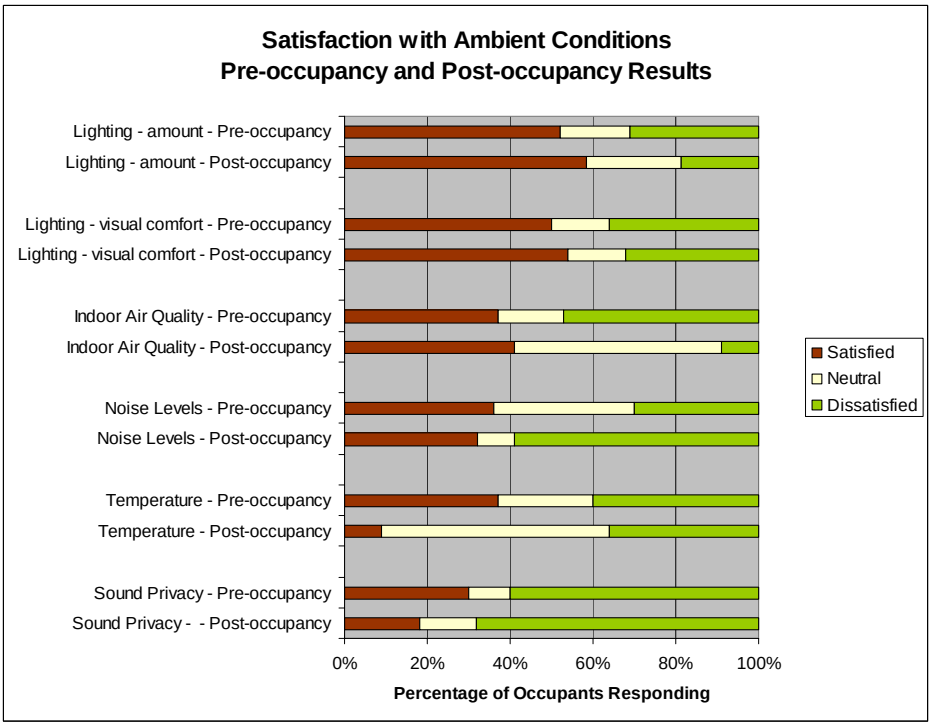

Figure 1. Bar chart of satisfaction levels with ambient conditions.

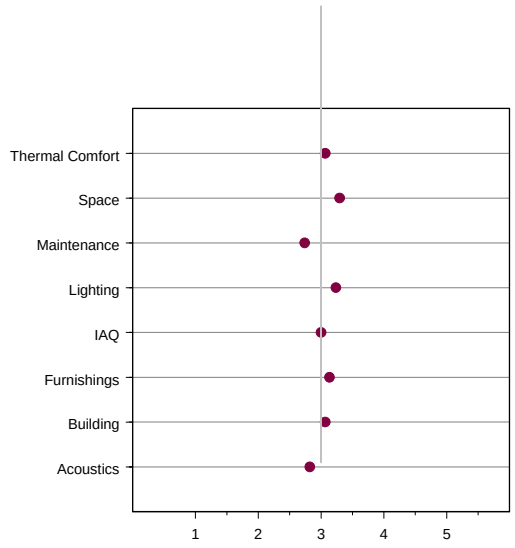

Figure 2. Graph depicting mean responses for the pre-occupancy survey.

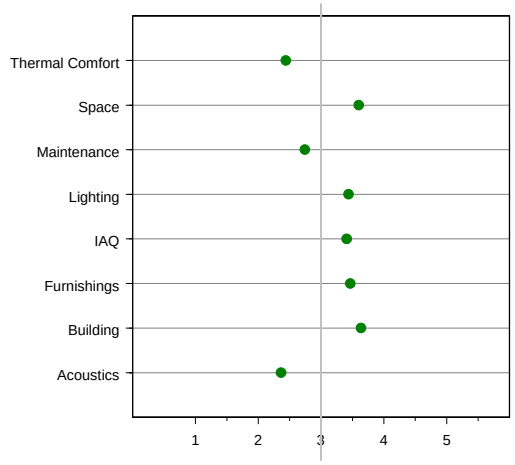

Figure 3. Graph depicting mean responses for the post-occupancy survey.

Acoustics	• The sound proofing between offices is nearly non-existent. When my neighbor's phone rings, I think its mine. We can hear each other talk, cough, sneeze, drop things, etc. • Walls are paper-thin. No privacy with respect to noise. THIS IS HORRIBLE!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
Thermal Comfort	• The heat cuts off after 5pm and you can freeze by 8pm. I have a space heater in my office. Some others do too. So much for a saving energy. • Nobody understands even yet how the heating works.
Lighting	• Lights are too bright for me when I'm on the computer, but if I turn them off, I get no heat. And, I'd like to dim them at least, but I can't. • Lights must be on to have heat.
Space	• Office furniture is not acceptable when visitors are in the office • Because of lack of storage, my office is still full of boxes. Because it is full of boxes, there is no room to meet with colleagues and students. • 1 or 2 more chairs in the office would improve meetings

Figure 4. Selected occupant write-in responses from the post-occupancy survey.

Summary

Overall occupant satisfaction increased from the non-green buildings to the LEED-Gold certified building. Overall building satisfaction rating for Kelley Engineering Center, as reported by respondents, was 3.64, the highest mean rating of all categories. However, when specific elements were analyzed for level of satisfaction, it was obvious that thermal comfort and acoustics in KEC were unacceptable to many occupants.

Upon further investigation of the areas of dissatisfaction, it appeared that the low levels of occupant satisfaction with acoustics and HVAC in KEC were not related to the use of sustainable building materials or practices. Instead, these complaints were more likely a result of poor design decisions made by the architects and interior designers, the selection of inappropriate materials, and the lack of training for occupants about the heating and ventilating systems.

Suggestions for Future Research

Identifying data were not captured in the pre-survey and therefore the researchers were unable to pair them with the post-occupancy data. This had an impact on the applications of statistical testing because pairing could not be established. Due to the sensitive nature of human resources data, personal information such as personnel records could not be collected for the present study. However, a future study including data from both pre- and post-occupancy groups regarding productivity and absenteeism could be compared to determine whether the green building had an impact on amount and quality of work. Because heating and ventilating issues, particularly comments about how cold KEC is, scored among the lowest satisfaction results, the summer season could be included in a later study.

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Interior Design Role in Small Town Housing: A Case Study

Lisa M. Bates

Iowa State University

ABSTRACT

The baby boomer generation is like no other generation previous; their sheer numbers have helped shape and change the nation over their lifetime. A generation of 80 million people has great power and force (Overly, 2007). As they enter and near retirement, their demands are again changing the way our nation views aging. The majority of baby boomers, 77% (Maurer, 2001), do not want to move south nor enter retirement facilities; they want to maintain their independence and be an active member within their communities. For these demands to be met the average American built home will not be suitable for this generation's active lifestyle nor are there suitable housing alternatives within their current communities. American home construction is dictated mainly by traditions dating back to 1964's Small Homes Council design standards (Crews, 2006). This council set the standards for homes and was based on anthropometrical measurements of able-bodied, healthy, American military men (Crews, 2006). Universal design principles used within housing will assist in nurturing the physical and psychological health as a person ages (Crews, 2005). There are obstacles designers must overcome including the misperceptions of the aesthetics of universal design, their lack of knowledge of what modifications are needed (Maurer, 2001), and this generation is not convinced universal design would make a difference in

their daily lives (Crews, 2006). Interior Designers have an obligation to address the needs of our aging population including the homes and communities they live.

In the summer of 2008, the Extension to Communities and Economic Development and the Institute for Design Research and Outreach at Iowa State University conducted an interdisciplinary "Elder-Friendly Community (EFC) Design: case studies" to evaluate and analyze two Iowa small towns. This study identified, through use of focus groups and assessments, a need for appropriate housing options for current and potential aging community members. This study explores the implementation of universal designed housing within Iowa small towns as a key component for successful implementation of EFC design. Surveys administered and collected from local citizens discovered their knowledge and exposure to the concepts of "aging in place" and "universal design". The survey results exhibit a lack of knowledge concerning how universal designed housing can facilitate independent aging within their current community. This discovery led to the proposed design intervention project to visually demonstrate implementation of universal housing within the community.

Adaptive reuse within one of the local communities analyzed during the summer's EFC case studies, Lamoni, Iowa, is the focus of this design intervention. The former Ford Automobile dealership is transformed into a universally designed, age-restricted housing alternative. This visual design intervention may assist planners and members of the local community to discover the value of universal designed homes as a part of the elder-friendly community design. This adapted residential development is

an option to meet the retiring baby boomers physical, social, and psychological needs and wants.

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NARRATIVE

Issue

"What role does Interior Design have in the development of small town housing?" This is a question many may first ask after reading the title of this poster presentation. Although many may not believe professional interior designers would be qualified to improve the housing situation in their local and surrounding communities, the profession is well equipped to help solve the difficult housing times ahead for the aging population.

America is confronted with the challenges and opportunities of an aging population as the Baby Boomer generation enters the next era of their lives. The Baby Boomer, or Boomer, generation includes those Americans born between 1946 and 1964, due to the end of World War II and prior to the widespread use of birth control (Senior Journal, 2004). The U.S. Census Bureau found 1 in 8 Americans were age 65 years old and over but this number is estimated to increase to 1 in 5 by the year 2030. The lifestyle of the Boomer generation and improvements in longevity is changing the ways the older generation lives.

The American society will need to address the needs and desires of this generation as they age. As a person ages there is increased possibility of decline in physical abilities. Although this generation is proving to be healthier and more active than previous generations, the aging process will still become a factor within their daily living, although it may be delayed into older age. Aging is accommodated by declining visual, auditory, and kinesthetic senses, along with senescence, disease, and trauma

(Crews, 2005). The sheer numbers of the Baby Boomer generation has increased the awareness of the aging process and how society will address these aging changes.

The Baby Boomer generation has continually shaped society as they have grown and entered into the different phases of their lives. Retirement will prove to be no different for this generation. As a generation of 80 million (Overly, 2007), they have the ability to exert great force over their lives and society as a whole. Many surveys and studies have been conducted to discover the desires for retirement the Boomer's possess. The majority of Baby boomers, 77% (Maurer, 2001), do not want to move south nor enter retirement facilities; they want to maintain their independence as long as possible. The AARP conducted a survey and also found a significant majority of the Boomer generation would prefer to age in place, to enable them to maintain their social connections, professional relationships within their familiar surroundings (Overly, 2007). Society will be forced to find the answers to allow Boomers to age in place because this generation will demand their own defined lifestyles.

Although not every person will age with the same conditions or at the same point in their lives, there are possible solutions to allow people to age in place. Across the country and across multiple disciplines there are studies being conducted to find applications for aging in place to become successful. One viable option is the implementation of Elder-Friendly Community (EFC) design strategies. There are proven advantages of appropriately designed environments for continued life satisfaction including both mental and physical health (Crews, 2005). The application of EFC strategies within the local communities of the aging Boomer generation may be able to enhance their well being physically as well as psychologically.

The implementation of a successful elder-friendly community requires many features including appropriate housing options. The typical American single family dwelling may not be the answer for all Boomers nor will the local nursing home be the suitable alternative. The lack of accessible housing alternatives currently within the housing stock requires communities to plan for additional options where citizens of all ages and abilities would be able to live independently and successfully age within the communities they are devoted.

Interior design professionals are called to fill two positions in the creation of successful housing options for Iowa small towns. First, interior designers must discover creative solutions for each community using the skills learned within their educational and professional background. Second, interior designers must become educators and advocates for the development of elder-friendly communities and appropriate housing options. There is no other profession as well equipped to spread the information and knowledge to those planning and living within their communities.

Statement of Purpose

The purpose of this poster is to demonstrate the key role interior design, as a profession, has in assisting in the creation of EFC's around the nation. Interior design has the ability to facilitate environments which help not hinder those using and living within the space. This particular study will focus on the development of housing options specifically for small communities throughout the state of Iowa. Housing is an important component for the success of the Boomer generation's desire to age in place. The application of Universal Design within the built environment will allow the housing

options so many small Iowa towns are lacking to facilitate aging in place. A proposed adaptive reuse project will be the specific case study design for the town of Lamoni, IA. The town of Lamoni has already been evaluated based on the EFC guidelines and has shown a need for additional housing options within the community.

As an assumed 'typical' small Iowa town, this study will hopefully become inspiration for additional communities to apply not only the strategies of Elder Friendly Communities but also seek the interior design profession for solutions for the much needed housing options their aging citizens will need into the future to remain active and independent members of the community.

Presentation

The goals of this case study dictate the addition of a creative component to serve as an example of the possibilities this poster desires to invoke. Interior design is a visual profession and this poster is to honor this strong tradition and attribute within the profession. The addition of the case study in Lamoni, IA is also to demonstrate the possibilities small communities in Iowa have in reuse of common buildings, currently empty, to create valuable housing options.

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3D Design Concept Comparison: Google SketchUp vs. Autodesk Revit

Jennifer Anne Dye

Julie Kay Charlson, Ph.D.

San Francisco State University

ABSTRACT

Purpose

Comparing two industry standard three-dimensional modeling programs allows interior design educators to explore the benefits and limitations of teaching design to their students in a different context to traditional 2D design practices. North and Miller (2002) identify that the rapid pace of technology has led to an increase in computer speed, software programs designed for user ease, and the continual reconfiguring of the design profession. As interior design programs comply with CIDA standards, it is important that design educators and interior design programs investigate new technologies and their impact on learning in the 21st century. Chang (2006) notes that three-dimensional computer modeling programs can have steep learning curves, even for those students who are technologically inclined. The purpose of this study was to explore and compare the potential of SketchUp and Autodesk Revit 3D computer programs to enhance student learning of design.

To determine if the comparison of 3D modeling computer programs was effective, the following research questions guided the study:

1. What were the differences between the two types of 3D computer programs, Google SketchUp and Autodesk Revit, in regard to achieving the same visual goals?

2. Was there a difference between Google SketchUp and Autodesk Revit in regard to student's perceived satisfaction of completed projects?
3. What were the major differences between Google SketchUp and Autodesk Revit in regard to design capabilities for completion of design projects?

Methodology

A semester long curriculum was created that included learning both Google SketchUp and Autodesk Revit. Both BIM programs were used to complete the same assignment, while investigating comparisons between the two programs. Both programs were given nine weeks each of learning time. Analysis and observations were recorded and compiled to answer each research question (see Appendix A). Student reactions to both programs were gathered after completion of assigned projects (see Appendix B).

Results

Comparative analysis demonstrated strong differences in the design capabilities of Google SketchUp and Autodesk Revit. Initially SketchUp required a smaller learning curve than Revit, though ultimately Revit was faster for completing designs once the learning curve was achieved. Further exploration found that Revit was capable of drafting and modeling concurrently. However, SketchUp was only truly useful for 3D modeling, and not as a comprehensive means of preparing construction documents in addition to 3D modeling. Perhaps the most important discovery was the comparison of light study between Google SketchUp and Autodesk Revit. While Revit provided multiple options for interior and exterior lighting, SketchUp provides only one source of light, an exterior "sun" that does not accurately illuminate the interior upon addition of a ceiling or roof. The final conclusion of this study found that Autodesk Revit was a

superior BIM program in its design capabilities and end product as compared to Google SketchUp.

NARRATIVE

Introduction

Comparing two industry standard three-dimensional software programs allows interior design educators to explore the benefits and limitations of teaching design to their students in a different context to traditional two-dimensional design practices. A close relationship has developed between interior designers and computer aided design over the last 20 years. Loebelson (1989a and 1989b) found that in 1988, 84% of interior designers working for the top 100 United States firms became rapidly integrated with CAD programs. Within a year, this number grew to 92%. There is no denying that interior design students must learn computer aided drafting and design to be competitive in today's market.

Interior design programs now face a larger challenge for future students; integrating 3D modeling programs such as Google's SketchUp and Autodesk's Revit into the interior design curricula. Modern design firms are beginning to require that design students are skilled in 3D programs upon graduation. According to McCarthy (2006) design students are migrating to digital media, as shown by increased demand for 3D computer program classes and digital rendering programs such as Photoshop.

Interior design students are taught volumetric design and rely upon it to visualize spaces they create. Bertel, Freksa, and Vrachliotis (2004) note that "design processes operate in high-dimensional, filtered decision spaces that reconfigure dynamically" (pg. 259). For centuries, designers have used their minds, along with pen and paper, to graphically represent the volume of a space; the shape and context in which it sits, as a means of better understanding the design as a whole. It is the duty of interior design

instructors to teach this method to their students. In the face of a modern age, instructors now have 3D modeling computer programs to help their students understand and work with volumetric design.

Three-dimensional CAD programs have the potential to help students visualize and design options. What once was the physical model constructed by students of cardboard and glue can now be rendered in the virtual world, through the help of such 3D programs as Google's SketchUp and Autodesk's Revit. These computer programs can assist with a student's visualization skills, but the capabilities of the newest versions also contribute to the design process in other ways. During the design development phase, 3D CAD programs such as SketchUp help students visualize and translate design concepts into a virtual, "real time" scenario. By viewing all sides of a space or construction detail and being able to rotate the drawing in any direction in 3D, students can better grasp the concept they are trying to create. Programs such as Revit, which require specific material applications during the contract document phase of design, help students better understand construction and correct their drawings. Brandon and McLain-Kark (2001) note that CAD in every stage of the design process "may assist the designer in visualizing all the dimensions that affect the design solution" (pg. 28).

For interior design students to feel competitive in today's job market, it is important that design educators and interior design programs investigate new technologies and their impact on learning in the 21st century. Educators should include three-dimensional software as an appropriate media to produce presentation drawings as part of CIDA's Standard 6 Communication requirements. The purpose of this poster was to explore and compare the potential of Google SketchUp and Autodesk Revit 3D computer programs to enhance student learning of design.

Methodology

Spring semester 2008 was selected for graduate study in the Consumer and Family Sciences/Dietetics Department at San Francisco State University with the intent to learn software and contribute to curriculum for an advanced CAD course that summer. Revit textbooks and online tutorials were explored. In order to compare findings between the different software it was decided to use both to design the same space. Both SketchUp and Revit were used to complete the same assignment. Over the course of nine weeks each, identical kitchens and dining rooms (see Appendix A) were designed. Analysis and observations were recorded and compiled to answer the following research questions.

1. What were the differences between the two types of 3D computer programs, Google SketchUp and Autodesk Revit, in regard to achieving the same visual goals?
2. What were the major differences between Google SketchUp and Autodesk Revit in regard to design capabilities for completion of design projects?
3. Was there a difference between Google SketchUp and Autodesk Revit in regard to researcher's perceived satisfaction of project comparisons?

Student responses were reviewed from undergraduate interior design students at San Francisco State University who took a five week summer course in Revit and replied to three evaluation questions about the software. Their reactions were gathered after completion of assigned projects and course grade.

Results

Comparison of visual design outcomes demonstrated strong differences in the design capabilities of Google SketchUp and Autodesk Revit. Though the kitchen/dining

room designs appear similar, each program has its own catalog of colors and materials; therefore each project has a slightly different feel and look. SketchUp had more readily available “blocks’, pre-prepared components that can be imported into the 3D space. Revit, still relatively new to the market, did not have as may of these blocks, further limiting the look of the design. Revit obtained a more professional look than SketchUp in rendering quality. This became apparent during a light study comparison between SketchUp and Revit. While Revit provided multiple options for interior and exterior lighting, SketchUp provides only one source of light, an exterior “sun” that did not accurately illuminate the interior upon addition of a ceiling or roof.

The graduate student’s perceived satisfaction of the completed projects leaned towards Revit as the preferred 3D modeling program. Initially SketchUp required a smaller learning curve than Revit, though ultimately Revit was faster for completing designs once the learning curve was achieved. Further exploration found that Revit was capable of drafting and modeling concurrently. However, SketchUp was only truly useful for 3D modeling, and not as a comprehensive means of preparing construction documents in addition to 3D modeling. While working concurrently in the field, the graduate student found Revit to be more practical and appropriate to design solutions starting from the design phase through to construction documents.

The following summarizes undergraduate student reactions concerning the advantages of Revit over previously used AutoCAD.

1. AutoCAD was limited to 2D drawings. Revit produced volumetric drawings helping the designer and potential client visualize results.

2. Multiple views (ie: elevation and section drawings) are simultaneously generated from the initial floorplan.
3. While designers are correcting perceived problems, Revit updates changes in all drawings and schedules.
4. Revit has the ability to generate planned lighting details to illuminate the space.

Student 4 replied that Revit could “enable professionals to visualize their work with more precision in scale, proportion and space, enabling them to correct potential design problems in traffic flow and function”.

Responses to the question concerning the disadvantages and difficulties using Revit included the following:

1. More contemporary design elements need to be included into Revit that are easier to save and use in multiple versions.
2. The command processes of Revit need should be comparable to AutoCAD for an easier transition from AutoCAD to Revit.
3. Adding customized paint colors and changing materials during a Revit project was complicated and difficult to control.

Student 5 said “it was difficult to create custom blocks” and Student 3 found operations “ frustrating to get the right colors/furniture to the quality most prefer” as it required several steps. Nancy Clark Brown, educational representative from AutoDesk, said the new 2009 version of Revit is quite different regarding rendering as it now utilizes metal

ray like Viz and 3ds Max. “Regarding real-time walk-thrus; that was not possible in 2007 or 2008. It is available in 2009” (personal communication, January 30, 2009).

The final question asked students if Revit contributed to other parts of the design process besides presentation drawings. The following combines similar responses:

1. Revit simultaneously taught construction methods and materials while providing an interior design perspective.
2. Revit quickly prepares floorplans and elevations while providing high quality presentation drawings.
3. The data within drawings quick prepare and modify FF&E specifications.
4. The option function offers designers a shortcut to compare different design solutions for the same space.

Student 4 felt Revit “forced designer's to pay attention to the construction and structure of their designs, providing them with a more comprehensive understanding of their work”.

Conclusion

The final conclusion of this project found that student satisfaction with Autodesk Revit was better suited to different parts of the design process as a 3D program in its design capabilities and end product as compared to Google SketchUp. It should be noted that Google SketchUp is an excellent vehicle for creating and understanding quick volumetric designs and can be a capable 3D rendering tool. Regardless of the 3D computer program students learn, the benefits and applications of such programs to their learning process and into their careers is of critical importance. As interior design

educators, we must recognize the value of these computer programs to enable students to develop volumetric thinking, model their designs in 3D, and prepare them for a future of working in the technological age.

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Appendix A

SAN FRANCISCO STATE UNIVERSITY

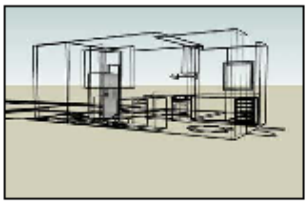
3D DESIGN CONCEPT COMPARISION GOOGLE SKETCHUP VS. AUTODESK REVIT

DEPARTMENT OF CONSUMER AND FAMILY STUDIES/DIETETICS
COLLEGE OF HEALTH & HUMAN SERVICES

JENNIFER ANNE DYE
M.A. CANDIDATE FAMILY & CONSUMER SCIENCES

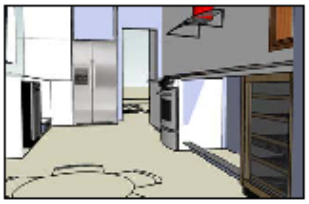
GOOGLE SKETCHUP

BEGINNING PHASE



- MODEL IS CREATED BY DRAWING LINES, INSERTING BLOCKS, & "PUSH/PULLING" MASSES TO CREATE THE SPACE.
- CAMERA VIEW ALLOWS FOR HEIGHT SPECIFIC VIEW POSITIONING.
- LIGHTING COMES FROM THE "SKY", THERE ARE NO LIGHT BLOCKS THAT RENDER LIGHT ONCE CEILING IS APPLIED.
- MATERIALS CAN BE APPLIED AT ANY TIME FOR REAL-TIME VIEW

- SIMPLE TO LEARN & EASY TO USE
- ALWAYS WORKING IN REAL-TIME VIEW
- SKETCHUP IMPORTS 2D CAD FILES, BUT DRAFTING DOES NOT TAKE PLACE WITHIN SKETCHUP.
- GREAT FOR QUICK SHAPE/MASS CONCEPTUALIZATION
- MANY READILY AVAILABLE BLOCKS ON-LINE



MID PHASE

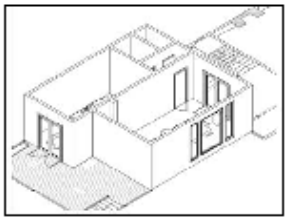
COMPLETED RENDERINGS OF DINING ROOM AND KITCHEN

AUTODESK REVIT

- SMALL LEARNING CURVE
- WORKS IN MULTIPLE VIEWS - PLAN, ELEVATION, & 3D.
- IMPORTS 2D CAD FILES, BUT DRAFTING & MODELING HAPPEN CONCURRENTLY.
- MANY READILY AVAILABLE BLOCKS ON-LINE

MID PHASE

BEGINNING PHASE



- CAMERA VIEW IS SET AT PREDETERMINED HEIGHT. BUT VIEW WINDOW SIZE CAN BE ADJUSTED TO ENCOMPASS MORE AREA.
- LIGHTING COMES FROM THE "SKY" AND FROM LIGHT BLOCKS THAT VISUALIZE LIGHTING EFFECTS FROM CEILING FIXTURES ONCE CEILING IS APPLIED.
- MATERIALS CAN BE APPLIED AT ANY TIME, BUT TO SEE THE RENDERED SPACE, A VIEW MUST BE CAPTURED BY THE CAMERA AND THEN RENDERED.

COMPLETED RENDERINGS OF KITCHEN AND DINING ROOM

THE SPIRIT OF EXPLORATION:
THE GATEWAY TO NEW FRONTIERS

CREATIVE SCHOLARSHIP
Art Category

ABSTRACTS AND IMAGES

Art
Title: Five Posters
Medium: graphic design

Tad Gloeckler

University of Georgia - Lamar Dodd School of Art

These five posters were created for historical record and advertisement of IDEC Creative Scholarship Presentations from 2006 to 2008. The two-dimensional posters are currently used to supplement exhibitions of three-dimensional creative projects. Each poster is 20 inches wide, 30 inches high, created with AutoCAD software, and printed on Arches paper. The PDF images in this presentation were created directly from software files to allow for artist name and school affiliation to be disguised.

Posters one (Segment Rotation Seat) and two (Tipi di Pesca) were created for IDEC Creative Scholarship presentations in 2006. The featured projects were each distinct, but created by the same artist. The design goal was to create two different posters, but present them as a related pair. These two posters share several compositional features. The same rectangular format for project information occupies the base portion of each poster. Font style, size, and layout are equal. The gray color of the background is identical in each poster, and the proportion of object to field is also similar. Strong color and graphic representation of object(s) is significant in each poster. A solid relationship exists between the posters to identify their similar origins, but they also appear whole and complete as individuals.

The third poster (Arrived Perfect) was created for an IDEC Creative Scholarship presentation in 2007. The red-brown color is a representation of the wood material (cherry) that was featured in the actual piece. The strong background color creates a compositional shift to help the object (assembly instructions) appear as a visual void.

Posters four (A-Division) and five (Property atStake) were created for IDEC Creative Scholarship presentations in 2008. Like posters one and two above, these projects were each distinct, but created by the same artist. Again, the design goal was to create two different posters, but present them as a related pair. These two posters share compositional and experiential qualities. White space is a dominant feature in both posters. A heavy dashed or broken line creates visual movement, and text organization reinforces the motion concept. Photographic images, although small in size, become concluding elements in the story or narrative content of each poster.

Creative Scholarship: *Design*
Presentation Title: *Segment Rotation Seat*
Author: *Joe Gogogo, University of Gojoego*
PresentationTime: *Friday, March 9th, 9:00AM - 10:30AM*

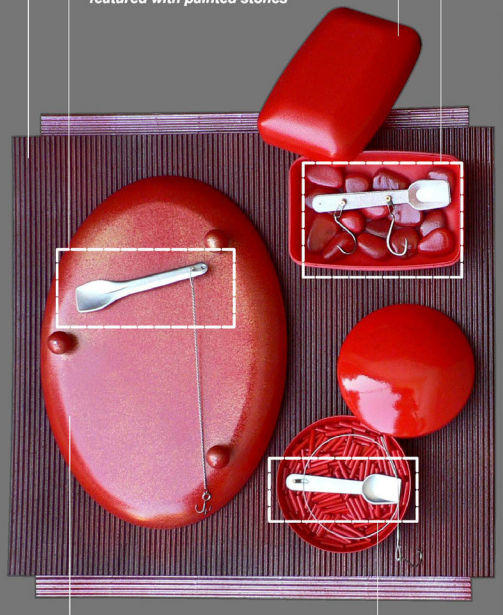
IDEC (Interior Design Educators Council) - 2006 International Design Conference - Scottsdale, AZ

Corrugated cardboard collected in Cortona, Italy and painted with all available colors

Gelato Spoon collected in Cortona, Italy

Gelato Spoon collected in Florence, Italy

Soap Container transported from USA, gilded with red paint in Cortona, Italy - featured with painted stones



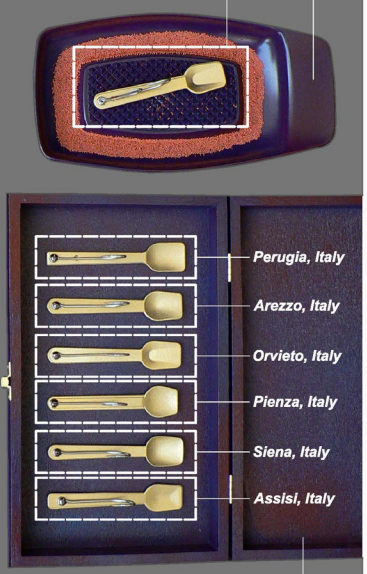
Argento Serie

Serving Tray (upside down) collected from Cortona Thrift Store - highlights in red added by the artists

Gelato Spoon collected in Naples, Italy - featured in field of painted bamboo shoots - contained in red dish from Cortona Thrift Store

Apple Grater collected in Camachia, Italy gilded with blue and red paint in Cortona, Italy

Gelato Spoon collected in Rome, Italy and resurfaced in Cortona, Italy



Oro Serie

Wood Box collected in Camachia, Italy and regally transformed with blue and red paint in Cortona, Italy

Gelato Spoons identified above were collected in Italian cities as noted, all gilding took place in Cortona, Italy

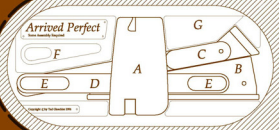
Creative Scholarship:	Visual Arts
Presentation Title:	Tipi di Pesca
Authors:	Jane Stopstop, Janestop Art School
	Joe Gogogo, University of Gojoego
PresentationTime:	Friday, March 9th, 9:00AM - 10:30AM

IDEC (Interior Design Educators Council) - 2006 International Design Conference - Scottsdale, AZ

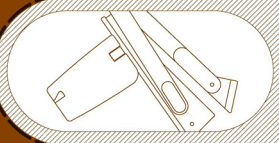
OPEN

Arrived Perfect addresses animal stewardship issues, and the lost reality of society's daily dependence and relationship with a specific animal

Assembly Instructions for Arrived Perfect

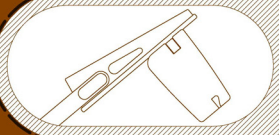


Head (A), Mane (B), Foot (C), Leg (D),
Spring-Loaded Locks (E), Spare Parts (F), Case (G)



Gently lift Arrived Perfect from carrying Case, and rotate position of Head, repeat each side

Dis-engage Spring-Loaded Locks, and rotate leg segments to align with Mane, engage locks



Grasp the handle on Arrived Perfect's Mane, and . . .
Enjoy The Ride!

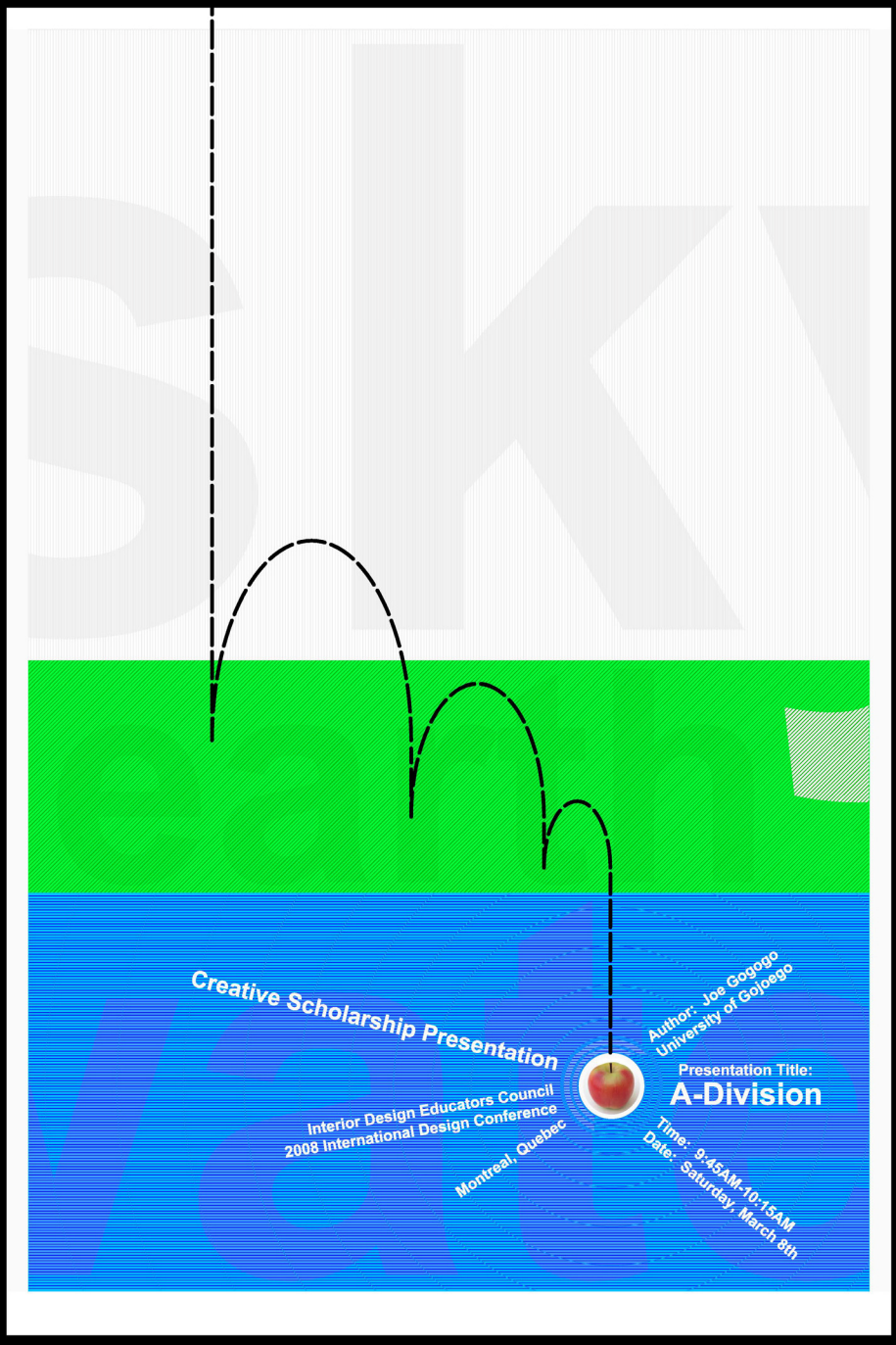
A molded, womb-like compartment secures and protects the precious contents, and helps stimulate the idea of transformable life.

Copyright © by Joe Gogogogo 2006

OPEN

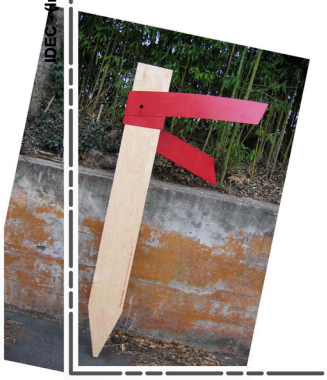
Creative Scholarship - Visual Arts
Presentation Title: Arrived Perfect
Author: Joe Gogogogo, University of Gojoego
Time Slot: Friday, March 9th at 9:00AM - 10:30AM

IDEC (Interior Design Educators Council)
2007 International Design Conference - Austin, TX


Creative Scholarship Presentation
Interior Design Educators Council
2008 International Design Conference
Montreal, Quebec
Author: Joe Gogogo
University of Gojoego
Presentation Title:
A-Division
Time: 9:45AM-10:15AM
Date: Saturday, March 8th

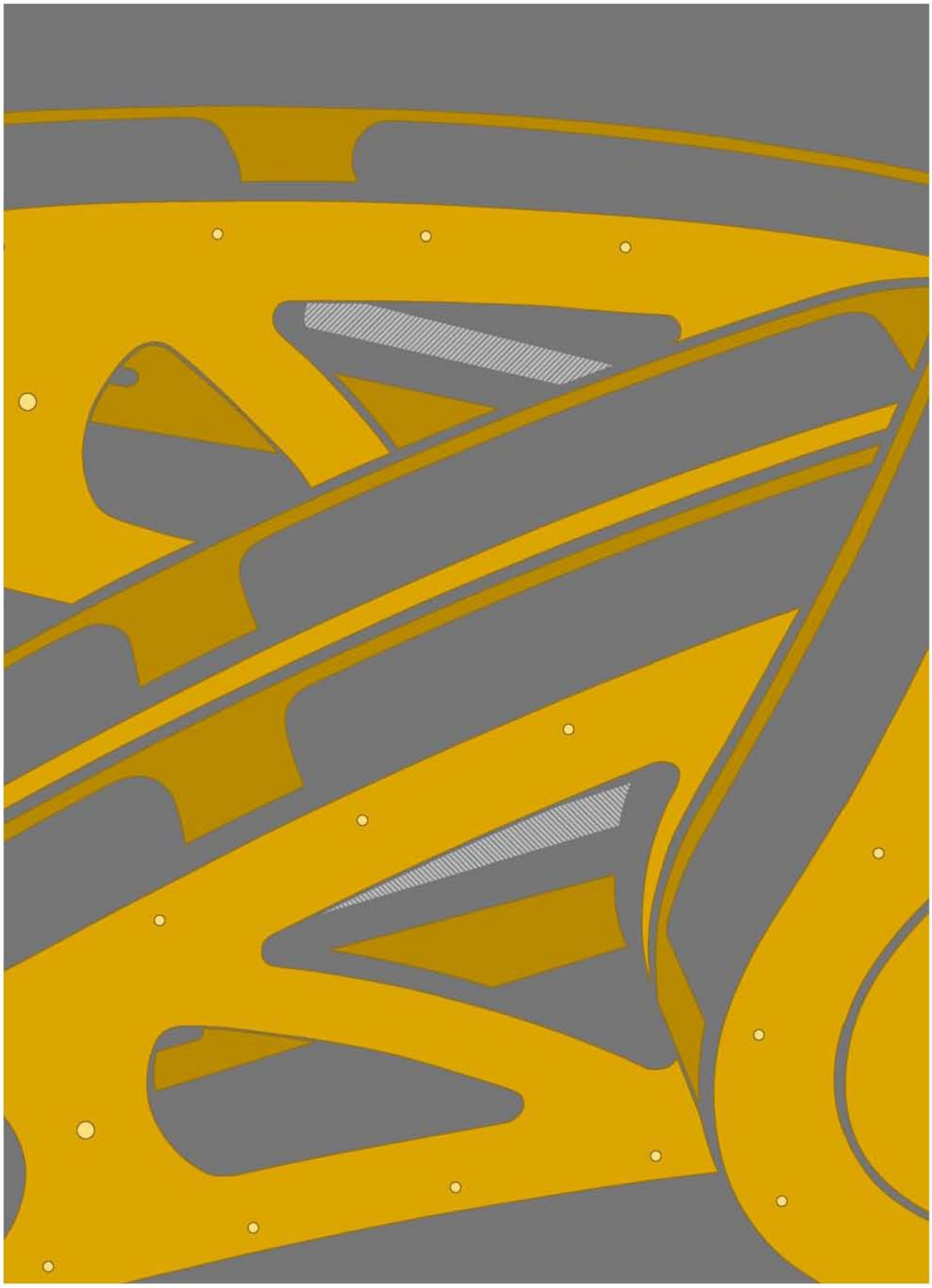
- Presentation Title: Property atStake - Date & Time of Presentation: Friday, March 7th, 3:45PM - 4:15PM -

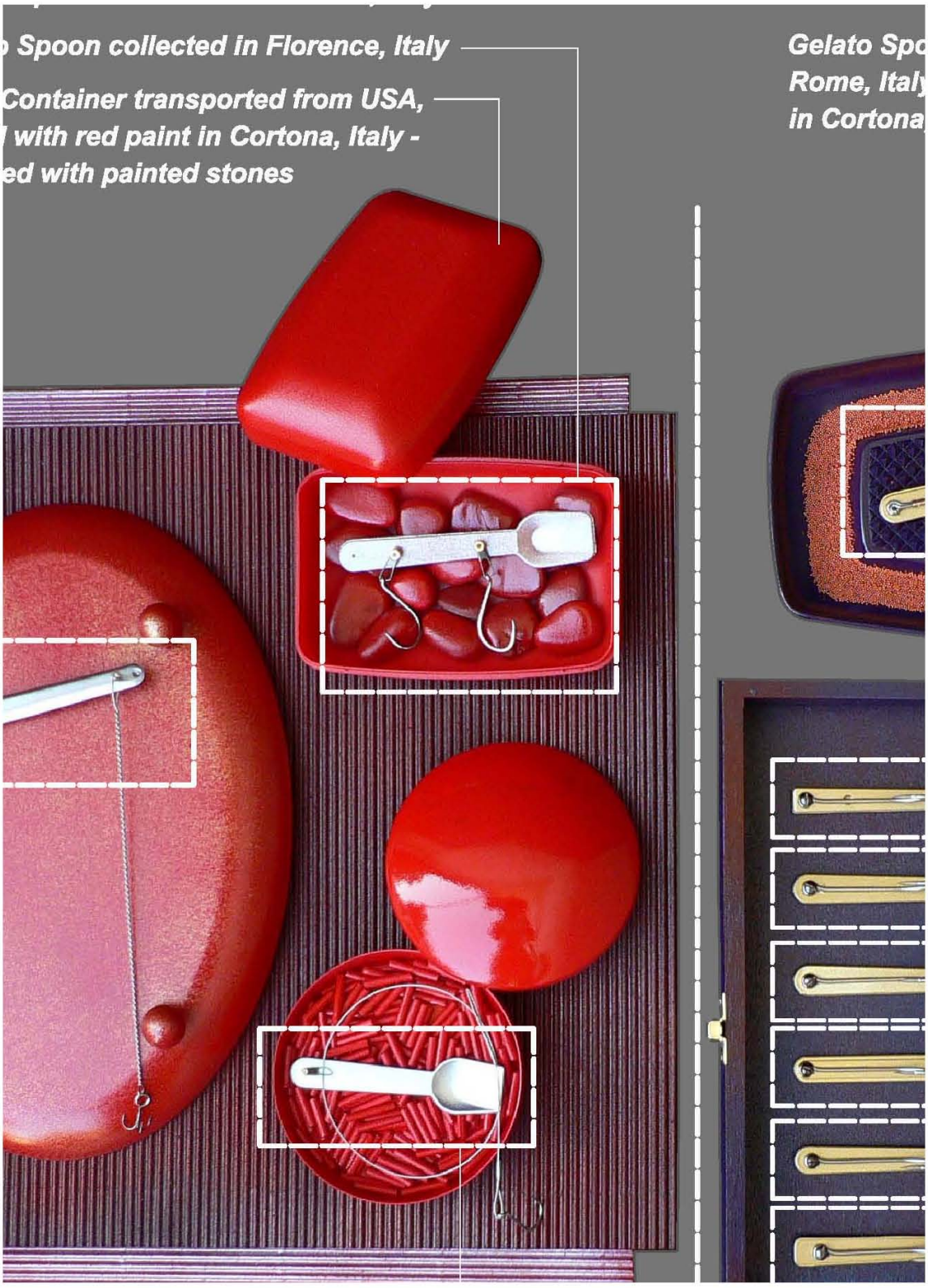
IDEC - Interior Design Educators Council) - 2008 International Design Conference - March 5-8, 2008 - Montreal, Quebec



Creative Scholarship - Presentation Title: Property atStake - Author: Joe Gogogo - University of Gojoego -

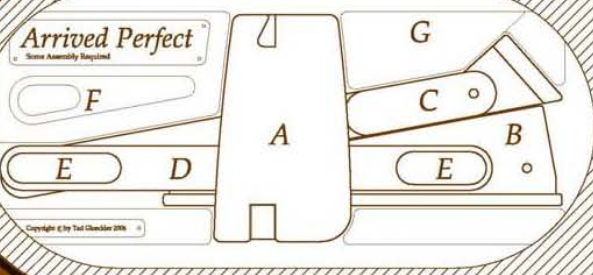
Date & Time of Presentation: Friday, March 7th, 3:45PM - 4:15PM - Presentation Title: Property atStake - Author: Joe Gogogo - UGJ Joe Gogogogo School of Art

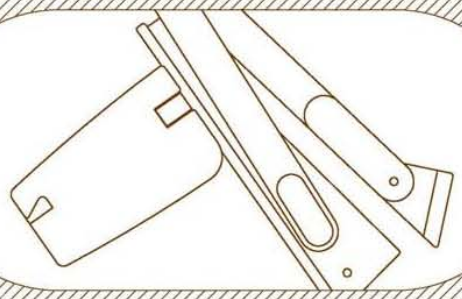



o Spoon collected in Florence, Italy
Container transported from USA,
with red paint in Cortona, Italy -
ed with painted stones
Gelato Spo
Rome, Italy
in Cortona

OPEN

Arrived Perfect addresses animal stewardship issues, and the lost reality of society's daily dependence and relationship with a specific animal





Assembly Inst

Head (A), Mane
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Gently lift Arriv
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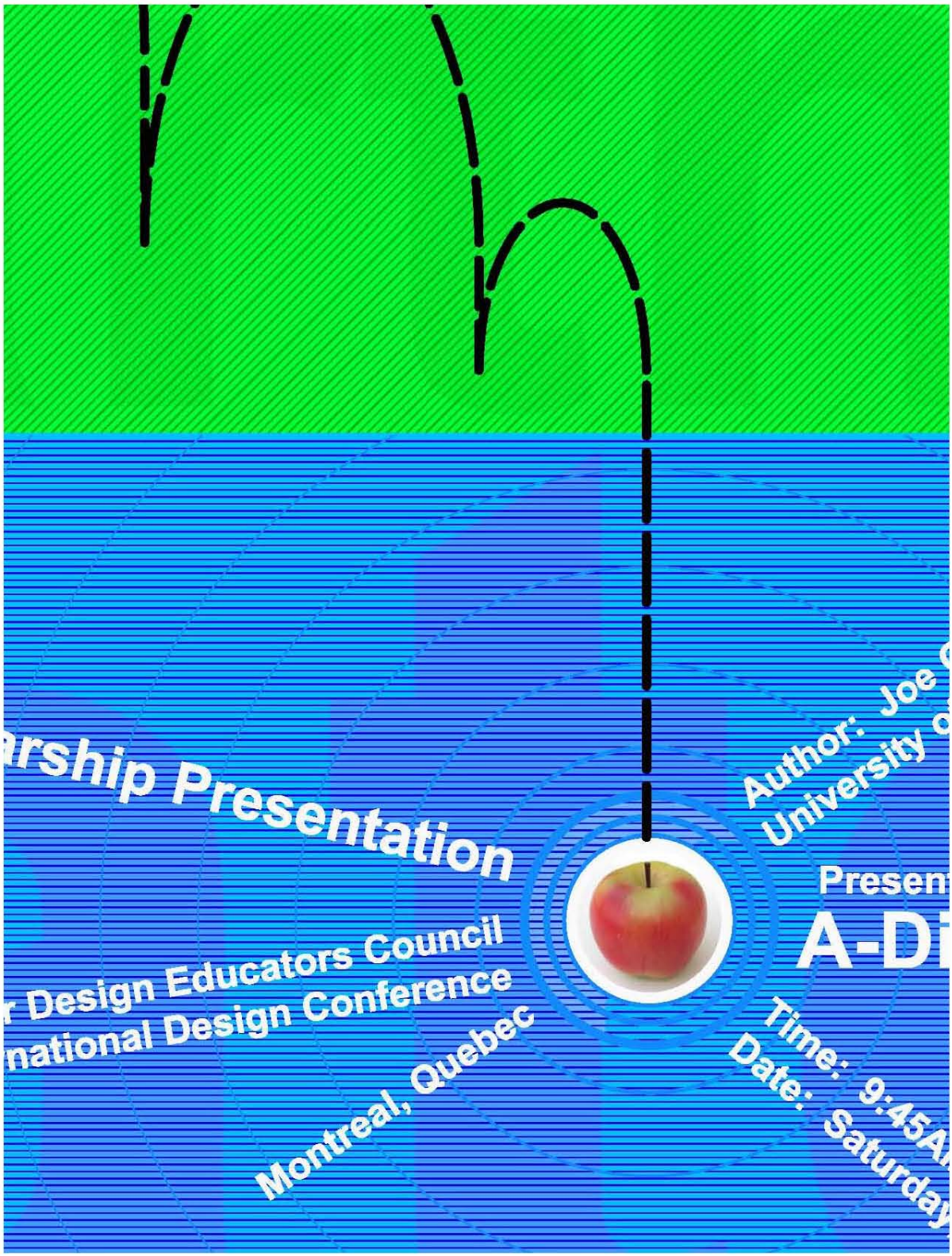
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Montreal, Quebec
Author: Joe
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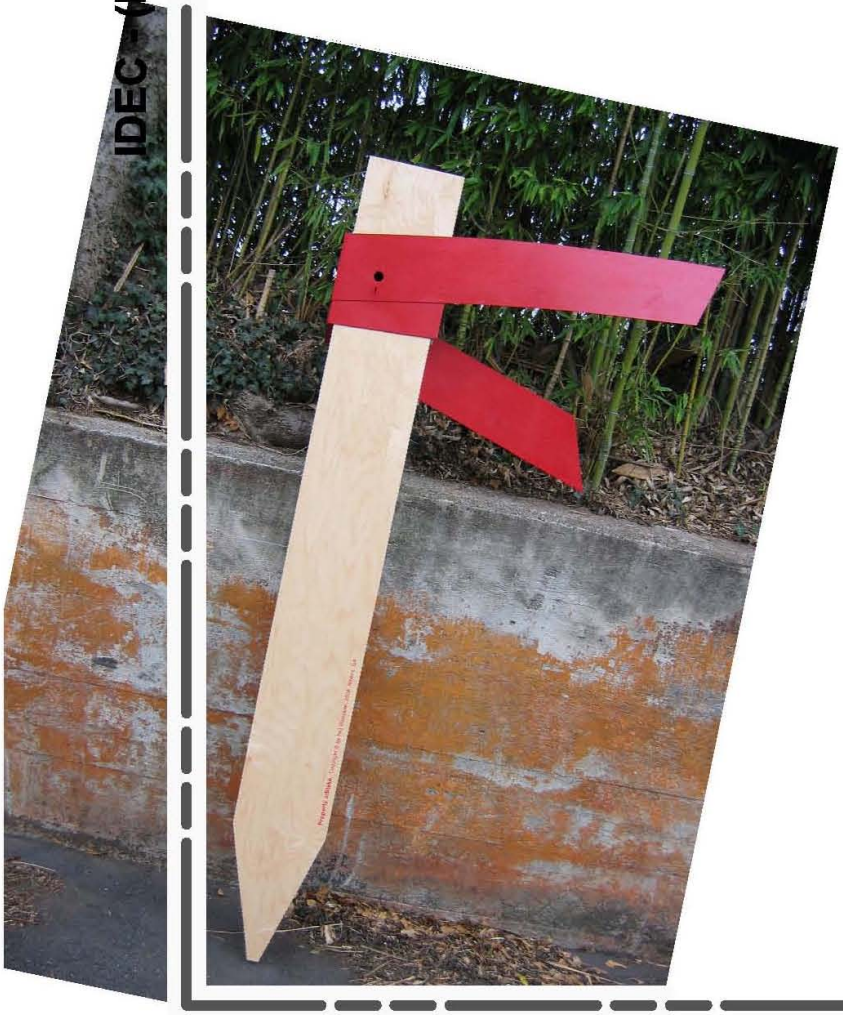
Date: Saturday

IDEC - Interior Design



Creative Scholarship - Presentation Title: Proper

Category of Submission: Art
Title: *Reflection*
Dimension: 5’ W X 8’L X13’ H
Medium: Multi-media

Kijeong Jeon

California State University Chico

Category of Submission: Art
Title: *Reflection* (엄마생각)
Dimension: 5’ W X 8’L X13’ H
Medium: Multi-media

Poetry is an expression of thoughts using very specific language. With a few thoughtfully selected words a poem can make a strong impression on the reader / listener. Poems often provide the reader / listener the freedom of interpretation without limiting their imagination.

I have long been interested in the concept of moving poetry from a written or oral form to a tangible spatial expression. This installation involved taking a poem about our mothers from written form and transforming it into a three dimensional representation. The narrative revolves around the poet’s mother’s love for him and the way her love takes shape when he is away for a prolonged period of time. I can relate to the poet as my experience with my mother was very similar, I moved from Korea to America to study at a very young age. My mother’s concern for my well being was overshadowed by her love for me no matter how far from home I traveled. When I read this poem I feel as if it were written about my mother.

The transformation took the form of 8 1/2" x 5 1/2” cards with the words of the poem printed on one side of cards. The cards were suspended from the gallery ceiling, using natural hemp rope, in the same order and sequence as they appear in the poem. Despite maintaining the order of the words, the cards are allowed to spin randomly due to the naturally occurring air currents in the space, both from the building's mechanical systems and from the gallery visitors walking through the room. Under the suspended cards, I installed a 5’ x 8’ Douglas Fir framed mirror. Sepia toned portrait photographs of my mother printed on clear Mylar are laid out in a grid pattern on the mirrors. Fine grained ocean sand is spread out between the photographs.

The suspended cards with the written poem are reflected over the photographs of my mother onto the mirror. The golden ocean sand, a symbol of eternal life, sparkles on the mirror illuminated by warm incandescent halogen lamps.

The words on the cards regardless of if they are adjectives, nouns, or verbs represent the depth of my mother's love for me. For example: 고향(home town), 기별(news), 안아주실(huging), 내어머니(my mother), 버선발 (socks), 자식(son), 군불(fire with straws), 고구마(sweet potato), 기도(pray), and 사랑(love).

While the majority of the audience will not understand the Korean characters on the cards, the emotional bond between a mother and her child is very clear in this provocative installation. The images, the materials used, and three dimensional aspects of the work tell the story without the need of the translated words.

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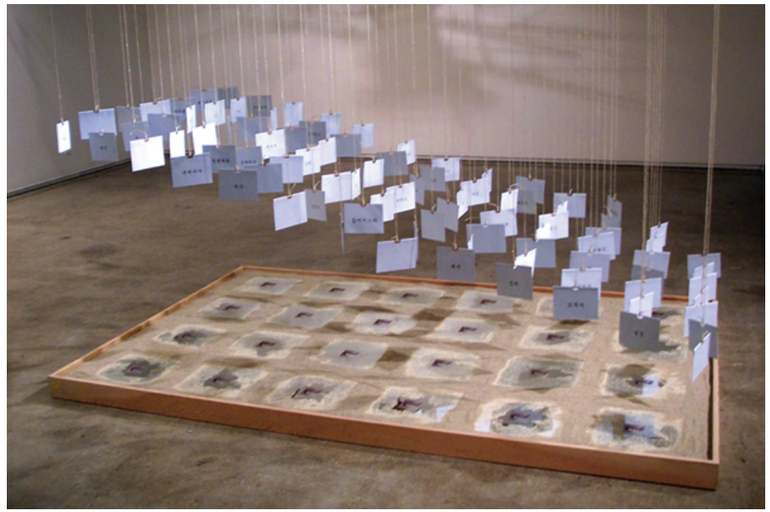

Overall Installation View

Overall Installation View

Installation Detail

Installation Detail

Installation Detail

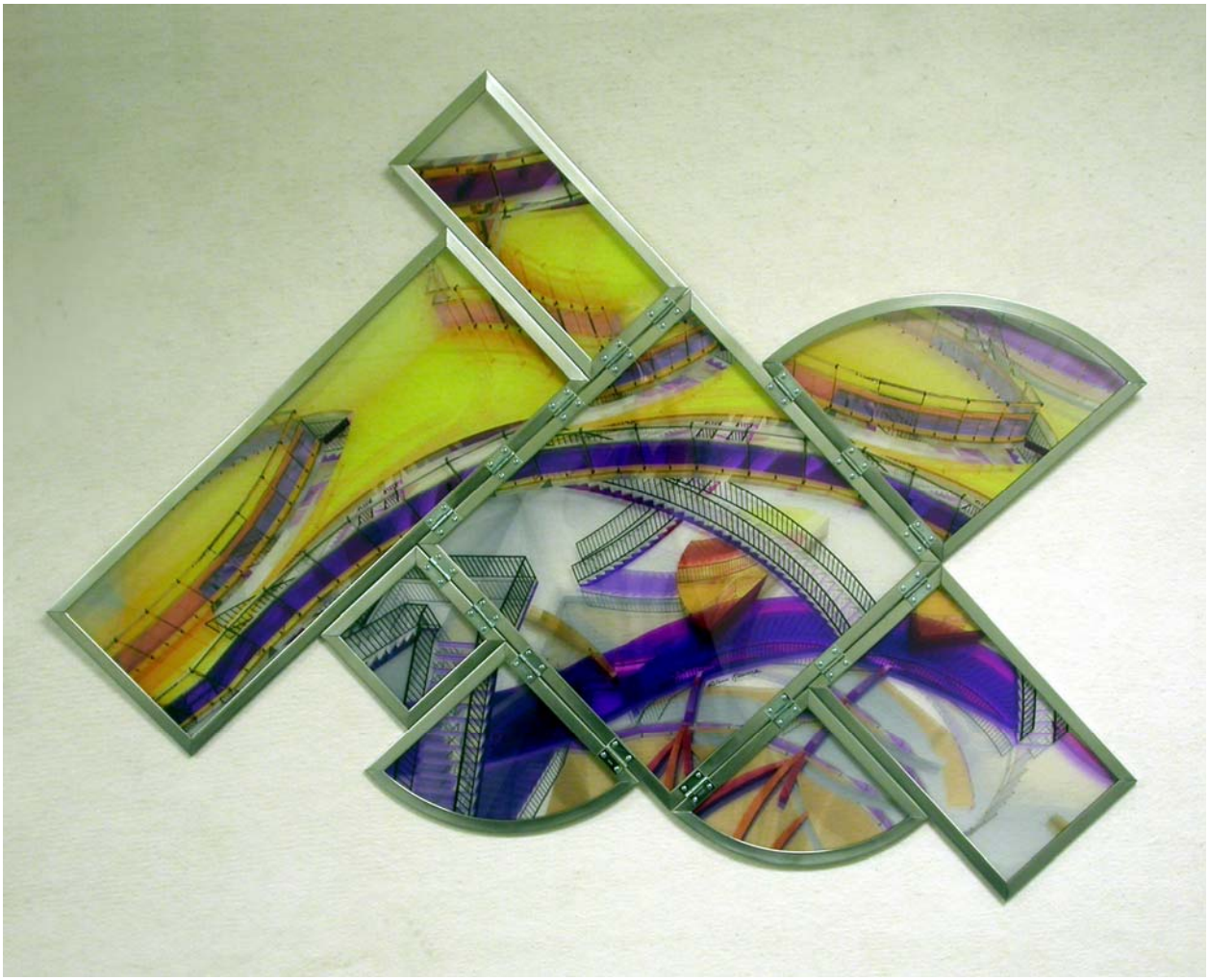
Category of Submission: Art
Vertigo
43"H x 58"W
Mixed Media

Selena Nawrocki

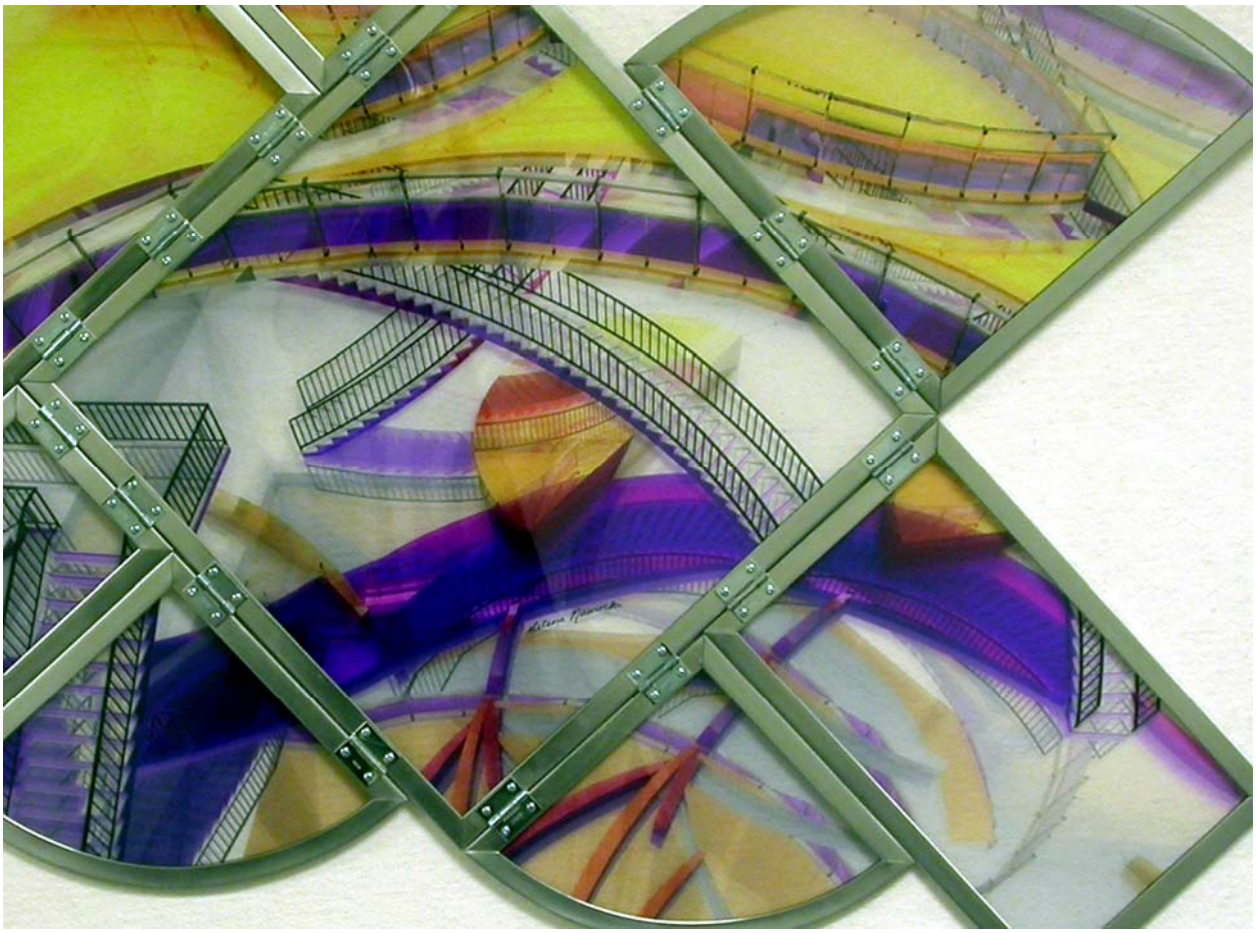
Valdosta State University

"*Vertigo*" is part of a series of compositions utilizing architectural room interiors with emphasis on stairways as the principle motif. Traditional boundaries of Applied Arts have been shattered, with the use of axonometric drawings and computer renderings as pre-production cartoons to yield mixed media Fine Art bas-relief works of art. I am interpreting nature in its purest abstract state - room interiors are created with line, plane, unique color, and transparent floors to suggest a surreal environment. A rhythm of pictorial lyricism is achieved by exploring interior space traffic flow with door swings and stairways. I place great emphasis on edge and the interrelationship of form and color in maintaining a harmony of visual balance. Objects never end - forms intersect with infinite combinations of sympathetic attunements and clashing aversions. No object may be viewed in isolation, but absorbs its surroundings, just as it contributes to the total composition.

Photoshop is used to manipulate AutoCAD and perspective drawings, sharpen the image, establish low and high key values, and create a full range of contrasting colors. The composition is printed 36"x50" on clear film using a large format plotter. The final multi-shaped image is placed between two sheets of clear Plexiglas and framed in custom-made zinc utilizing both angular and curvilinear silhouettes. Hinges are added, suggesting an industrial machine age quality of motion, to create the partially or fully animated affect and connect the various units together, which form the completed composition. Even with the constant threat of chaos with the extensive use of diagonals



“Vertigo”



“Vertigo” Detail

Category of Submission: Art
Revealing and Layering Space: the Power of Concept
Watercolor on 140 lb cold-press, Digital processing in Photoshop, 14”x 21”

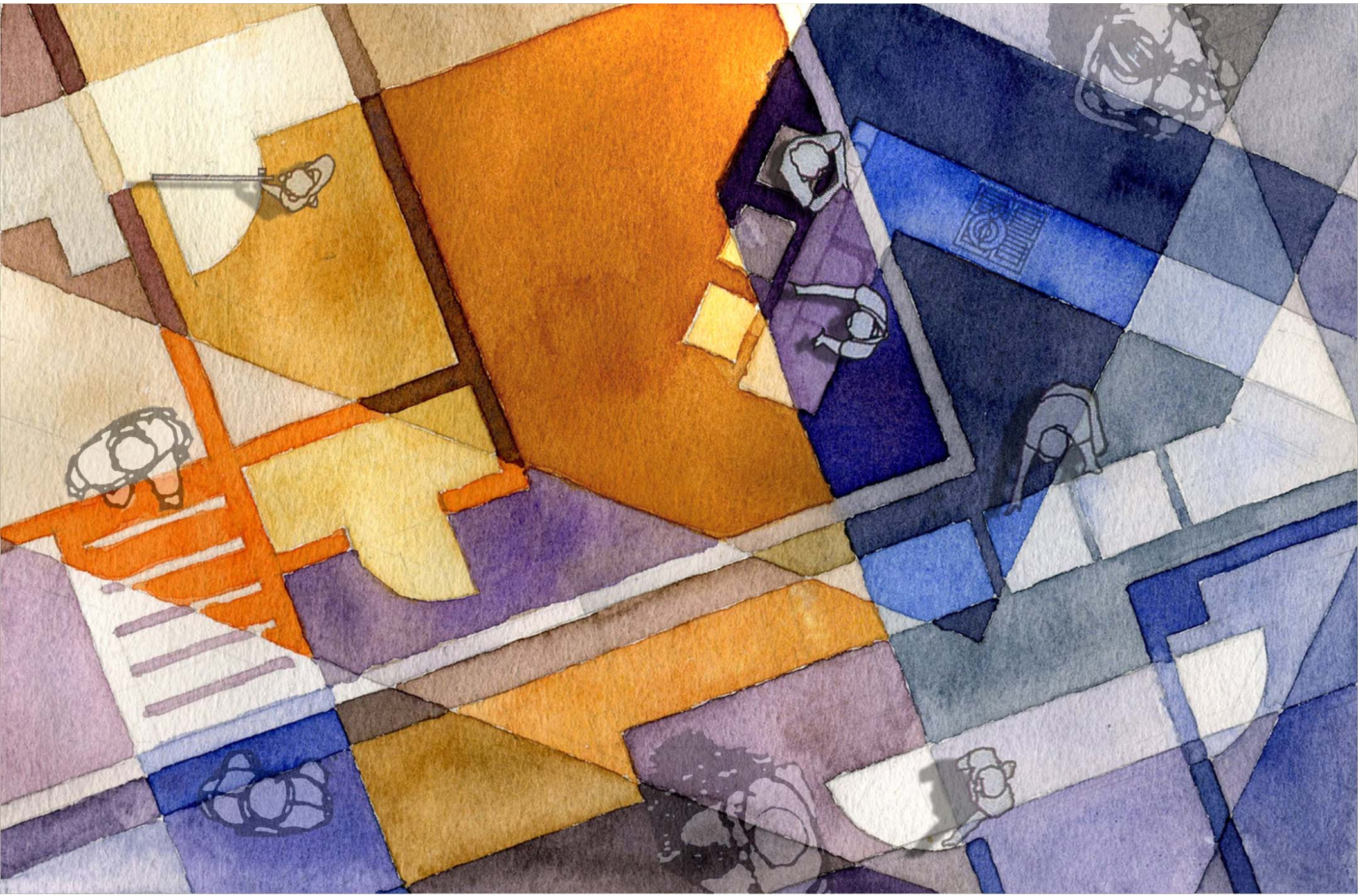
Jihyun Song

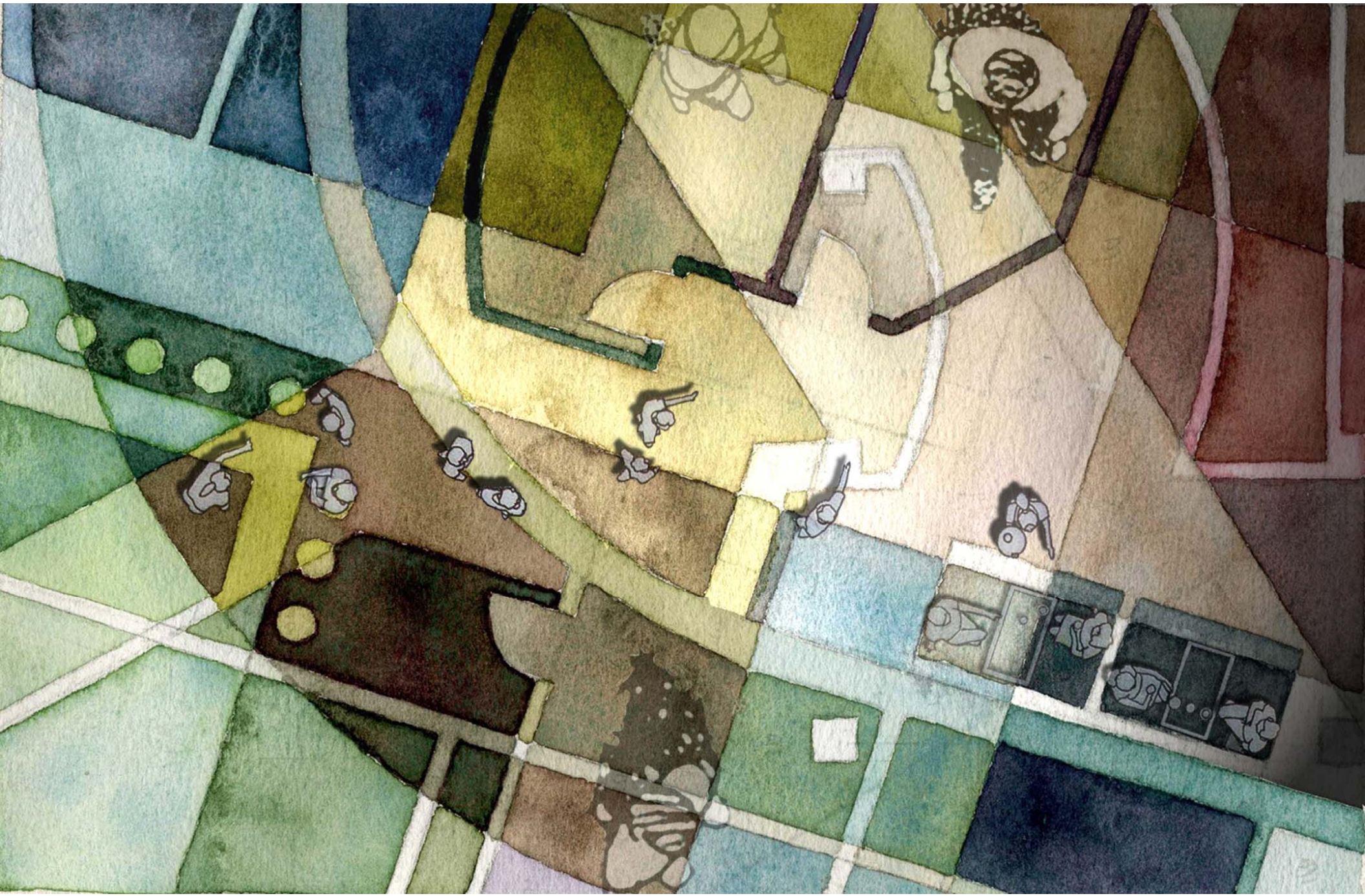
Iowa State University

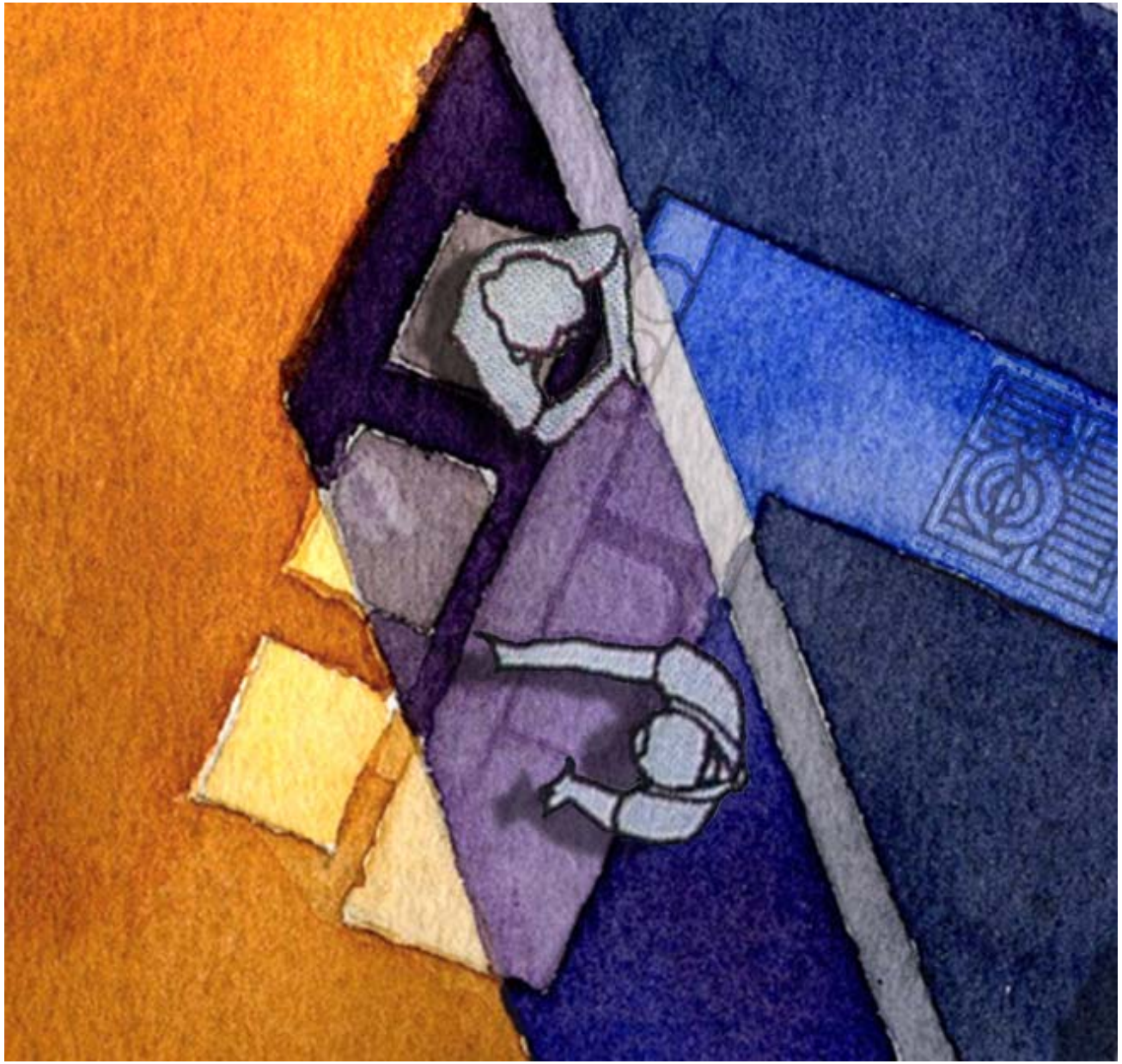
In design, conceptual components of a project form creative directions. When exploring spatial concepts, for instance, ideas fly through my mind in imaging the space. My intuition and experiences flow through the ideas, as I explore visual cues of spatial configuration. *Revealing and Layering Space* illustrates this intuitive and exploratory stage of design schematics when basic elements and principles of design begin to express the possible.

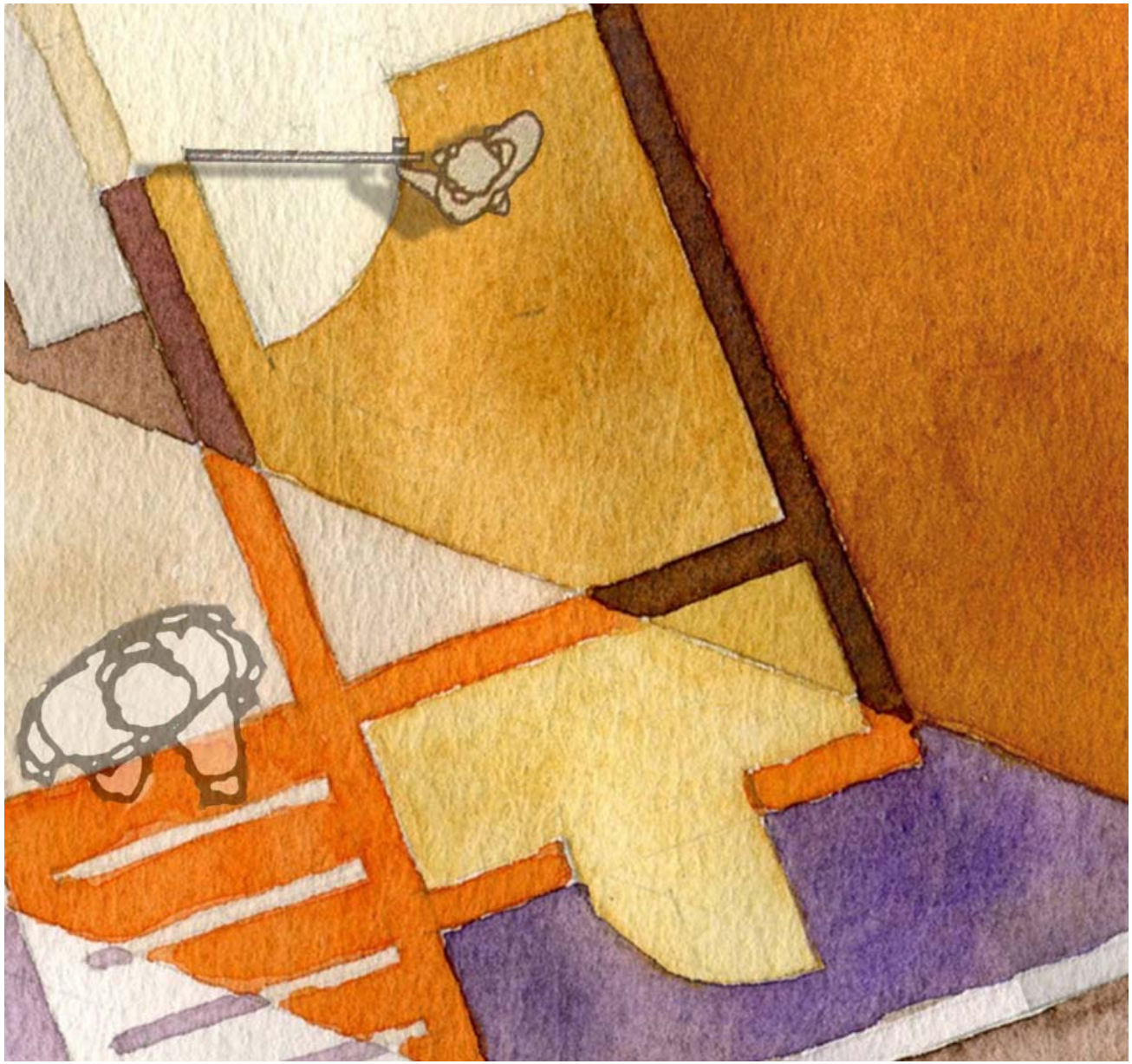
The artwork explores space as conceptual matter rather than perceptual, predictable and orderly structure. The schematics of geometric composition refer to the symbolic representation of plan drawings, as well as seek clarity of future potential spaces through basic elements. A logic of transparency emerges in the two-dimensional lines and shapes accompanied by dimensions of colors. Transparent water-based paints create modulated scale of colors. Consistent with the nature of the design process, the spatial concepts and ideas are stretched, overlapped, and generated. Lastly, human figures are added suggesting future implications and a sense of time and place.

My intention is to create a dialog with the audience in the middle of this fluid activity. Multiple layers activate, show and create imageries suggesting relationships of architectural environments and humans. The interactive characteristics of concepts form a re-creative exploration as the audience maneuvers the geometric and organic layers. As the choice of media and technique, I used watercolor to interpret and represent connotative meaning of conceptual space in plan view. While watercolor rendering is not often used for either preliminary or schematic presentation, the water-based medium employs complexity, adds richness and interest, and allows artistic communication between the artist and audience. The choice of media helps to communicate conceptual and spatial, guiding ways of seeing, understanding and communicating relationships.









Monarch Emerged
30” x 40”
Commercial Cotton Batik, Cotton Embroidery Floss

Susan Stevenson

University of Central Missouri

As a designer, researcher and educator I am very interested in the complex relationships between humans and the natural environment. Our natural environment provides so much for us in terms of natural resources but the natural world also provides us with respite, healing and restoration from our hectic societal pressures (Kaplan, R., Kaplan, S. & Ryan R. 1998). Restoration is best achieved through the presence of the following environmental characteristics: Being away, extent, fascination and compatibility (Kaplan, R. et al, 1998). The characteristic of being away is the ability of nature to physically remove people from the stress causing environment. The characteristic of extent is individual’s perception of being in an expansive environment. The experience of fascination is crucial to recovering from stress related symptoms. “Fascination derives not only from interesting things or places, but also from processes such as thinking, doing and wondering (Kaplan, R. et al, 1998, p 20)”. These activities gain the undivided attention of the individual through the challenge of uncertainty. With the challenge of uncertainty the individual is absorbed in the environment and trying to anticipate what will happen next (Kaplan, R. et al, 1998). Compatibility is the environments’ suitability to the individual’s needs and desires for that time and place (Kaplan, R. et al, 1998).

As an artist I find so much beauty and fascination in our natural world and my observations, sketches, photos help me to find personal meaning, solace and relaxation. It was on one such hiking and exploring expedition that I discovered a monarch just emerged from its chrysalis. I was so captivated by the process of struggle, unfold, rest, stretch and rest. I tried to imagine that first feeling of physical freedom as the butterfly pulled itself free of the paper like cocoon.

Monarch Emerged draws on a shape and color based abstraction of the background to create a painterly effect with highly detailed organic shapes in the foreground to give visual meaning to the scene. Hand embroidery was added to draw on the foreground shapes. Hatching and color blending with thread adds visual volume and texture as well. The subject and the nearest plants seem to slowly emerge from a nearly camouflaged backdrop. I am still struck sometimes by the way detail reveals itself in this composition.

This art quilt was created using both surface appliqué techniques and reverse appliqué techniques. Reverse appliqué is created by cutting through the top fabric and revealing a different fabric that is place behind the work. This technique allowed the artist to utilize very small and detailed pieces to create the wings on the butterfly. Complimentary thread colors were utilized in places to reveal the structural stitching while other times thread color was selected to conceal the structure of the quilt.

This art quilt was entirely hand pieced, hand embroidered and hand quilted. It took approximately 10 months to complete. The design process, the physical process of creating the quilt from the design concept, and the time spent creating the quilt was also an important time of reflection, fascination and creative problem solving for me.

Reference

Kaplan, R. Kaplan, S. & Ryan, R. (1998) *With people in mind: Design and management of everyday nature*. Washington, DC: Island Press.

Title: White
Category of Submission: Art
Medium: Computer animation

Saral Surakul

University of Georgia

A writer starts a story with a blank sheet of white paper and a painter creates a painting on a white canvas. White often signifies the emptiness of space waiting for something to happen. The White animation is a compilation of short animations that I have created over the years using computer technology to generate a virtual white landscape that allows imaginations to be painted. Each video footage implies the abstracted idea of design principles as follows:

Goldfish
Inspired by a Japanese woodblock print, the first animation expresses the movement of color in space.

Ants
Though very small in size, ants are one the finest natural architects. The clip exaggerates the power of these small creatures as they can carry items that are 10-20 times of their body weight and the ability to construct their nest with precision.

Barcode
A simple everyday object is a design inspiration.

Frog and Windmills
Like a painter, these two clips point to the application of colors on the white virtualscape.

Flies
Unlike the earlier clips, flies indirectly implies the use of textures in design. Without humor, life would be boring.

White

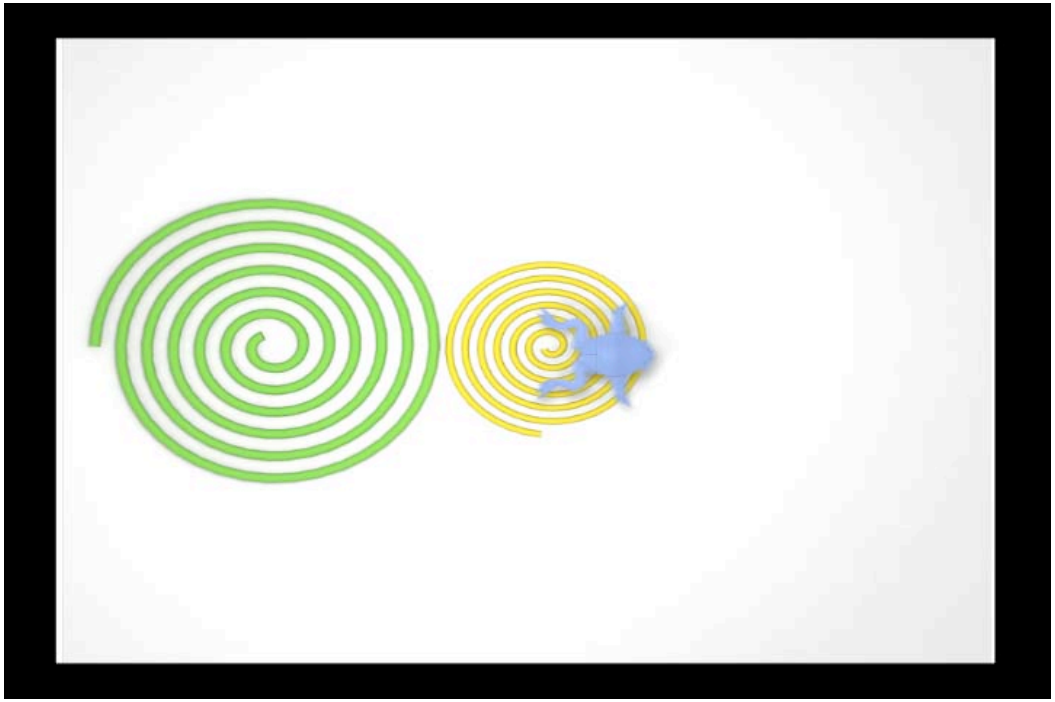
Category: Art

Medium: Computer Animation

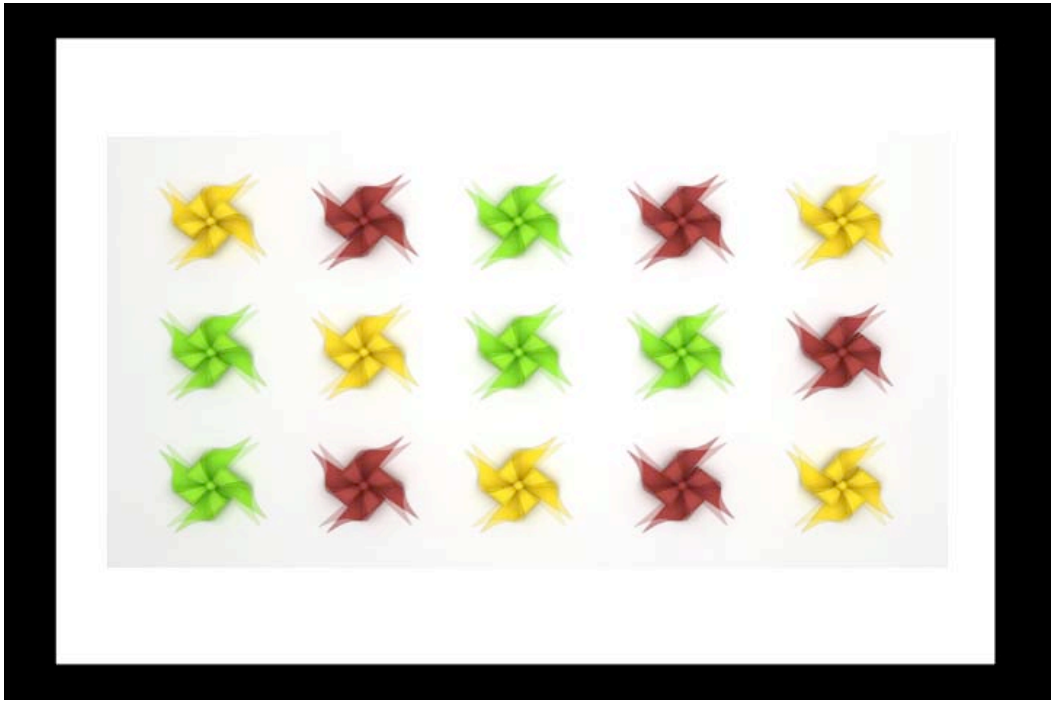
Goldfish

Ants

Barcode



Frog



Windmills

Flies

Category : Art
Title of Work : *Painted Faces – Series II, 18” x 42” each, Acrylic on Fiberboard*

Meng’Kok Tan

University of Georgia

Artist Statement :

This series of paintings express the intriguing patterns, colorful meaning and representation of the many different Chinese Opera facial make-up. The art of facial painting in Chinese Opera boasts a long history; opera facial make-up originates from totem in ancient times. The goal of my work is to capture the essence of each fascinating facial make-up that illustrates the different symbolism of character it represents. Above all, each face-painting illustrate the basic application of the fundamental design principles of form, shape, pattern, and colors. Symmetry and balance are also at play to transform each face-painting into an overall composition. As a result, each face-painting reflects the commonality of elements used but represents a different and diverse expression. For me, it draws a parallel to a typical design approach of utilizing the principles of design and manipulating them to achieve many different outcomes.

Facial painting or make-up is a special art form in Chinese Opera which distinctly shows the appearances of different roles as well as their dispositions and moral qualities by means of artistic exaggeration combined with truthful portrayal and symbolism. Colors as we know, being a strong visual element, can heighten our reaction or expectation, and influence our perception about almost everything. The main color in a facial painting symbolizes the disposition of the character. The different facial paintings play an artistic function of implying commendatory and derogatory connotations and differentiating benevolence and malevolence, thus enabling the audience to get a glimpse of the inner world of actors and performers through their symbolic facial make-up. In this sense, facial painting has gained the reputation of "painting of heart and soul." The delicate and often intricate facial paintings attempt to express the many emotions and different characters it tried to portray. The facial paintings certainly “speak” in a similar form of “visual language” that designers so often use to communicate ideas. As such, my intent is for each painting to portray a certain subtle facial expression to suggest the “drama” of the character it symbolizes.

PAINTED FACES – SERIES II

"YING BU"
"ZHENG LUN"
"ZHOU DEWEI"

ACRYLIC ON FIBERBOARD
18" X 42"

PAINTED FACES – SERIES II

ACRYLIC ON FIBERBOARD, 18” X 42” EACH

“YING BU”

"YING BU"
CLOSE-UP

“ZHENG LUN”

"ZHENG LUN"
CLOSE-UP

“ZHOU DEWEI”

“ZHOU DEWEI”
CLOSE-UP

Visual Art
***Meditations on the Ball Dairy Farm*, found farm objects, concrete, wood, milk**
2006

Brad Whitney

Virginia Tech

Context is a word I use often in my teaching and in my art making. It is the idea of relationships, connections, and perspectives. Context drives purpose yet suggests background. Context also establishes meaning and defines motive. It, in fact, is a story.

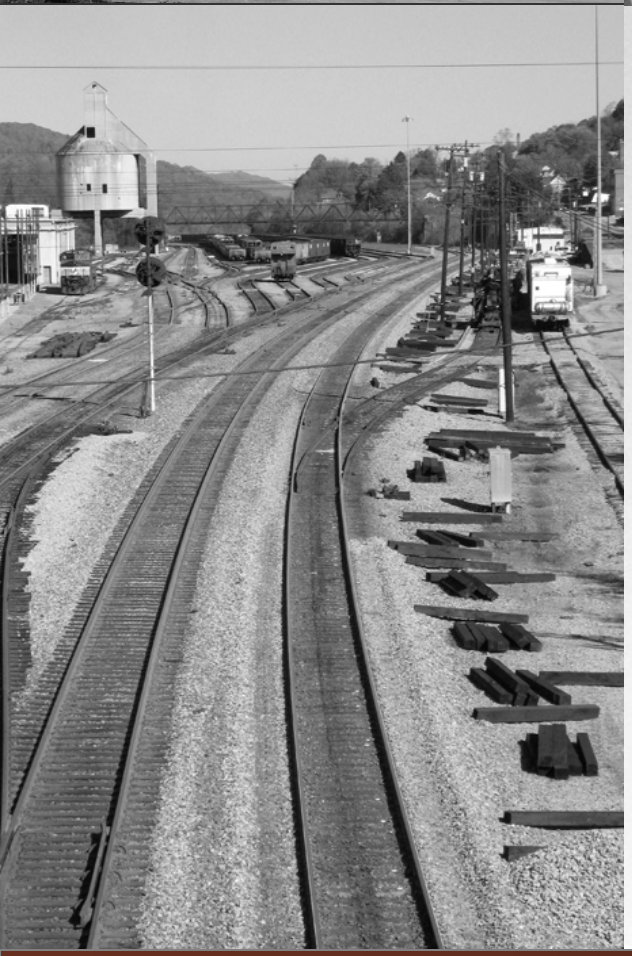
Meditations is a story inspired by a family who, for three generations, worked a dairy farm in Bluefield West Virginia. The 250-acre farm is located in the heart of what was once a thriving town built around coal production. It is now one of a few remaining beautiful moments surrounded by an increasing poverty-stricken community. As one travels down Bluefield Ave towards the farm it is hard not to notice the ugly evidence of what identifies a dying town from a burgeoning one. Along the route, one sees many examples of hardships caused by misdirected political and socioeconomic decisions – just one unfortunate instance out of thousands that exist today across the country. However, amidst the destitution, the farm and its family continue to be seen by their community as a brighter place reminding those around them of better times and offering rest and hope.

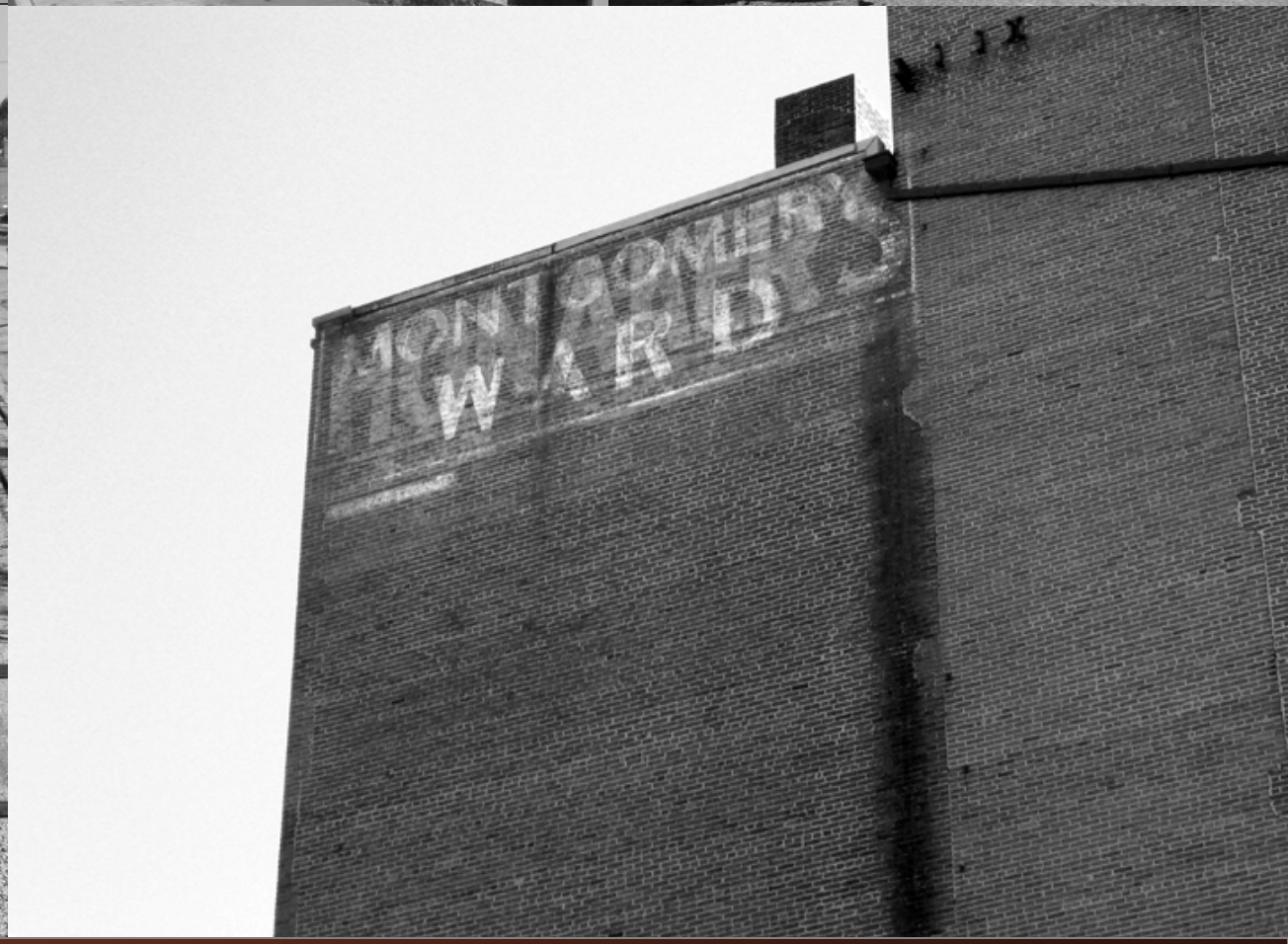
Meditations honors the family's relationship with their land and the efforts it has taken to make the farm what it is today. It centers around one focal piece: an old iron wagon wheel that was once used to carry milk jugs to the market. Found in one of the haylofts, the nature of the wheel, a circle, attests to the eternal spirit. Complementing this most arguably fundamental symbol is the square – manifested in a concrete pool base – a representation of earth and finally the triangle – composed in a tripod made from logs of white oak growing on the farm – a representation of humankind, something special: part earth yet also part spirit. Additionally, found objects such as chain and rope as well as elements of milk and water further the story told by the sculpture of the farmer's way of life with the land.

Instances where intention is momentarily overcome by serendipity can be quite profound. I intended the wagon wheel to perfectly line up with the edge of the milk pool below – the circle parallel to the front face of the concrete form facing the viewer straight on – but as forces beyond my control interwove with the process, the wheel serendipitously turned. I was taught a lesson by this simple observation. For me, art is most moving when I see something in my work that was not apparent in the original plan. The unexpected off center position of the wagon wheel becomes a lesson in simply letting go. Here, chance plays with the process of intention just as chance does in our lives, where randomness of events invades the paths we intend to follow. It also makes the aspect of living a beautiful poetic mystery, a reminder that there indeed is something greater than ourselves.

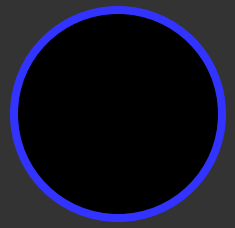
Meditations

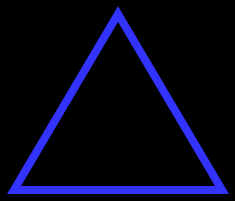
concrete + found objects

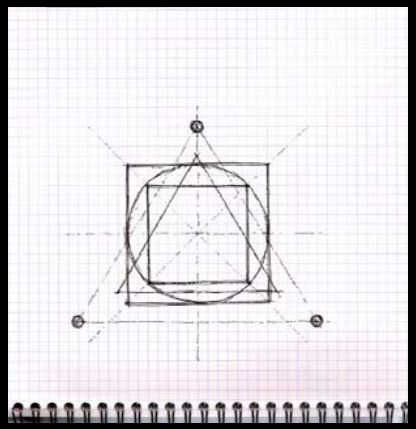


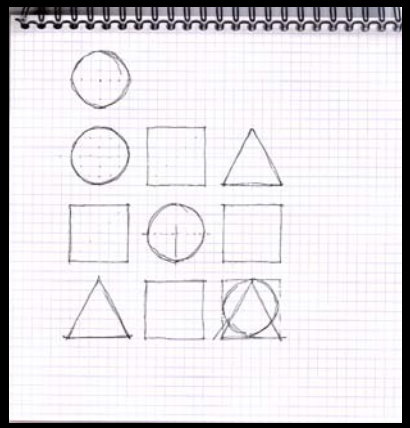

MONTGOMERY
WARD

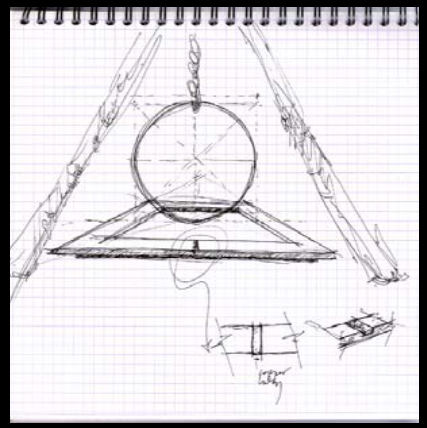
THE BALL
FARM

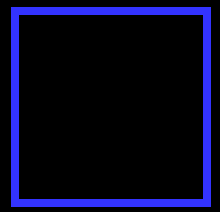




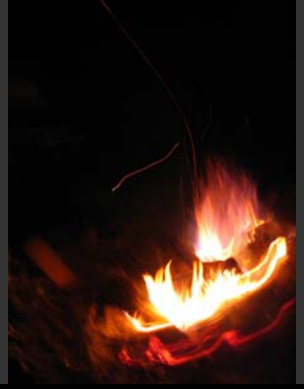




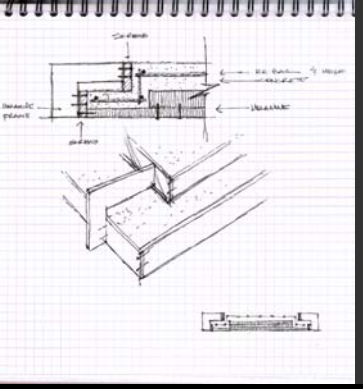


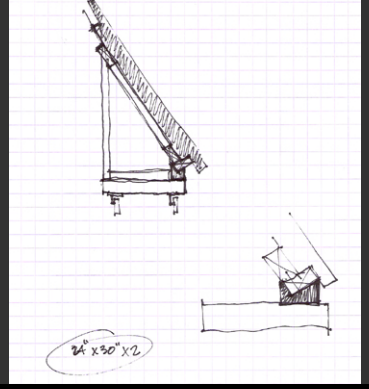


process [discovery : *sacred geometry*]



story [meaning : *the 4 elements*]





process [construction]

intention [serendipity]

THE SPIRIT OF EXPLORATION:
THE GATEWAY TO NEW FRONTIERS

CREATIVE SCHOLARSHIP
Design Category

ABSTRACTS AND IMAGES

Category of Submission: [Design]
The BAHEhouse. *3,100 sq. ft. residential retreat.*

Lindsey Bahe

University of Nebraska Lincoln

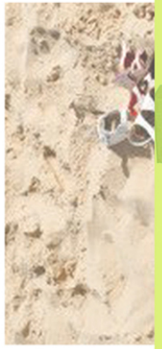
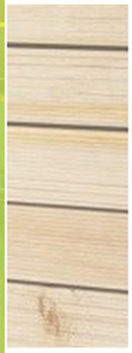
The Bahe House is a lakeside retreat developed on a former sand quarry. The recreational dwelling was designed for a fifty-something couple and their expanding family to communally enjoy in the summer months and on weekends. The non-typical program called for large gathering space for entertainment, various outside rooms, and an architecture that celebrates the event of retreating from work and suburbia.
The design began by identifying an inventory of spatial necessities for retreating, then understanding and responding to the layered context of the site. After a collection of events and spaces were determined *[entertain, observe, retreat, relax, refresh, play, connect, engage]* the shape and form of the "architecture" began by establishing connections to the sand, water, crops, trees, and expansive horizon for which the site was chosen. Calm water and golden cornfields defined the north site views, and the repetitive rows of corn became the trajectory to the structural organization of the event space calling for a celebration of exposed glu-lam post and beams. The exposed structure acts as a regulating linear proportional system for which all other design decisions were made.

Defined by the horizon, the linear nature of the dwelling and a portion of the roof plane peel up to welcome the morning sun. Ultimately the house's thin profile acts as a gateway into the retreat experience, and the entry is a virtual void defined by a floating cedar canopy which penetrates through the home and extends and gestures toward the lake and sand beyond. The house's thin profile also gives immediate views to the site from any event space within the home, and the volume of space gradually increases as one gets closer and closer to the boundary between interior and exterior space. Event spaces push and pull along the home's linear stitch to accommodate appropriate needs for the various spatial zones. The first floor accommodates a great room for entertaining which is furnished with modular furniture to provide flexibility for various events, a kitchen, and dining zone. Separated from the great room is the master suite, which consists of a bedroom, study-loft, bathroom and private patio. On the opposite side of the great room is a large powder room that provides ample space for guests to change and store their lake necessities. Adjacent to the powder room is an enclosed outdoor shower that occupies the space between the home and garage. The second floor of the home has 2 bedrooms, an open entertainment loft, a bunkroom for grandchildren, and a bathroom all of which are connected by a cantilevered catwalk that suspends one into and toward the lakeside view beyond. The catwalk eventually leads one to a sun atrium immediately above the entrance and to a custom designed stair one can use to ascend to the third story sun deck.

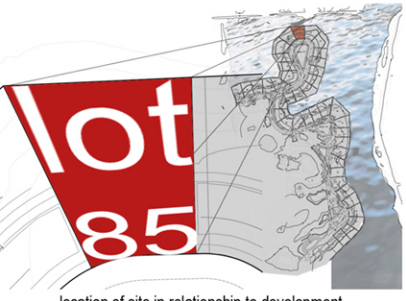
As these volumes dance in and out of the linear mass they are clad in a system of natural materials *[cedar, porcelain tile, and stone].* The natural materials were chosen to allow the skin of the home to actively respond to the elements of the site that define it; the porcelain tile reflects the colors of the sun, the stone mimics the color of the sand, and the cedar will change and weather like the trees which can be seen from the site. On the interior, all exterior planes that define the space and form from the outside, appear to slide in and through the house further emphasizing interior and exterior connections. The location of glazing, allows one to see the surface of the plane extend beyond the building's threshold. The porcelain tile, stained cedar and stone add texture and color to the interior, the polished concrete floors were chosen for their durability and ease of maintenance, and a bright green wall is the only surface in the home that is saturated with colored paint. Its color was chosen to reflect the color of the pastures beyond and to celebrate the vertical volume of space that is juxtaposed by the predominately horizontal lines of the home. This vertical volume takes one upstairs to the more private and introverted sleeping spaces of the second floor. The flooring on the second floor is a high-grade maple plywood, cut into 4'x4' sheets and screwed with exposed stainless steel screws. The maple wood is also expressed in the custom handrail of the powder coated steel railing that is cantilevered from the face of the finished floor. On the lakeside elevation, the main public and social event space has immediate connections with the water and lakeside activities due to its 2-story transparent wall system. A long linear porch runs the length of the main social event space of the interior, while a covered porch, screened in patio, and sun deck all provide various outdoor rooms for various views of the site and desired relationship to the sun.

In the end, the design itself was defined by its relationship to context, site, and event and aims to offer a unique and dynamic expression of lakeside retreating in the Midwest.

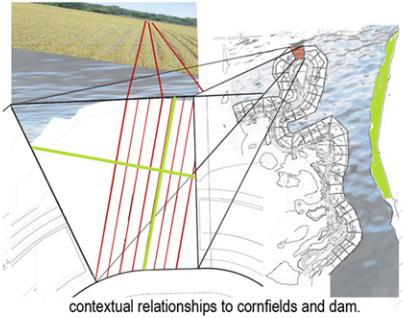
the design began by identifying an inventory of spatial necessities for retreating, then understanding and responding to the **layered context of the site**. after a collection of events and spatial types were determined, the shape and form of the "architecture" began by establishing connections to **the sand, water, crops, trees, and expansive horizon** for which the site was chosen. calm water and golden cornfields defined the north site views, and the repetitive rows of corn became the trajectory to the structural organization of the event space. finally, the horizon defined the linear nature of the dwelling and a portion of the roof plane was peeled up to welcome the morning sun. ultimately the house's thin profile acts as a **gateway** into the retreat experience.

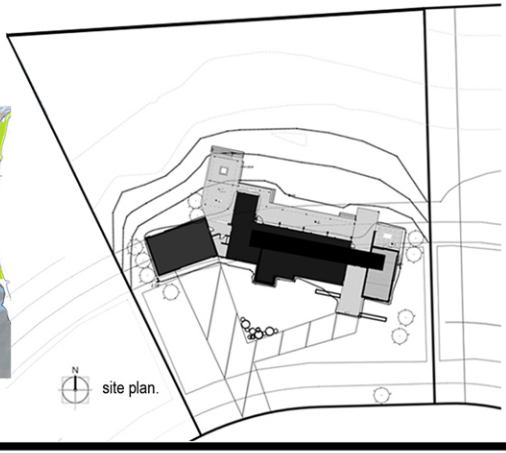
diagrams [site analysis].



location of site in relationship to development.

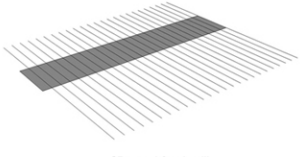


contextual relationships to cornfields and dam.

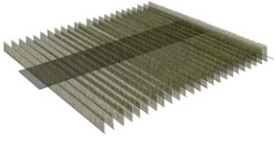


site plan.

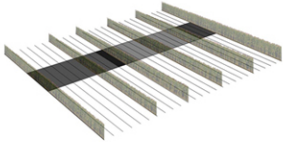
diagrams [evolution of form].



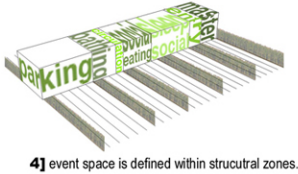
1] a pad for dwelling.



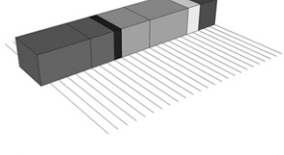
2] repetitive cornrows begin to divide pad.



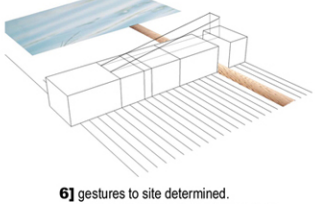
3] repetitive structure establishes event space.



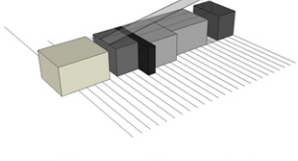
4] event space is defined within strucutral zones.



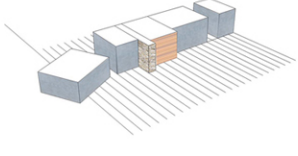
5] volumetric investigation begins per event.



6] gestures to site determined.
[entrance = void / gateway to water]

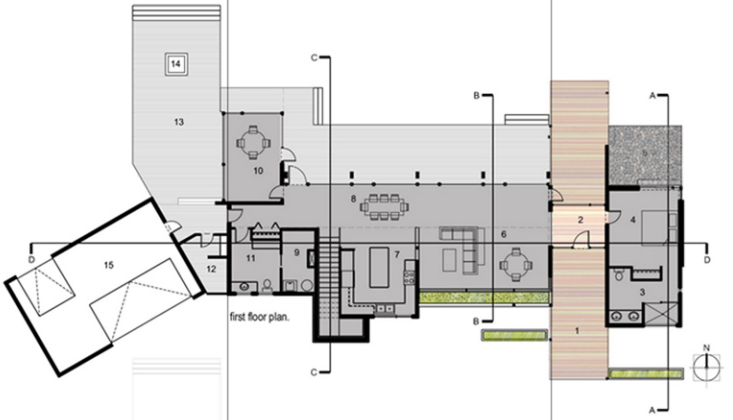


7] volumes expand from datum plane to accomodate various event necessities.



8] materiality system is formed. various cubes slide in and out of space to visually separate event zones.

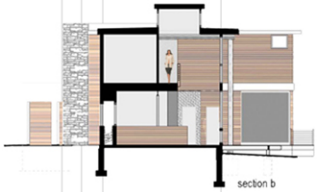
section c



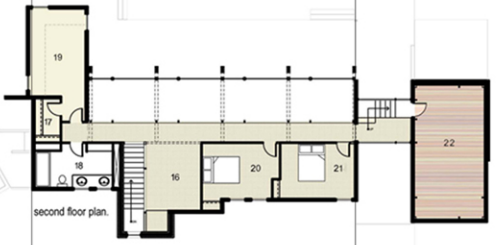
first floor plan.

1 - porch
2 - entry
3 - master bathroom
4 - master bedroom
5 - master patio
6 - great room
7 - kitchen
8 - dining room
9 - laundry/mud room
10 - screened porch
11 - bathroom
12 - shower
13 - deck
14 - firepit
15 - garage
16 - loft
17 - storage
18 - bathroom
19 - bunk room
20 - bedroom
21 - bedroom
22 - sun deck

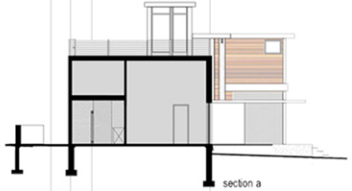
4' 8'



section b



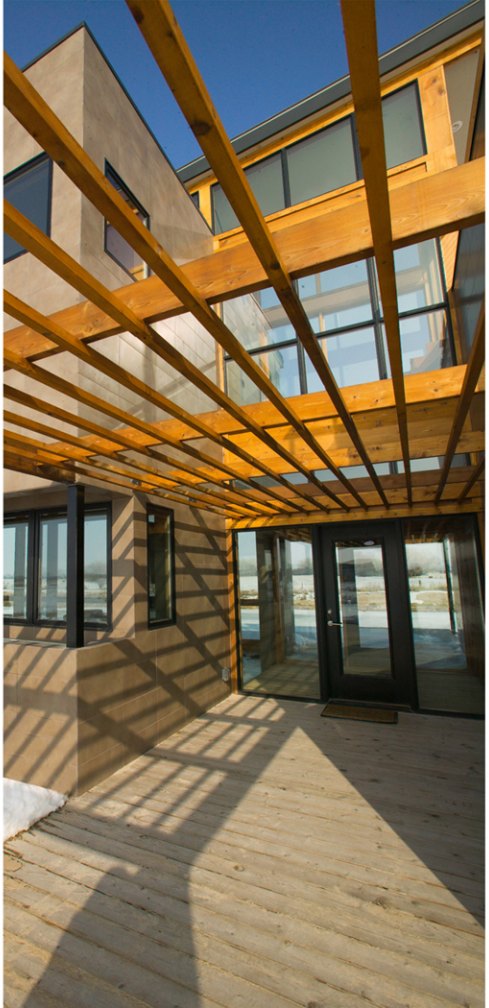
second floor plan.



section a

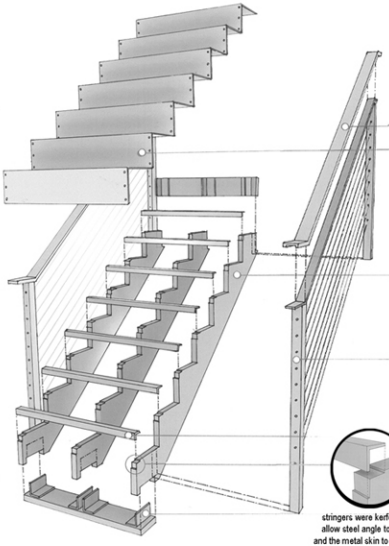
section d

sealed concrete
4X4 maple plywood
cedar
natural grass.
stone deck.



steel frame connection with maple hand rail.

structure is expressed through perforated metal.



stringers were kerfed out to allow steel angle to lie flush and the metal skin to seamlessly wrap around structure

1" maple hand rail.

[skin] 3'x10' continuous bent sheet metal. 16 gauge with 1/16" diameter perforated holes

[structure] 2x12 cedar stringers.

black powder coated 1"x3"x42" tube steel railing screwed into stringer.

[nose] 1 1/2"x1 1/2"x3/16" steel bent metal plate powder coated black.

steel angle screwed to ledger board and stringer.

Category of Submission: Design
Elase Medical Spas
New Construction- 2000 sq. ft.

Darrin Brooks, Steve Mansfield

Utah State University

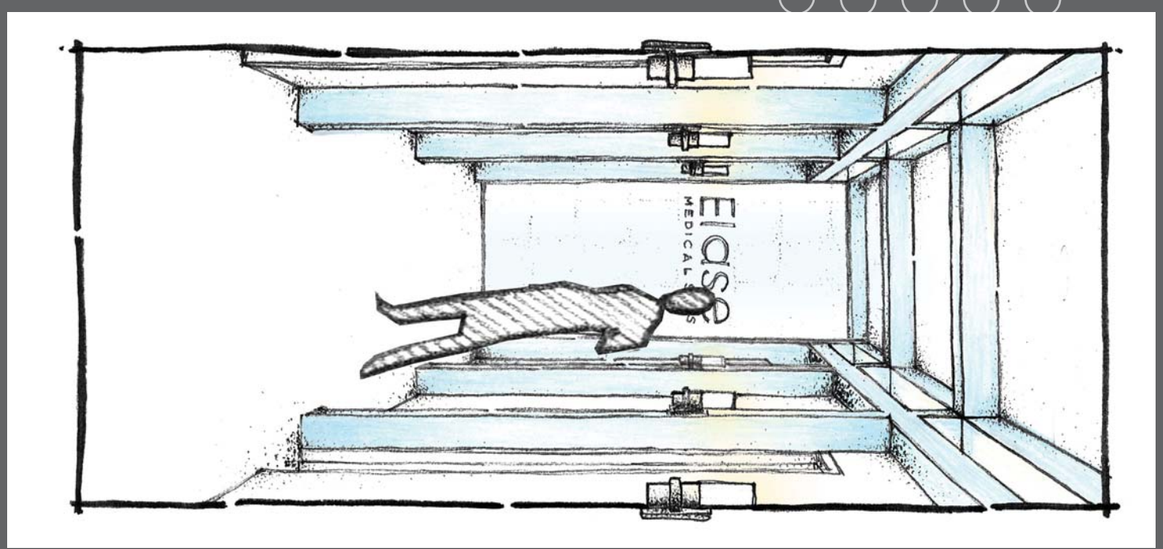
Elase Medical Spas celebrates the essence of combining New York glamour with Zenlike harmony. The underlying concept for the design can be described as rejuvenation of the body and soul. It is the fusion of peace and style, a place where one can come to be refreshed and revitalized. Once the space was established as a sanctuary, shapes and forms began to articulate themselves through minimal architecture.

To achieve this modern blend of tranquility and style, many materials were combined to create this harmonious balance. Concrete painted with a silicone sand mixture gives the floor a lustrous glow. Fixtures and furnishings reflect light, luster, or have the smooth texture of soft skin. Glass and steel are a nod to sophistication while wood tones add warmth and texture. The artwork is dynamic yet blends with the tranquil environment. The colors used are juxtaposed with an abundance of white, offering a fresh, clean feeling of peace. Cool blues represent water, while pale greens represent earth, and silver colors represent the soul. The atmosphere and overall aesthetics elevate the mind and body. The personal attention to each client's spa treatment is reflected in the finishing touches and detail work on their state-of-the-art equipment.

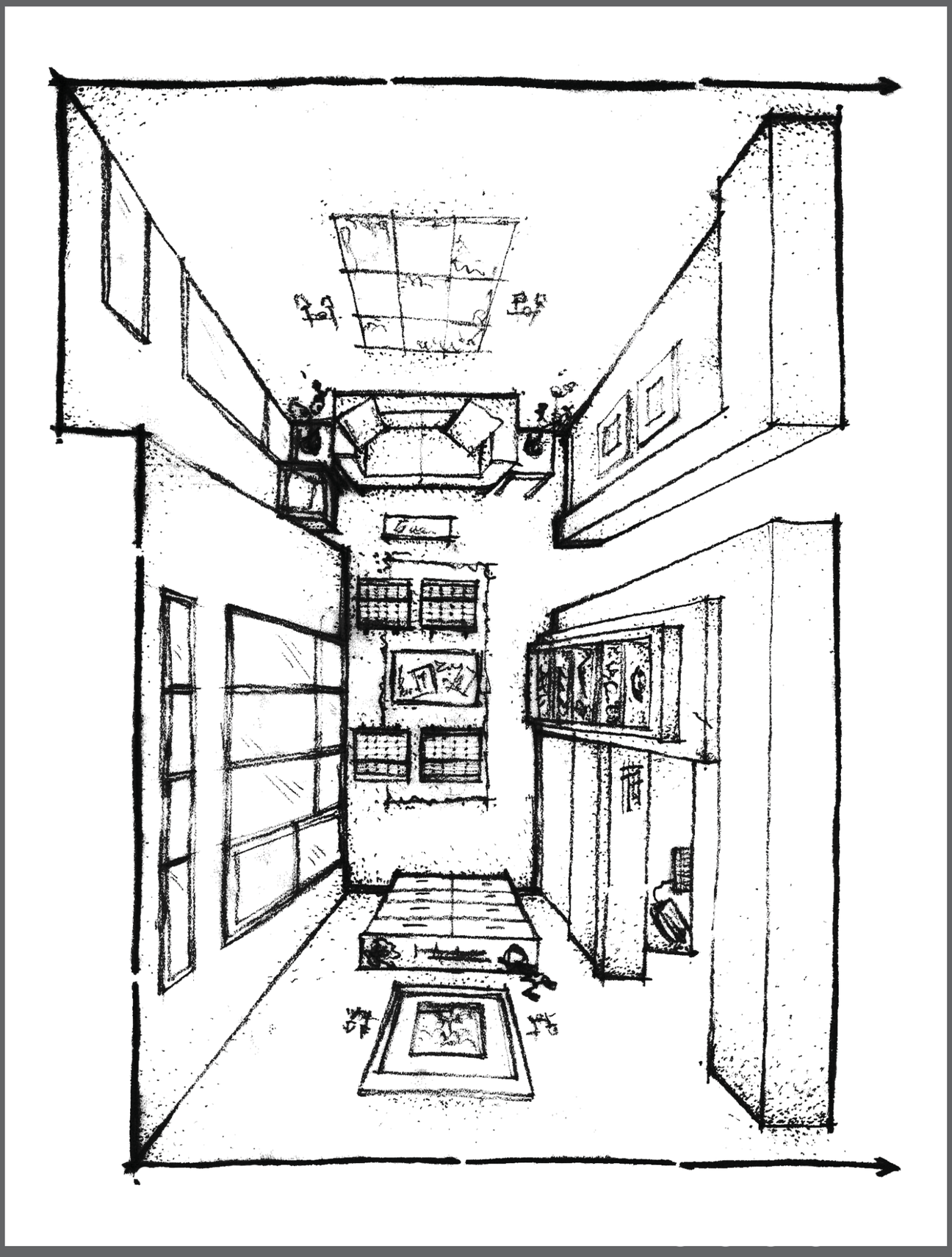
Emphasis was also given to product and branding. When creating the footprint of the space, new traffic patterns were created to accentuate the product and design a space that removes both client and consultant from a typical check-out counter. Built-in display shelves with recessed compact fixtures highlight product repeatedly throughout the space.

Lighting, as a life-giving element, is a strong design factor and therefore lies at the core of the spa treatment aimed at rejuvenation of the body and soul. Modern chandeliers and sconces set the mood. Custom elements feature a backlit glass reception desk and a translucent glass makeup counter. Consultation rooms have glass partitions to maximize natural light. In the evening, the space has an ethereal glow with modern luminaries and glowing glass panels—all meant to attract attention when natural light is low.

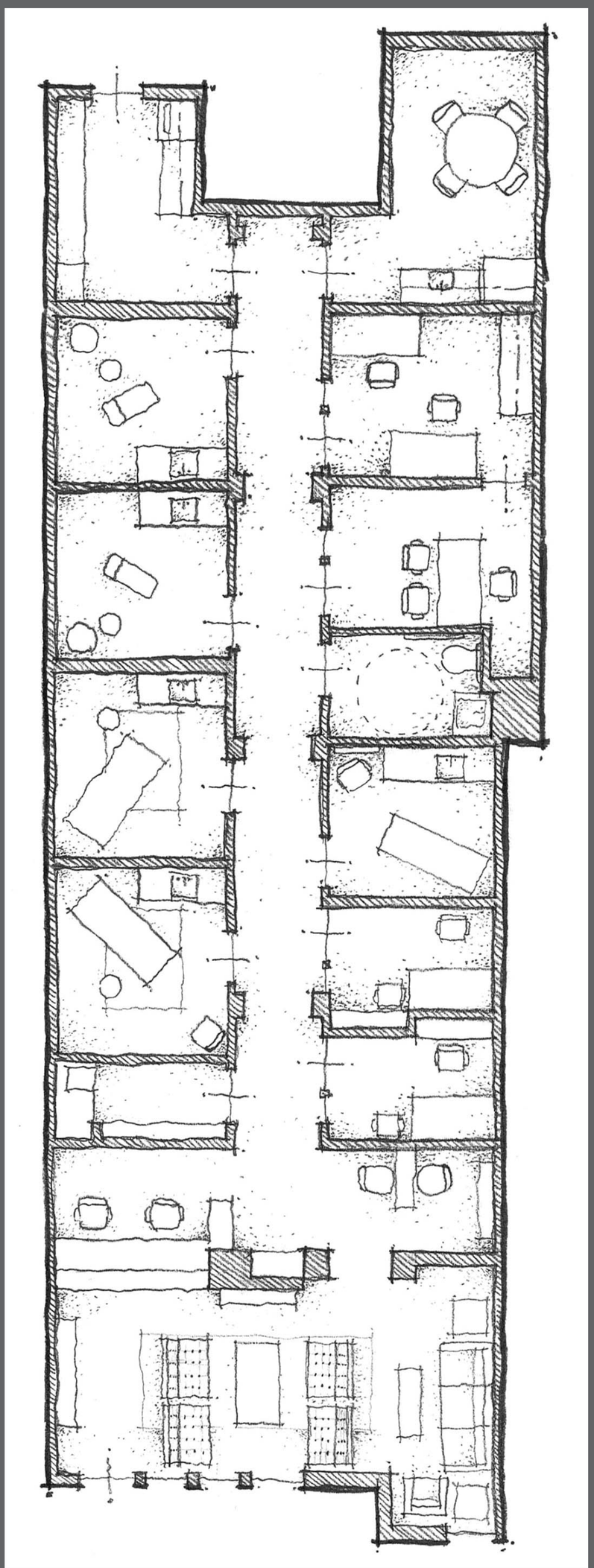
The outcome far exceeded spa owners' expectations. With five other medical spas, this location is now the flagship and signature facility. Sales of product have improved creating increased revenues. Plans are currently under way for a second and third location to feature the new design. It is a calling card for new referrals and marketing. Elase Medical Spas embody the rejuvenation process through the overall experience of being refreshed in this sophisticated, harmoniously balanced space.



concepts



concept



floor plan

lobby

reception

waiting area

hallway / branding

hallway / procedure room

procedure rooms

consultation room

Category of Submission: Design
Substance & Style: Branding Interior Design Education

Darrin Brooks, Susie Tibbitts, Dustin Wickham

Utah State University

The goal of this project was to update a bland and uninspiring interior design office in an educational setting by designing a powerful identity and an 1827 square foot interior on a shoestring budget. Over the course of a year, the design team (aka faculty) collaborated to inspire students and other departments on campus. The project successfully established a consistent identity using the following elements:

- Logo
- Website
- Branding Documents
- Entrance Hall
- Design of Office Suite, including Conference Room

Each member of the team researched banding benchmarks. Extensive research into architecture, interiors, graphics, fashion, and art all inspired the final design. A large pin up area was established were ideas could be gathered and shared. The team researched existing fabrics, menus, business cards, images, and other objects in order to culminate the theme. Schematics, sketches and bubble diagrams were developed and presented. Collaboration brought all of the faculty together in a unified effort. Collaboration and discussion among departmental members led to a selection of words that illustrate the often abstract vernacular used by our profession. These words have been installed on the walls that surround the entrance to our office suite (See photo A). The most difficult part of the project was to establish our identity in as few words as possible. "*Substance and Style"* became the title of our project.

The logo evolved out of strategic planning. The goal was to combine both traditional and contemporary styles as well as organic elements in a structured effort. The logo is featured on the website, branding documents and in the reception area of the office suite(see photo B). A feature wall was designed to unify the space and add the architectural elements as well as a wayfinding tools to lead the public to various faculty offices. A custom stripe pattern wraps around the conference room which is the common meeting spot. Graphics incorporating patterns found in fabrics and wall coverings were selected to anchor the design (see photo C,D). The conference room also displays custom artwork and a custom lighting fixture that is both traditional and contemporary (see photo E).

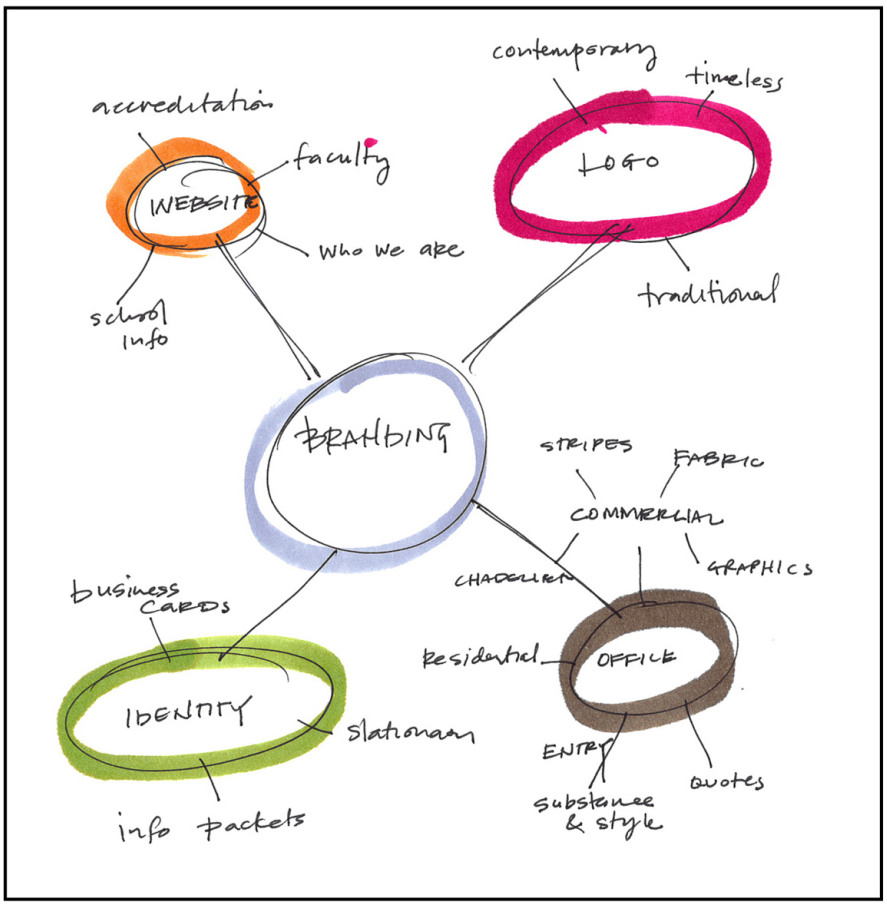
The ambiance in the office suite results from the subtle changes in wall color. The new space employs visual cues to facilitate wayfinding and create a unified space—one that is hip, cool, and current without being cliché. Color and pattern were showcased as a departure from the previous mundane white. The space is appropriate for serious work, yet still design savvy. Entering our department now, one experiences a vibe that integrates a progressive design in an educational setting. The outcome is a great success, met with envy across campus and beyond. The new brand is multi-dimensional creates a bold and striking effect, representing the personality of a forward-thinking, dynamic team.

INTERIOR DESIGN

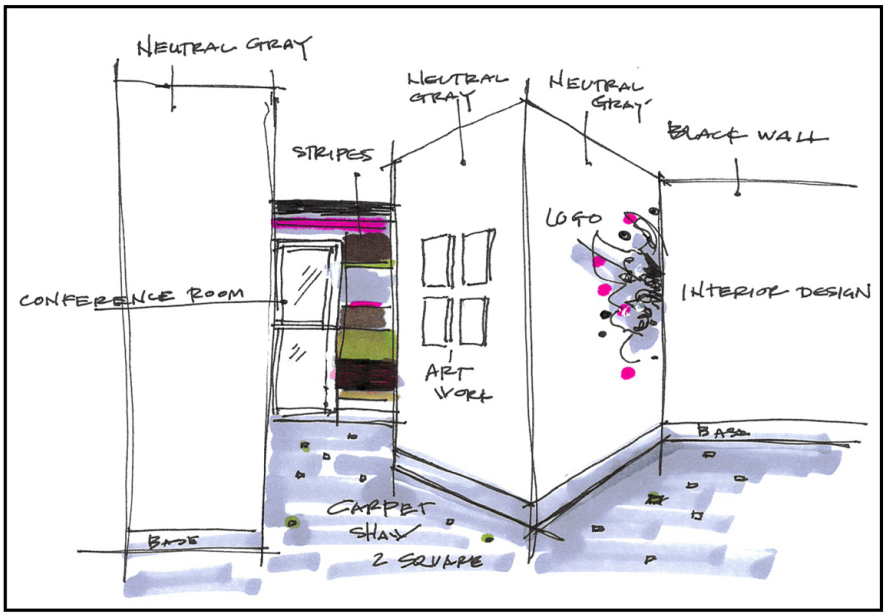
ANONYMOUS UNIVERSITY

LOGO

COMPONENTS OF LOGO



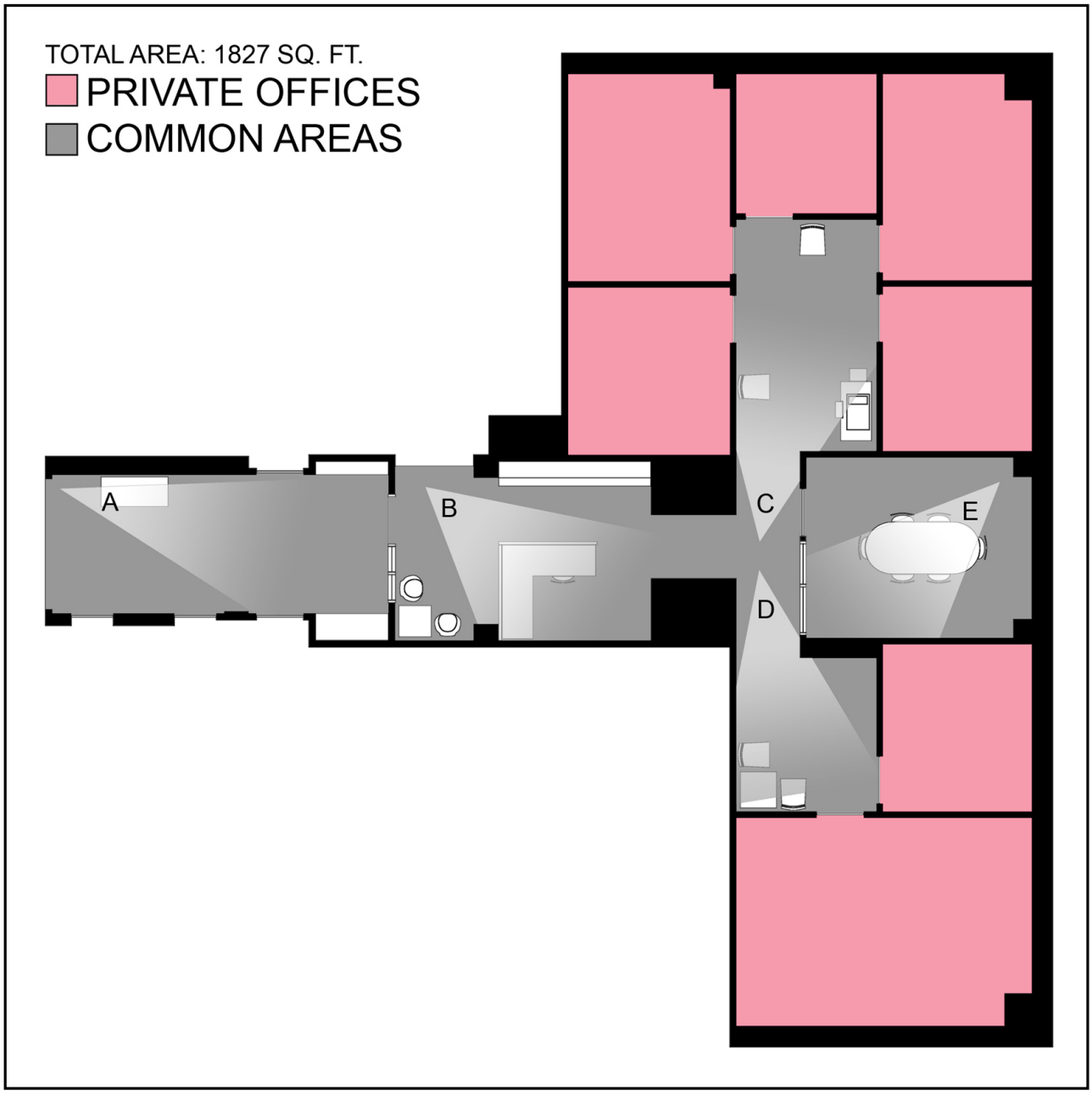
VARIOUS COMPONENTS OF IDENTITY



OFFICE SUITE ENTRY

CONCEPT SKETCH

BRANDING DOCUMENTS



FLOOR PLAN & PHOTO KEY

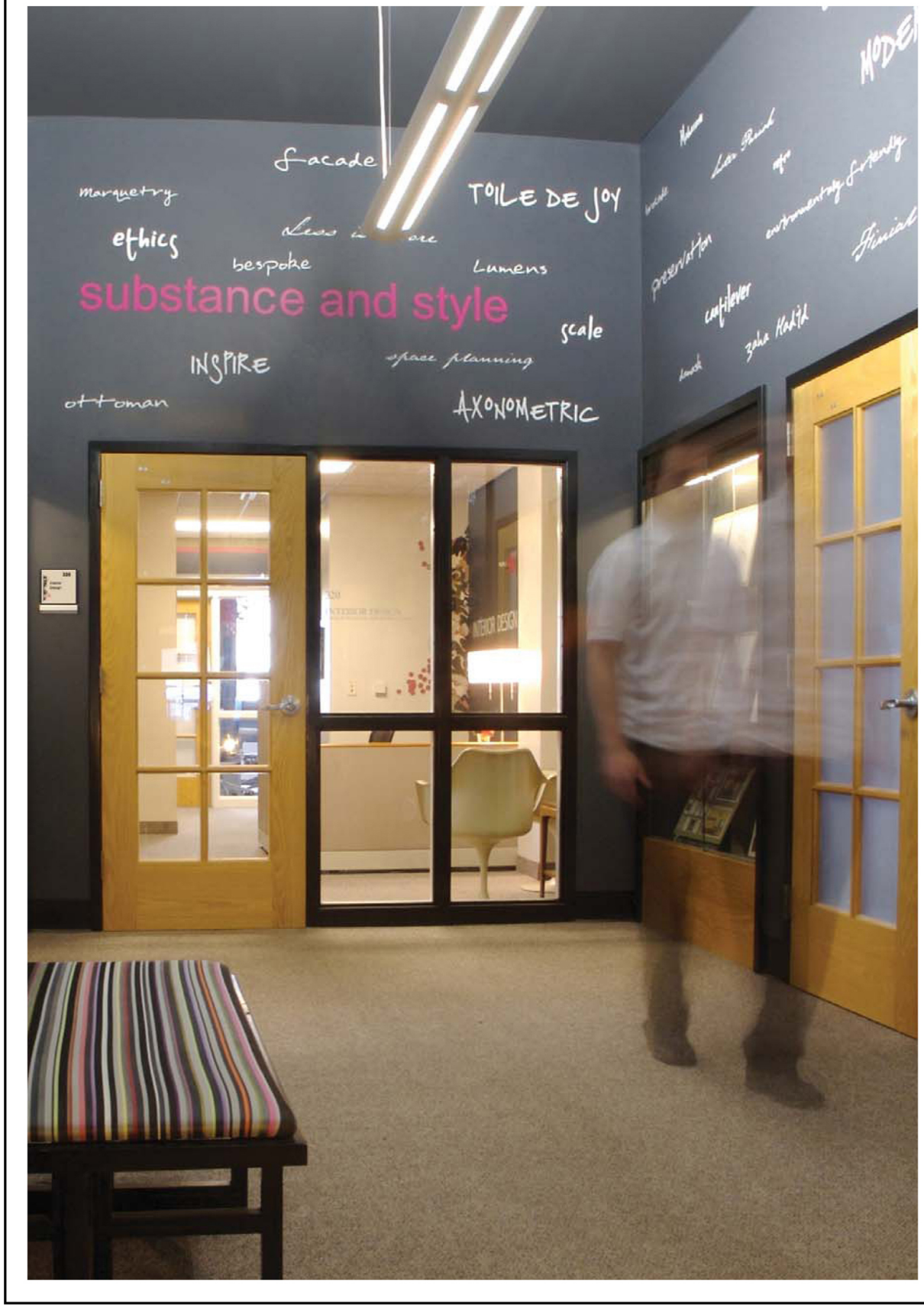

facade
marquetry
TOILE DE JOY
ethics
bespoke
Lumens
substance and style
scale
INSPIRE
space planning
ottoman
AXONOMETRIC

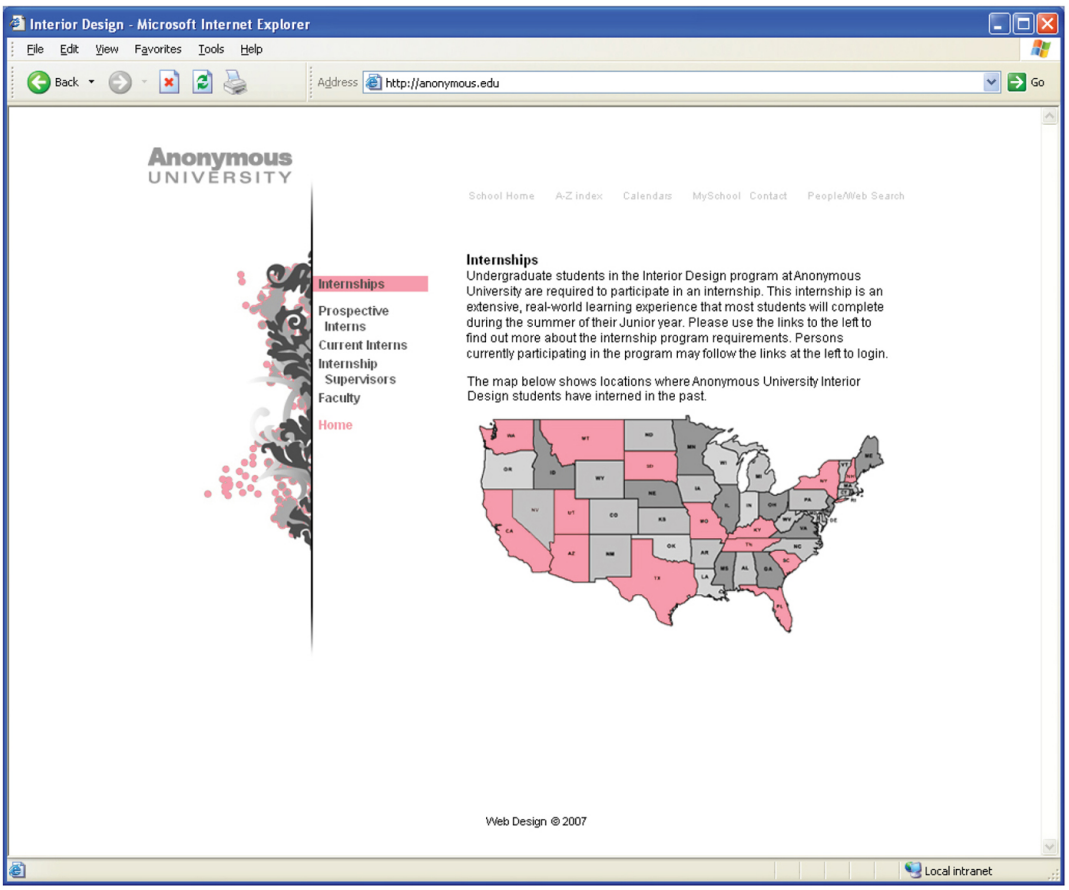
PHOTO A

PHOTO B

PHOTO C

PHOTO D

PHOTO E



IDENTITY THROUGH WEBSITE

Category of Submission: Design

The Conceptual Planning of a Physical Environment for the Teaching of Personal Financial Planning.

Don Collier

Texas Tech University

In April 2007, the Department of Applied and Professional Studies, Division of Personal Financial Planning identified a need for conceptual drawings for a new technology lab for designed specifically for their utilization. As the project developed, the need for creative research emerged in order to design a plan for the Division of Personal Financial Planning that would facilitate a learning environment that included a technology lab.

As an interior designer, this question had to be resolved. *"How does a group of professors communicate to architects/designers the goals, facts, concepts, needs and problems associated with teaching Personal Financial Planning as it relates to the physical environment?"* The solution was a day of brainstorming to discuss issues and desires of each faculty member. These issues and desires were then categorized as to function, form, economy, and/or time. A design program was written to address the immediate and future physical needs for a learning environment specifically designed for The Division of Personal Financial Planning.

Using the design program, a series of sketches were developed and approved. The sketches were then used as a fundraising tool to secure sponsorship for the completion of the proposed technology lab. The result, $1,000,000.00 endowment was given to the Division of Personal Financial Planning for the physical/construction development of the technology lab and development of a scholarship program. The technology lab is currently under construction.

The Conceptual Planning of a Physical Environment for the Teaching of Personal Financial Planning

IDEC INTERNATIONAL CONFERENCE 2009
CREATIVE RESEARCH

Category of Submission: Design

Existing Conditions of the Personal Financial Planning Division

•As a result of the department meetings a Problem Statement was developed:

Problem Statement:

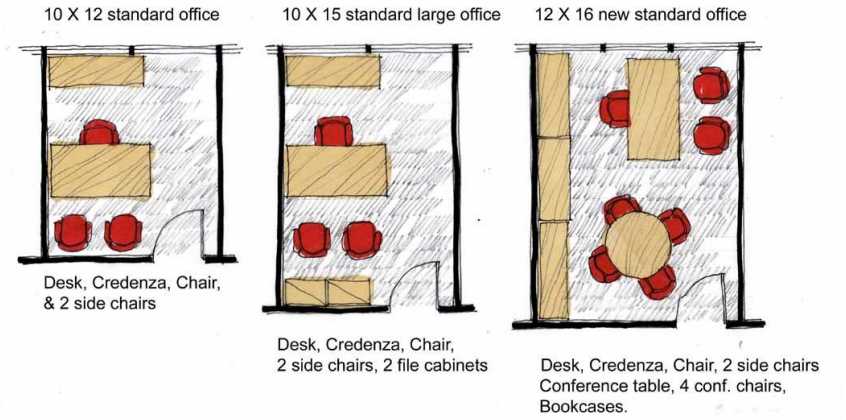
Current facility has no room to grow and change with the changing face of industry
Current facility is not flexible and some areas are too dedicated to only one function.
Current facility does not project a true professional atmosphere as found in the professional world.
Areas in the current facility are all closed and not open to change.
We don't have a real presentation space that could be used for marketing and dedicated to the industry.
Overall lack of flexibility with the physical environment.
Problems in keeping up with technology and lacking in computer class rooms.
Current layout of offices does not create a sense of privacy and are interior offices with no windows to the outside.
Lack of a research library.
No space for visitors, secretaries, public gatherings, and graduate offices.
Lack of dedicated classrooms for PFP.
No room to grow and reconfiguration is an expensive problem.

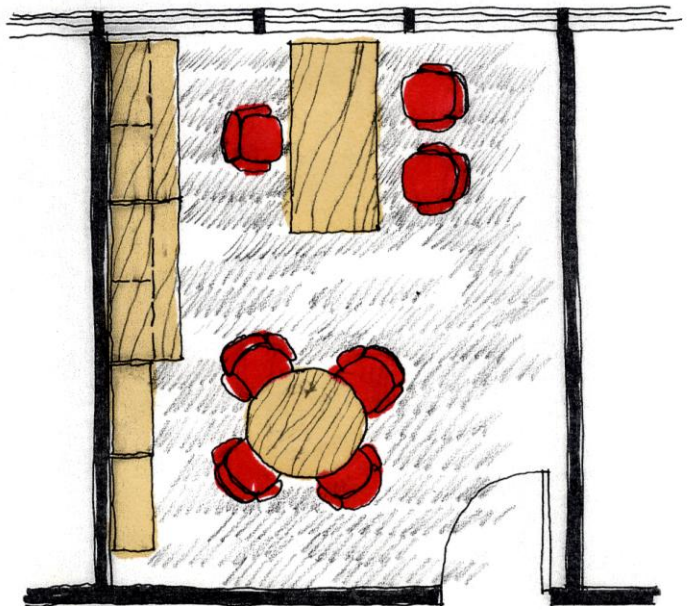
As a result of developing a problem statement a Design Concept Statement was developed:

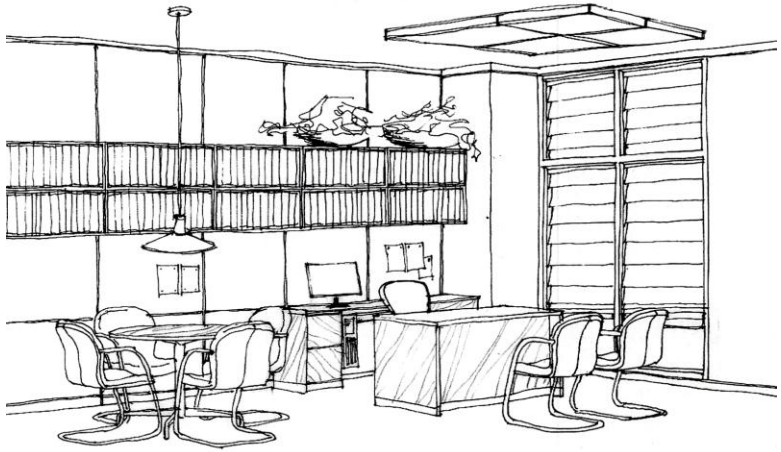
Design Concept Statement:

Flexibility, Flexibility, Flexibility, an environment where change is a management issue not a physical issue, a single space could have multiple usages.
Create a professional environment to teach in this professional field.
Define rooms by function not by the space that is available.
Create a cutting edge technical environment that will be capable to change as needs change.
Create classrooms of various sizes with furniture that will support a wide verity of subjects and tasks.
Create a central gathering space for all PFP personnel, facility, and students, sort of a "PFP sports bar" atmosphere that serves coffee.
All spaces must be multifunctional due to the amount of change that occurs in the profession.
To have a connection to the outside making use of natural light.
Create an environment which is conducive to teaching but also to visitors, professionals, clients, and corporate sponsors.
The profession teaches that a diversified portfolio is the best; the same attitude should be applied to our physical space requirements.

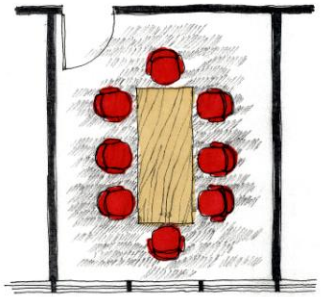
Existing Office Standards vs. New Office Standards



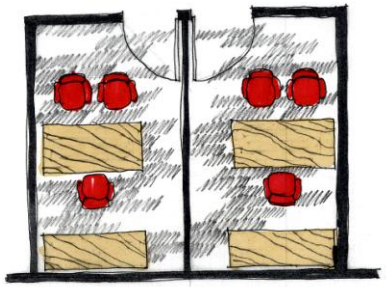




Taking advantage of the New Office Design what all else could be developed within the confines of the 12’ X 16’ module

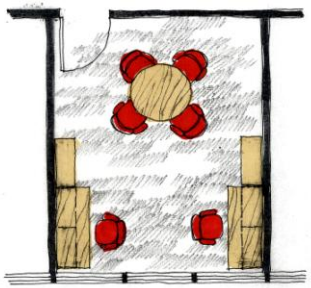


Conference room for 8

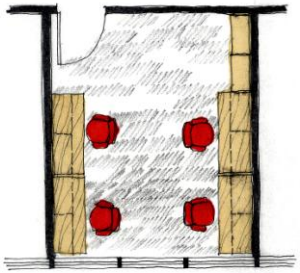


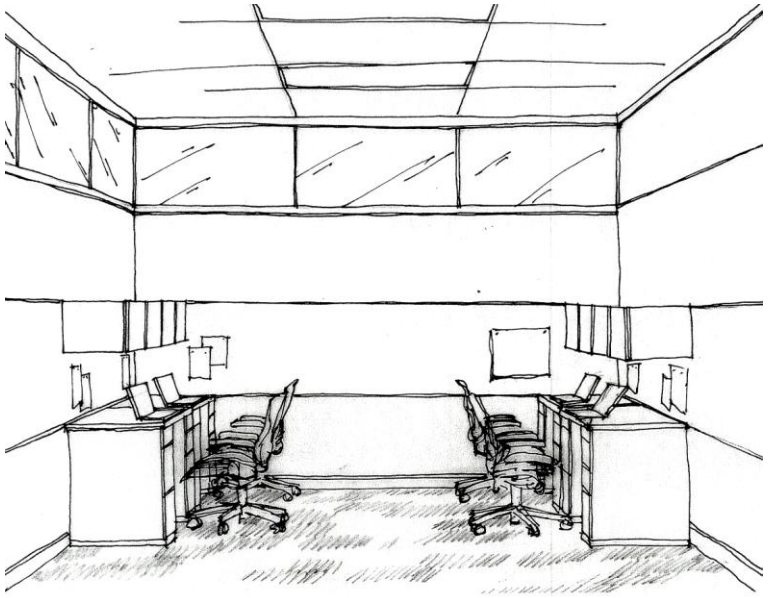
Two Consultation Rooms for Clients

Taking advantage of the New Office Design what all else could be developed within the confines of the 12’ X 16’ module



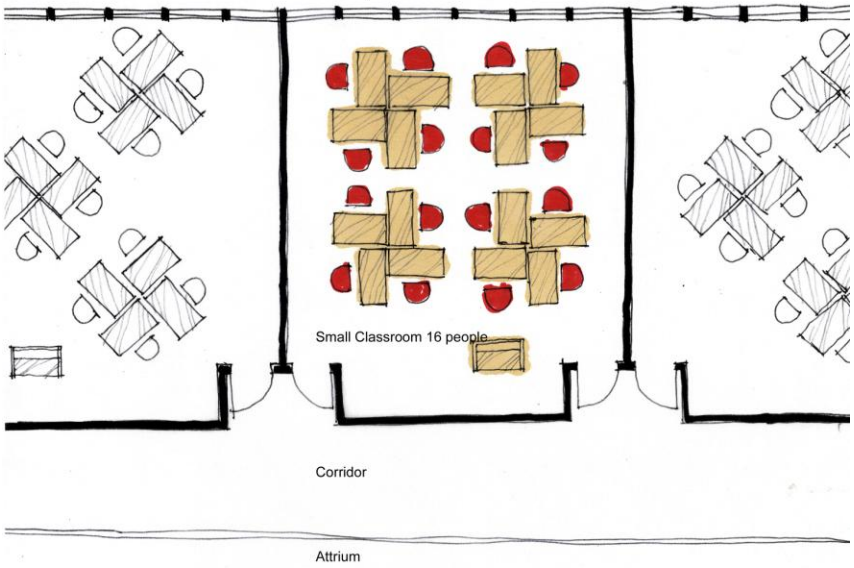
A two person doctorial student office



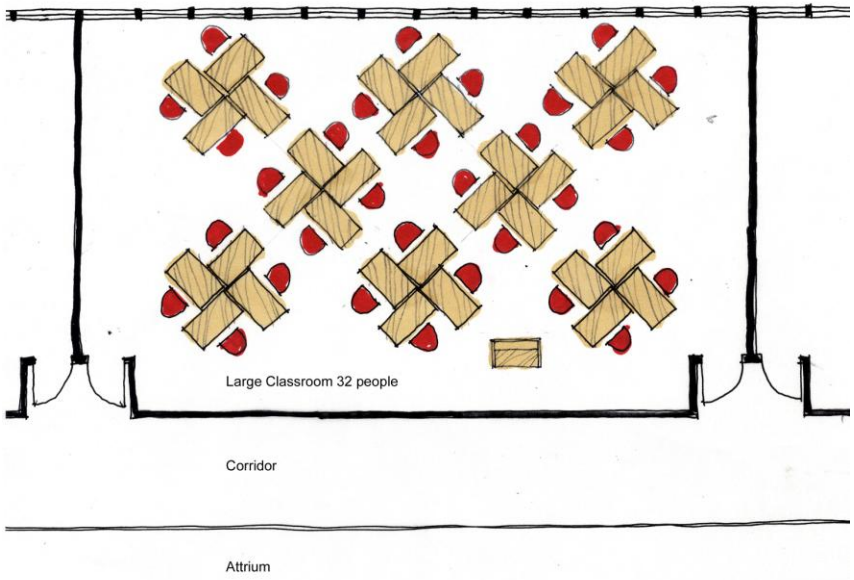


A four person graduate student office

Taking advantage of the New Office Design what all else could be developed within the confines of the 12’ X 16’ module

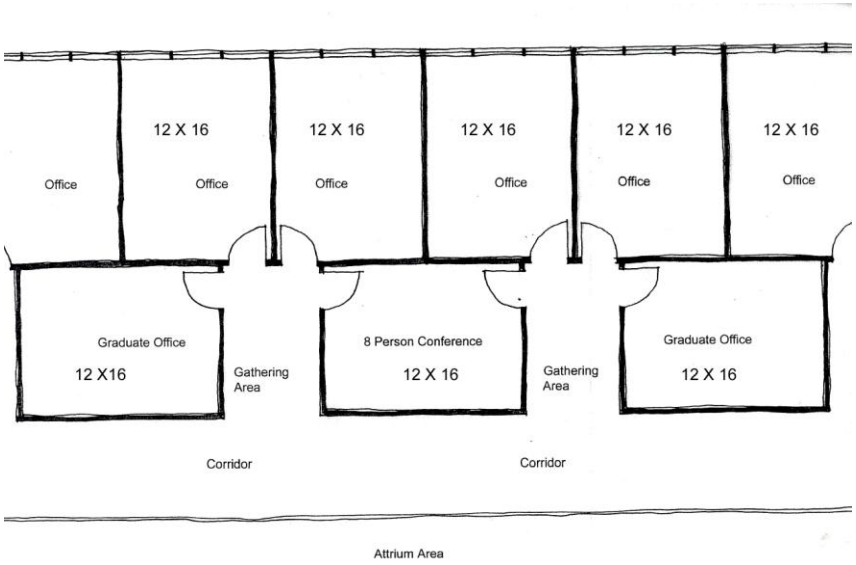


With the combination of 4 modules
Creates a small classroom for 16 students

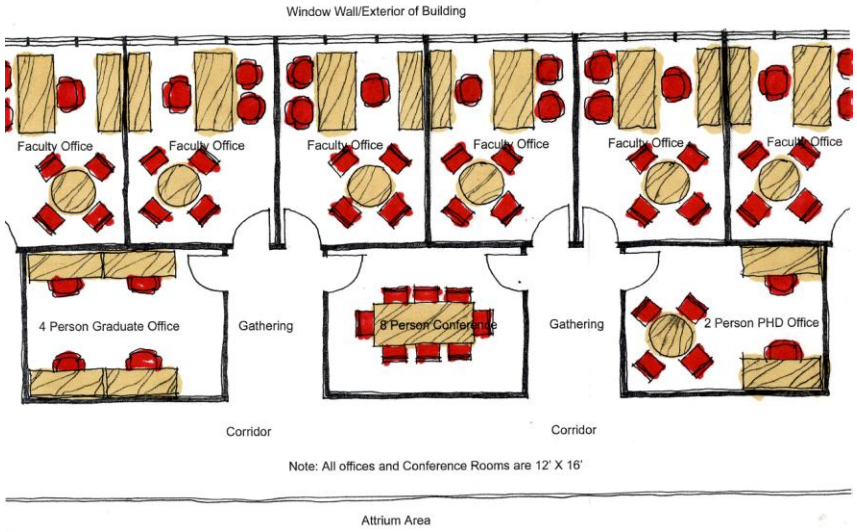


With the combination of 6 modules
Creates a classroom for 32 students

Taking advantage of the New Office Design what all else could be developed within the confines of the 12’ X 16’ module



How the new module might work in New consturction



A prove out of the space with furniture

The sketch presentation to the benefactor who donated $1,000,000.00 for a new Technology Lab, Research Library, and Scholarships.

The new technology lab

The new research library

Prototype for new faculty offices

The new student lounge

Category of Submission: Design

Halftone Wall

(6”x6” prototype, constructed in section of 1/8” and 1/4” laser cut acrylic sheets)

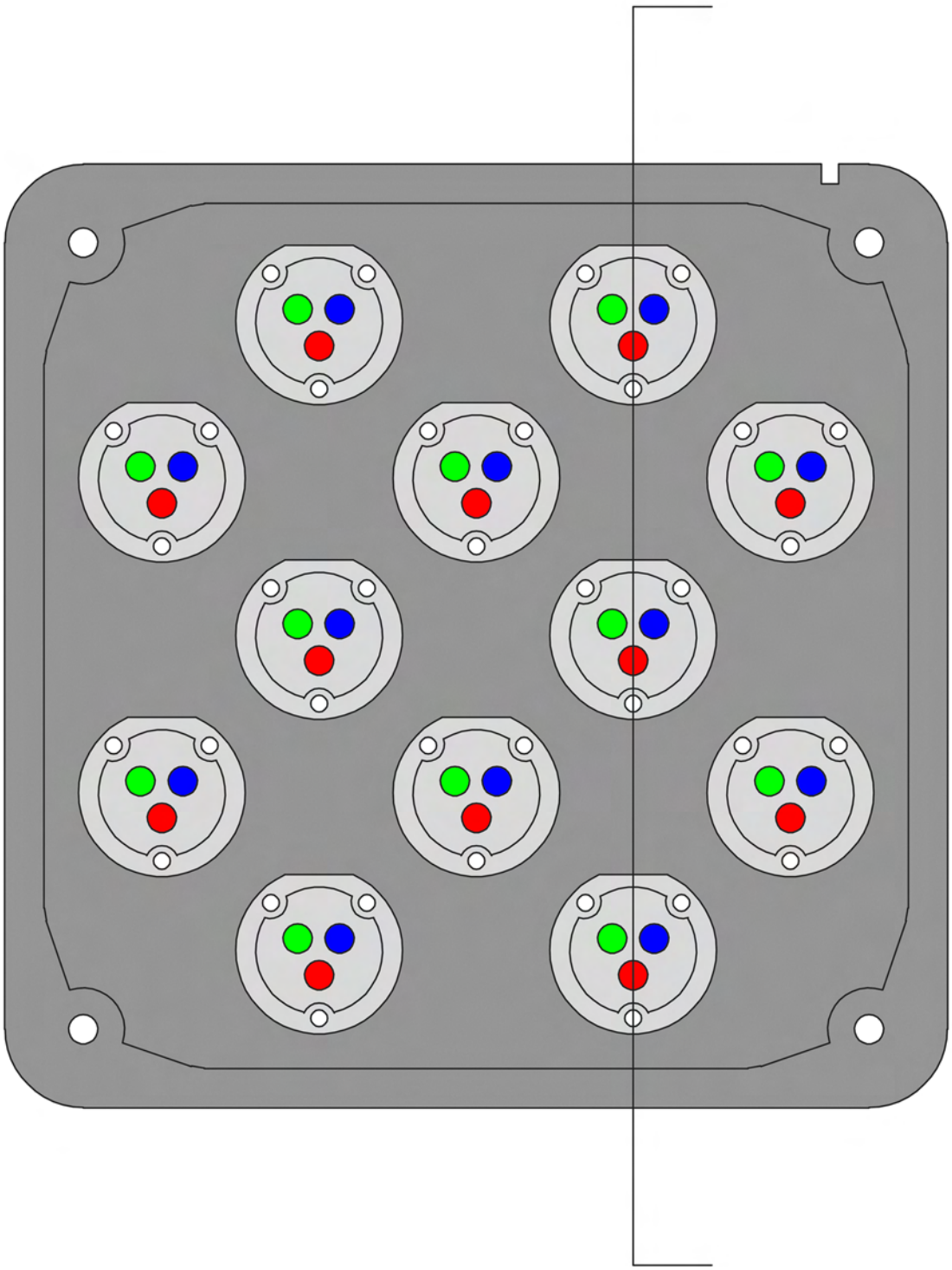
(video clips of prototype available at: http://responsivedesign.org/idec/video.html)

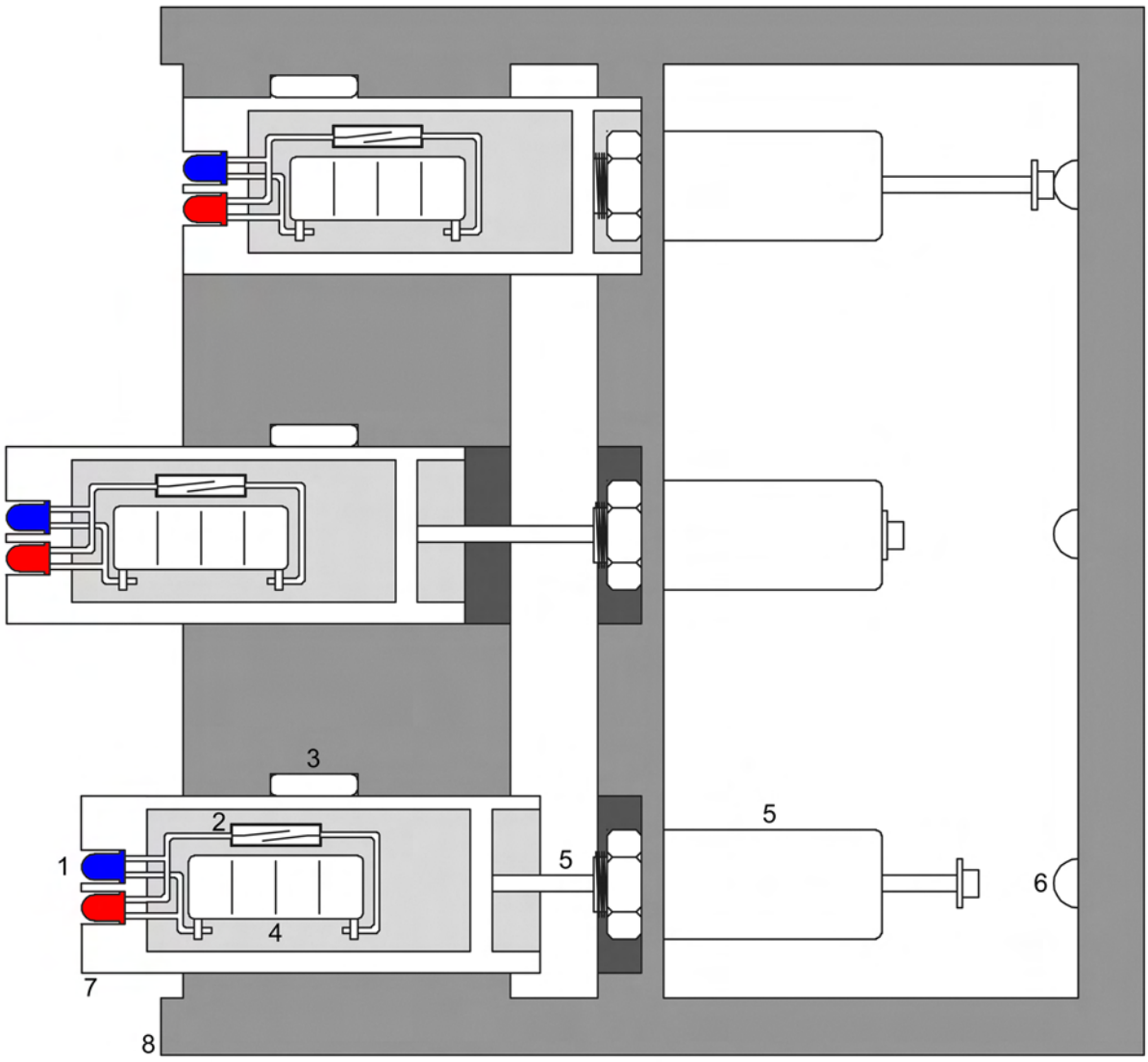
Matthew Dunn

Louisiana State University

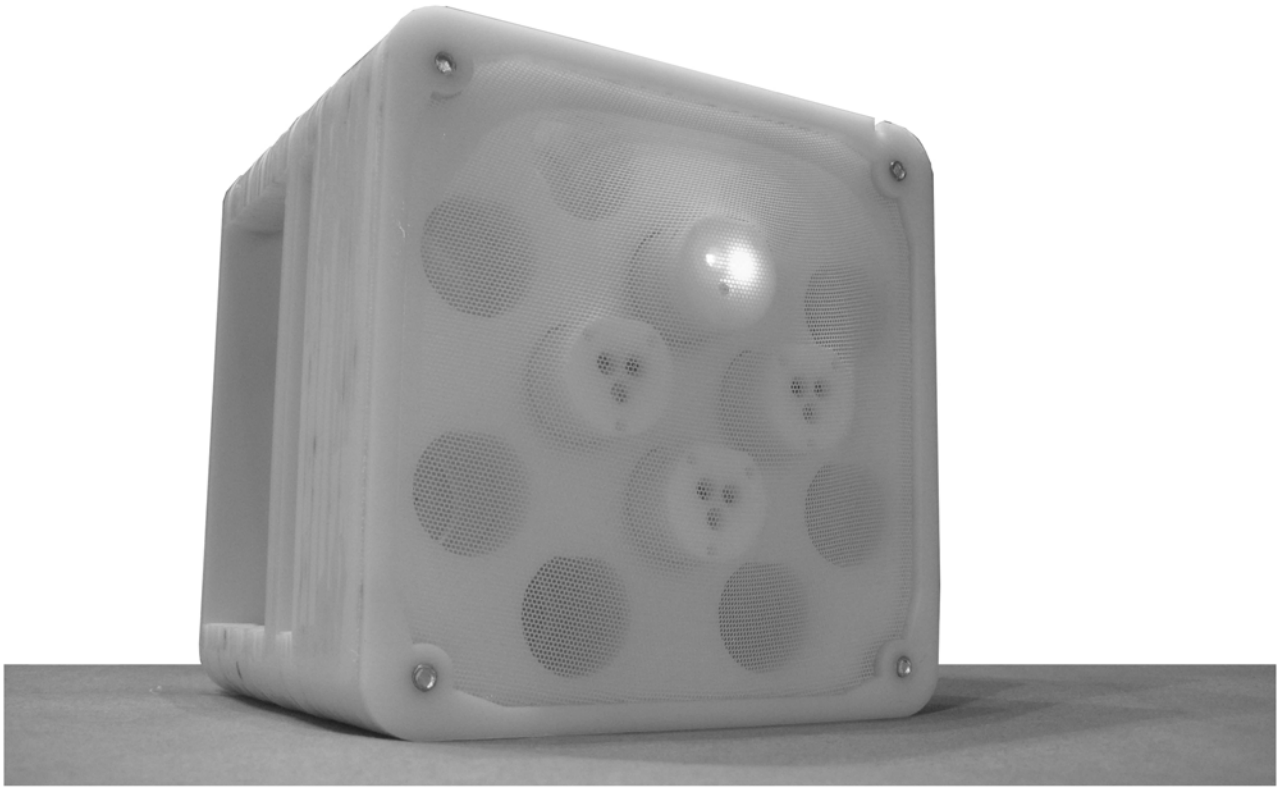
Emerging practices in responsive architecture are set to transform the built environment and spaces we inhabit. As a spatial medium, responsive design offers the possibilities of revolutionizing and reinventing static interior spatial types. How does one create environments that respond to a specific person’s biofeedback, creating a unique experience each time? How does our occupation of space change when we transform our everyday static environments to responsive environments? To answer these questions, the researcher has been involved in designing installations that focus on spatial elements that respond to internal movement/actions of the inhabitants.

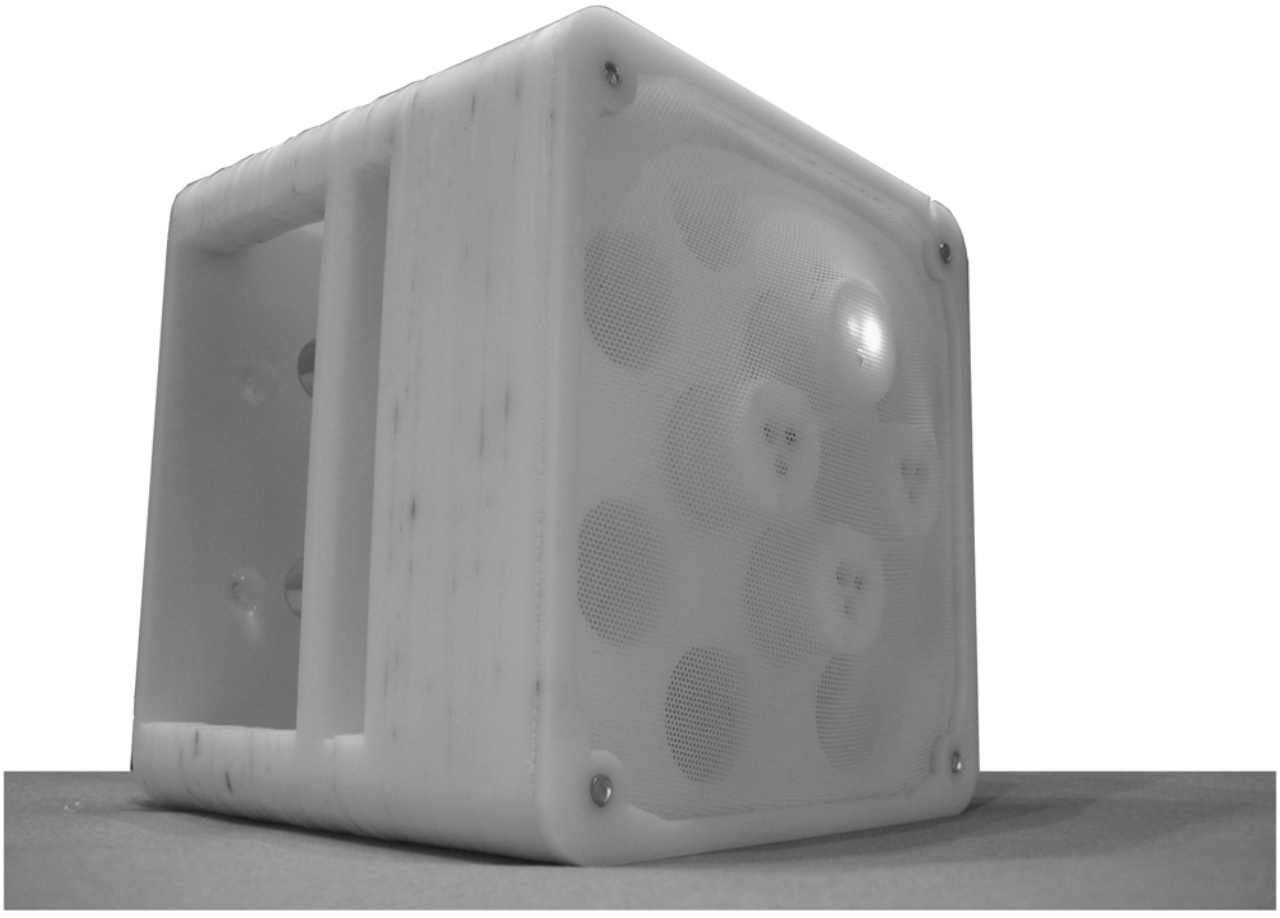
Halftone Wall creates a three dimensional representation of an inhabitants shadow/movement. The wall can track movement through space in real time or can be set on a delay. The delay acts as a record of movement through the space. Small rods move in and out of the wall behind a taut sheet of fabric. The fabric conceals the multitude of rods. As motion sensors detect movement, the corresponding rod is pushed out into the space by a solenoid. Once motion ceases or the inhabitants pass out of range of the sensor, the solenoid releases and tension in the fabric forces the rod back into it’s slot in the wall. A rod is constructed with 3 LED’s (red, green, blue) recessed at the tip. The LED’s highlight movement but also allow for the wall to be programmed to display imagery, similar to a large LED screen. Programming the movements with computer software is the next major step in this project.

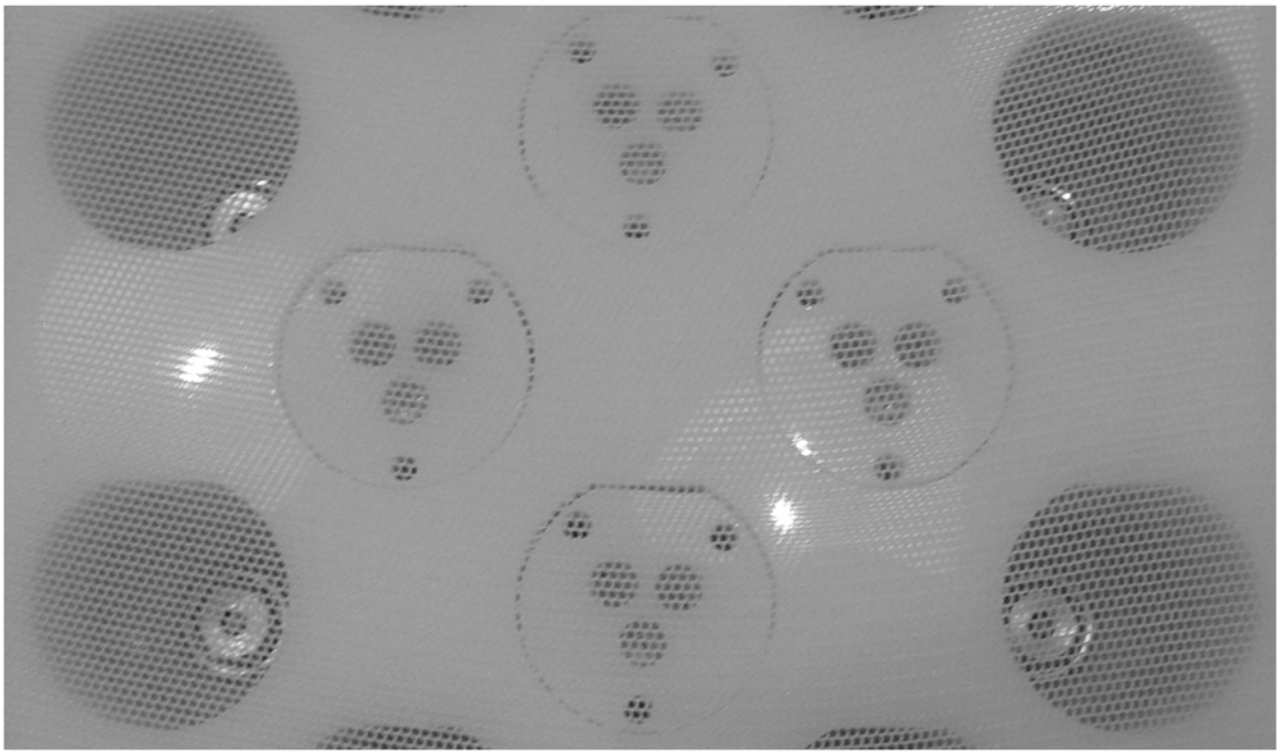


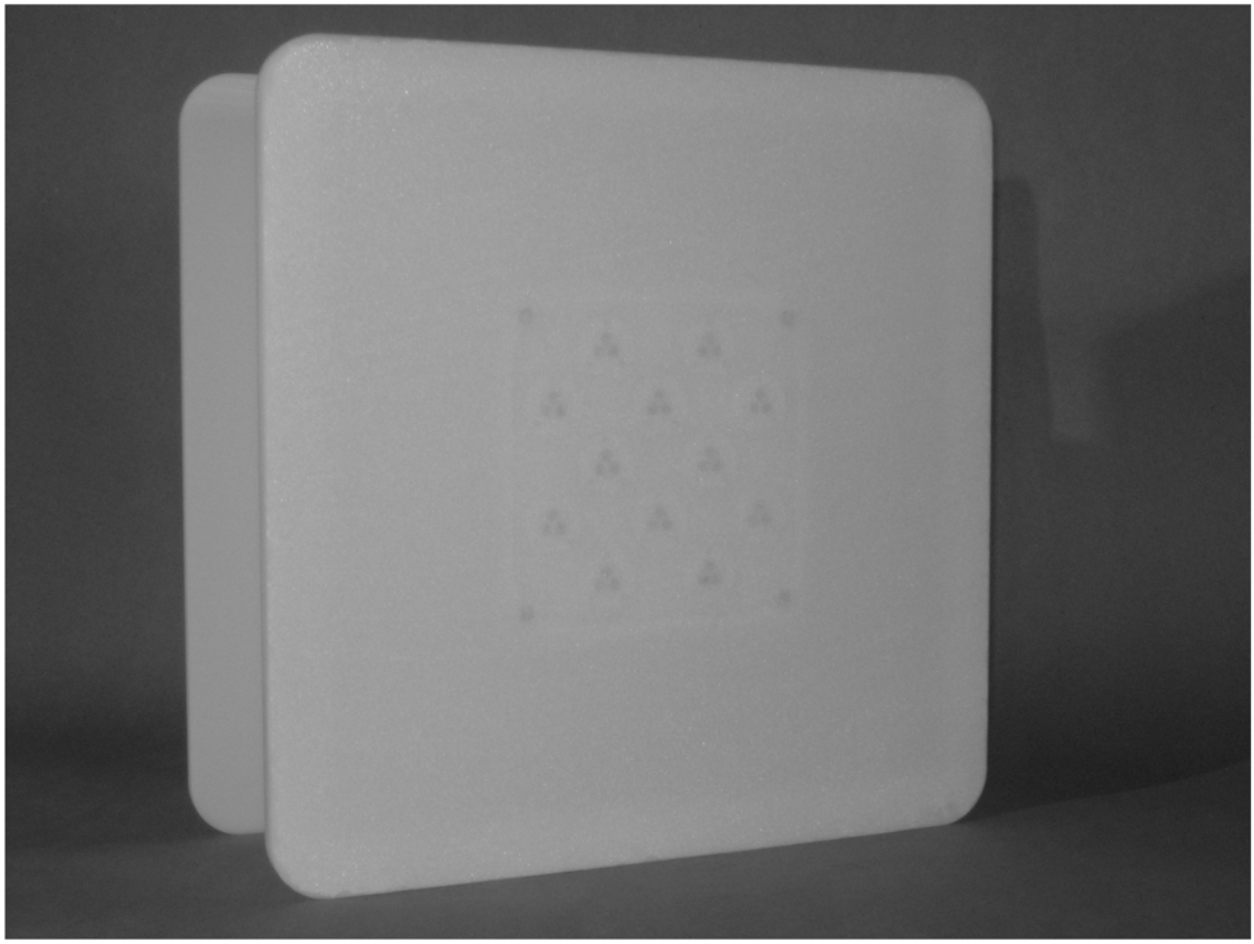


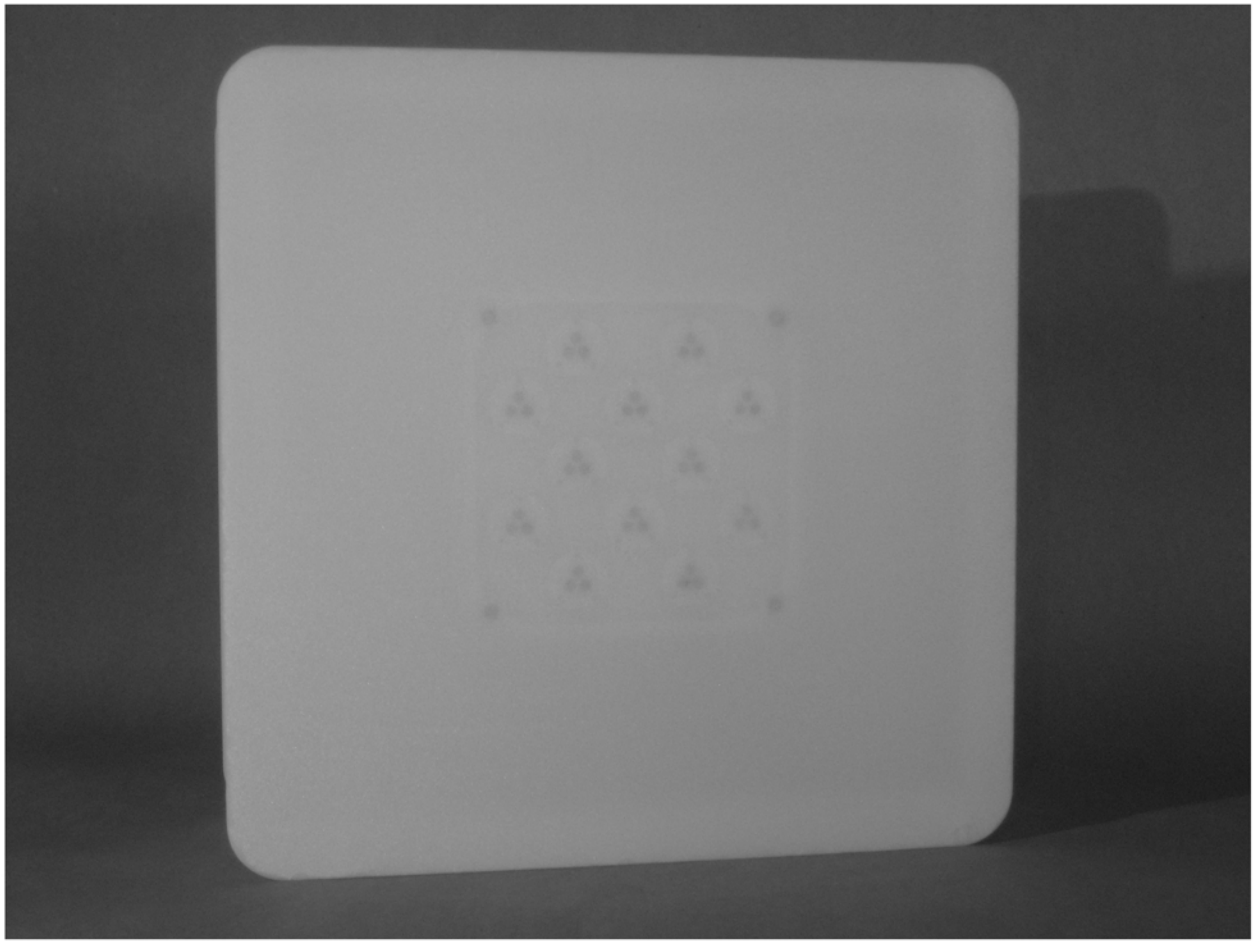
1. LED (red, green, blue)
2. magnetic reed switch
3. magnet
4. battery pack (6V)
5. solenoid (push)
6. rubber stop
7. acrylic rod
8. acrylic prototpye housing

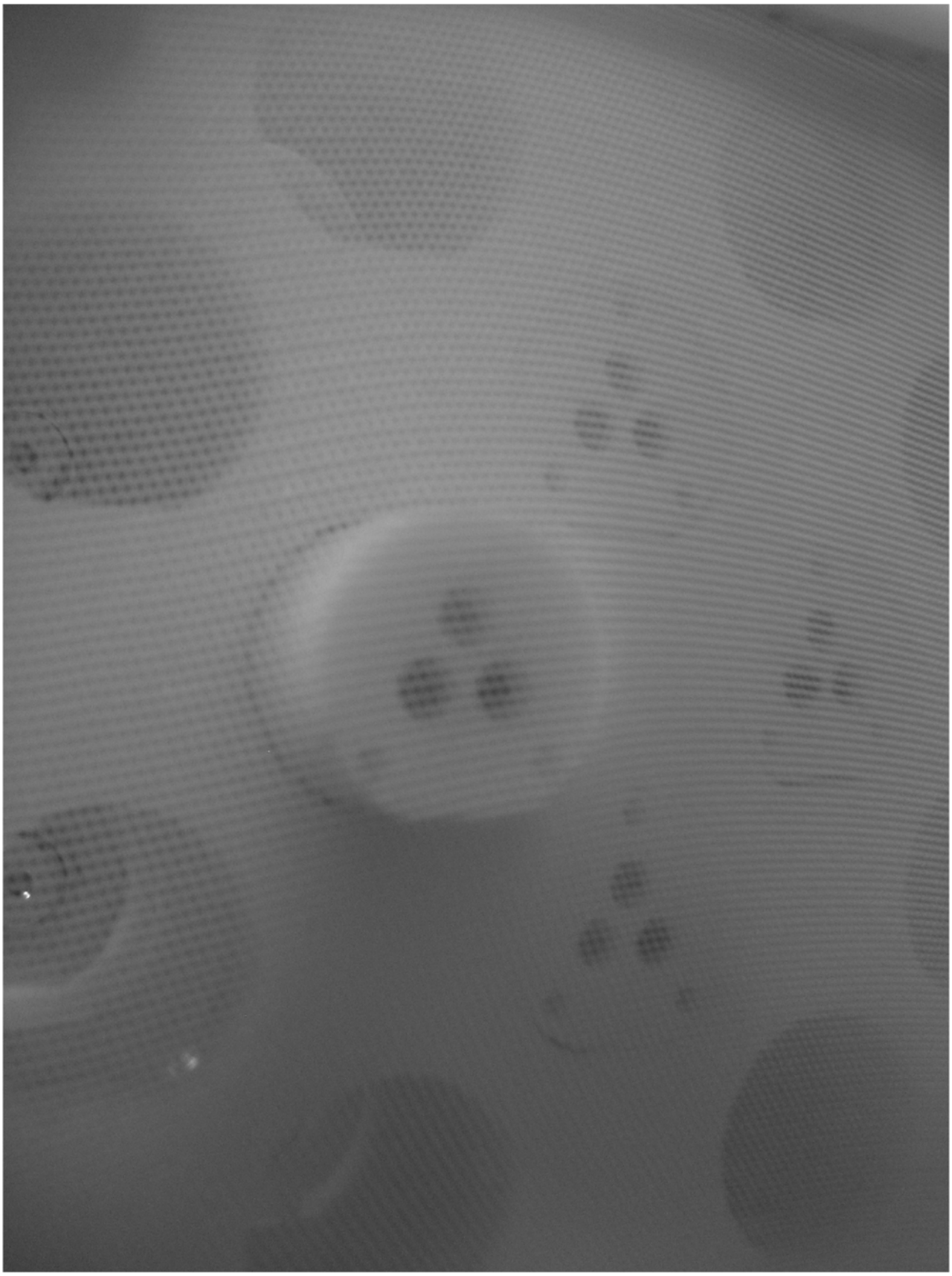


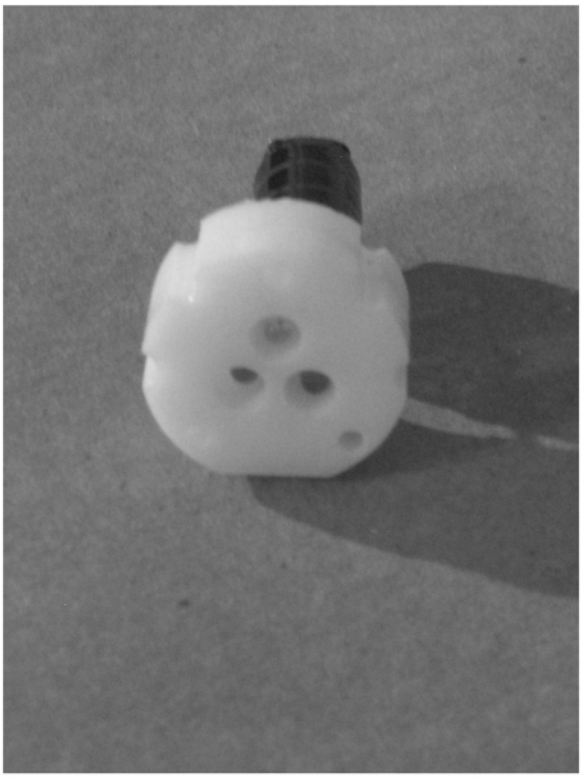


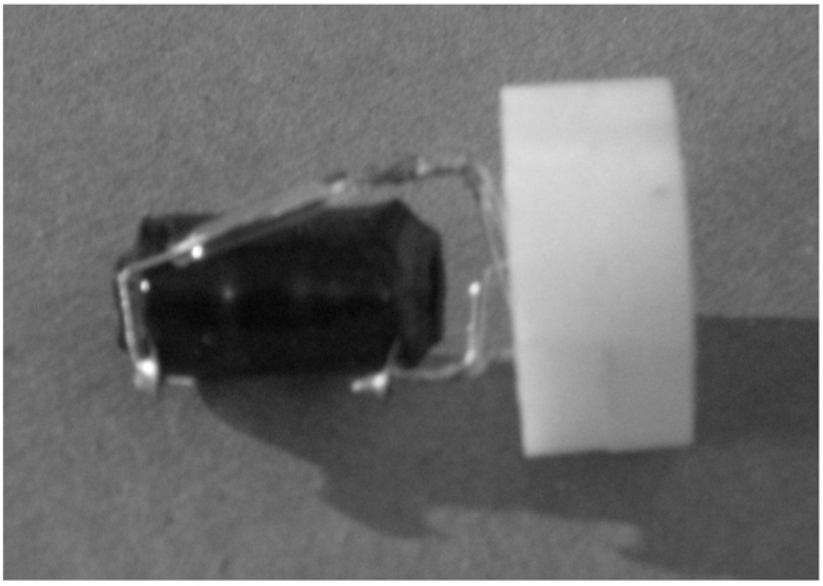


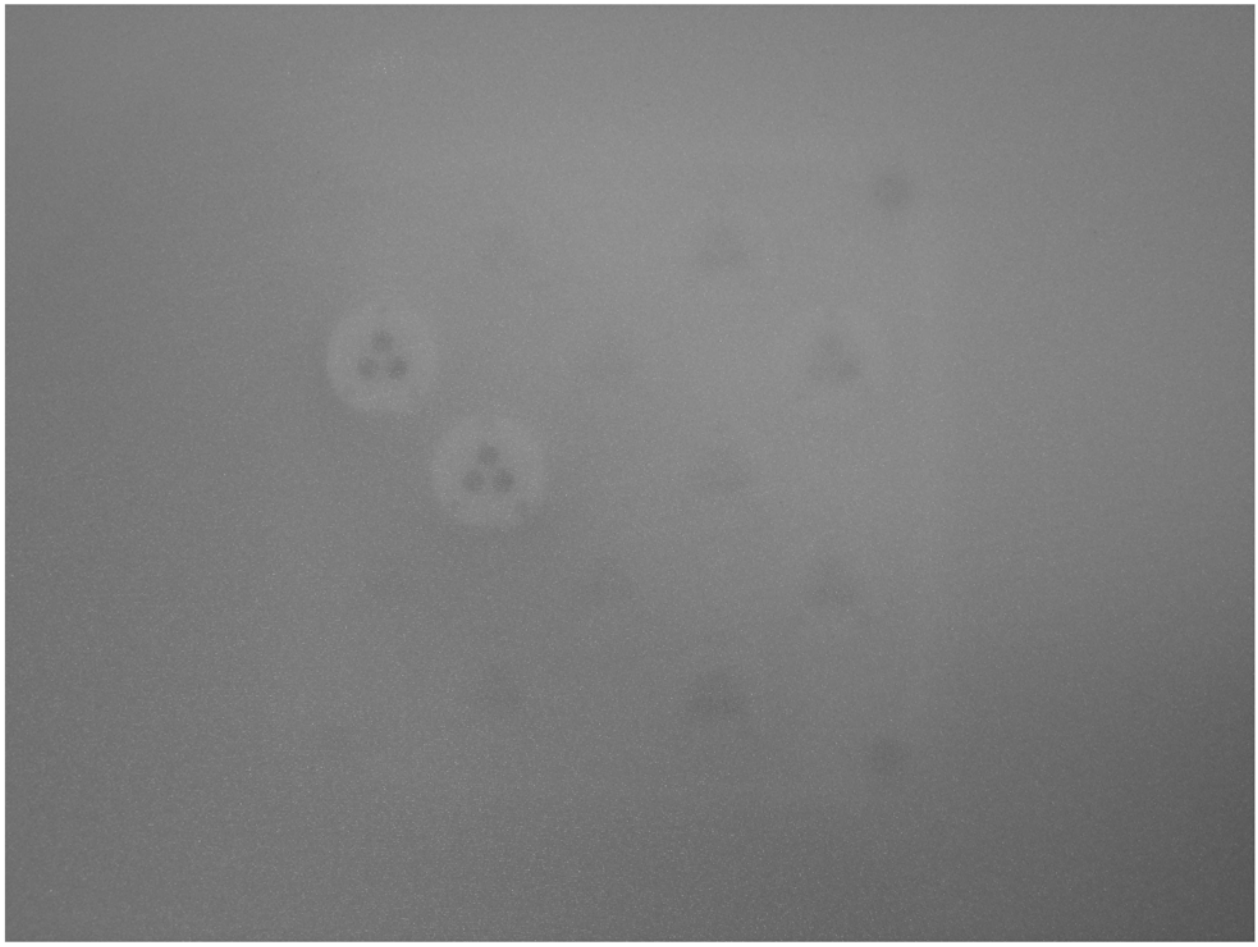


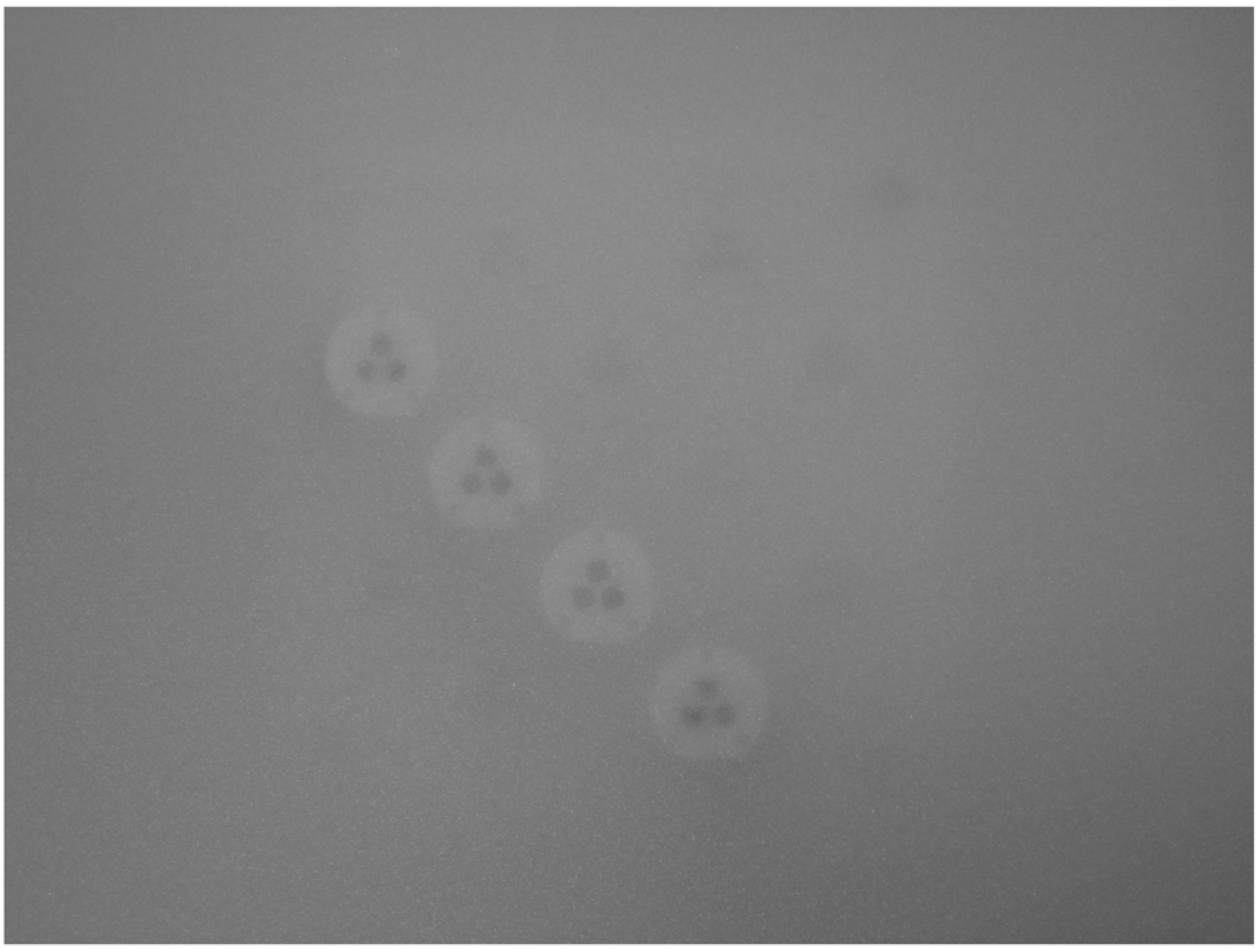


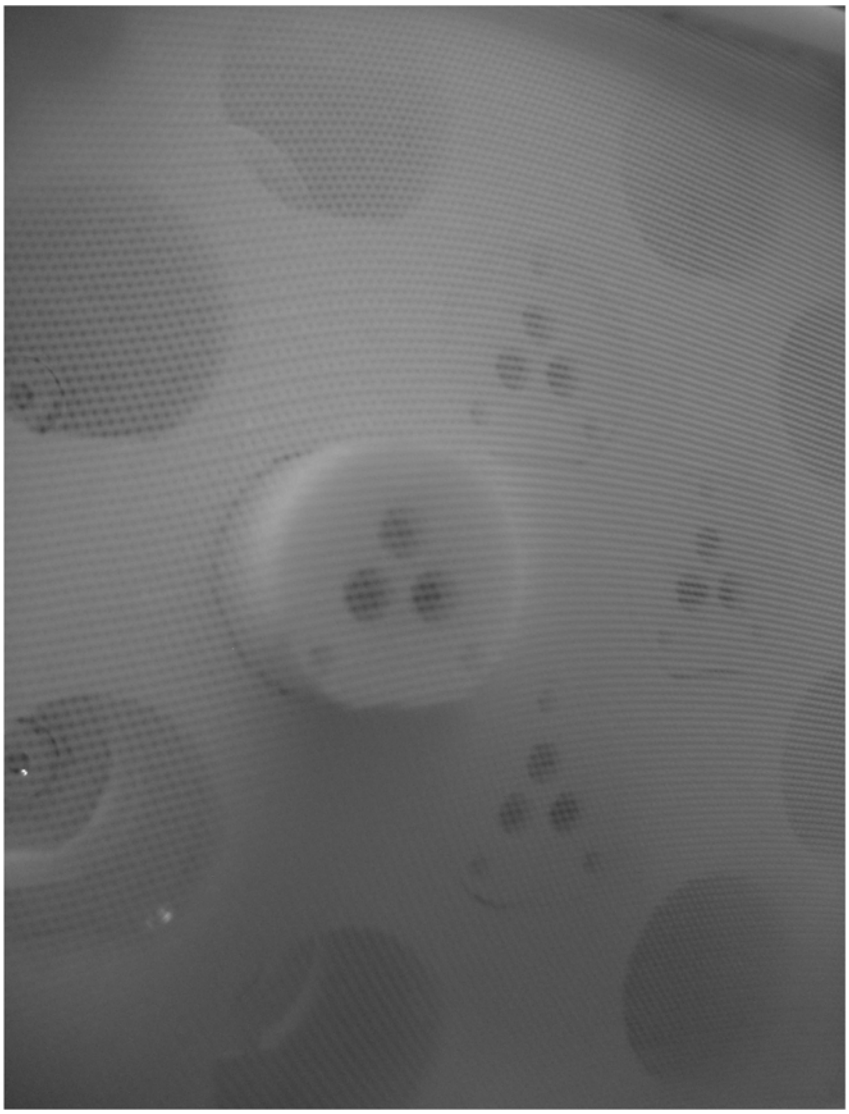


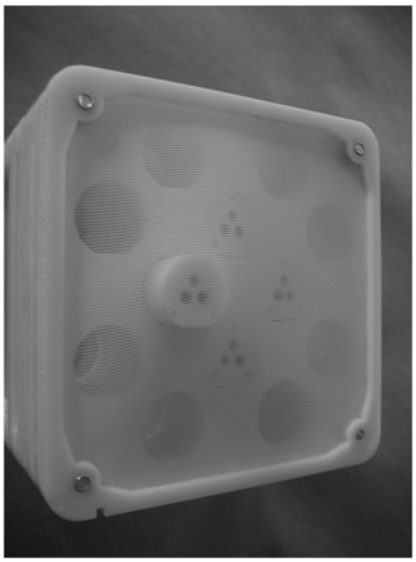


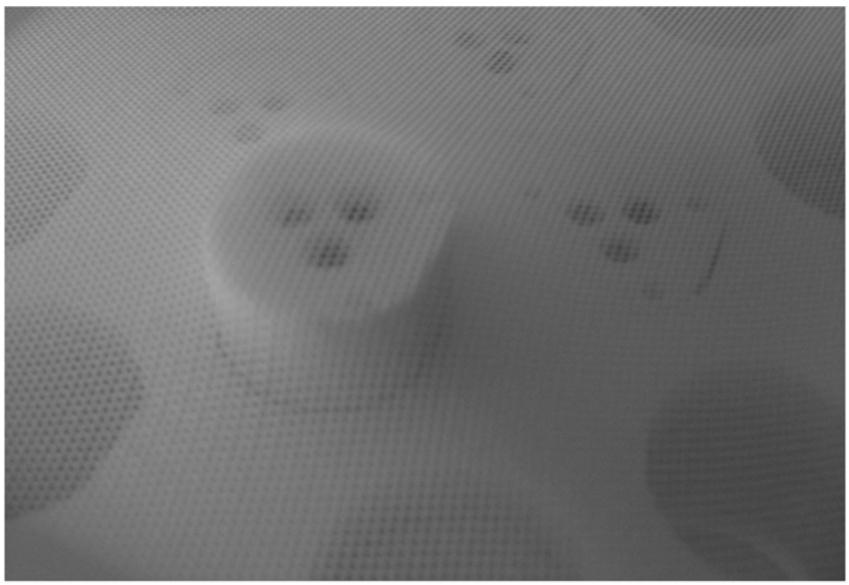


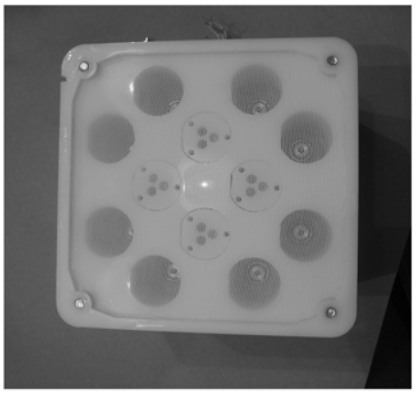












Category of Submission: Design
Fringe Benefits (Financial Services Company Corporate Headquarters)
500,000 Sq. Ft. 1

Caroline Hill

Texas State University

Architectural Concept: The primary planning concept for this project was to concentrate energy, visual interest and collaborative activities along a central circulation core while retaining a sense of clarity and order at the ***fringes*** of the workspace to facilitate “head’s-down” work. Aesthetic inspiration came from the building’s extensive original linear, bush-hammered structural concrete elements. The design team responded to this existing and dominant textural element in the space by introducing equally visually compelling textures and color into the space through new design elements. The use of patterned glass, wood, textiles, graphic wall coverings and polished plaster helped to achieve this objective. The final product is a compelling architectural composition of tactility. Lighting was also used to reinforce both the planning and aesthetic concepts while showcasing a comprehensive branding package that celebrated the company’s prestigious history and core values.

Project Objectives: Responding to the corporate motto, the primary project objective was to transform an outdated and disrupted work environment into the “workplace of choice” for the thousands of employees housed in the corporate headquarters facility. This meant reevaluating every aspect of the workplace: architectural design, space planning, graphics and wayfinding, furniture, lighting, acoustics, and amenity types, sizes and locations.

Design Program: The proposed workplace design was initially implemented in two of the facility’s nine building sections, while remaining building sections would be renovated to match over time. The prototype design presented here consisted of three floors of office space above a service level floor. Although moderate renovations were made to the service level, the majority of design efforts focused on the renovation of the office floors, which included private and open plan workspaces, a central circulation core, a “neighborhood center” for formal and informal collaboration, and all related support and amenity spaces (communication center, production areas, break areas, restrooms, and mail facilities).

From a planning standpoint, the design team consolidated and organized the entrances into the private work zones to mediate noise and traffic in these areas and create a sense of architectural rhythm along the central circulation core. The development of the “neighborhood center,” which was positioned between the circulation core and the private work zone, enabled the design team to consolidate previously scattered collaborative areas and provide for a variety of types of collaborative spaces while

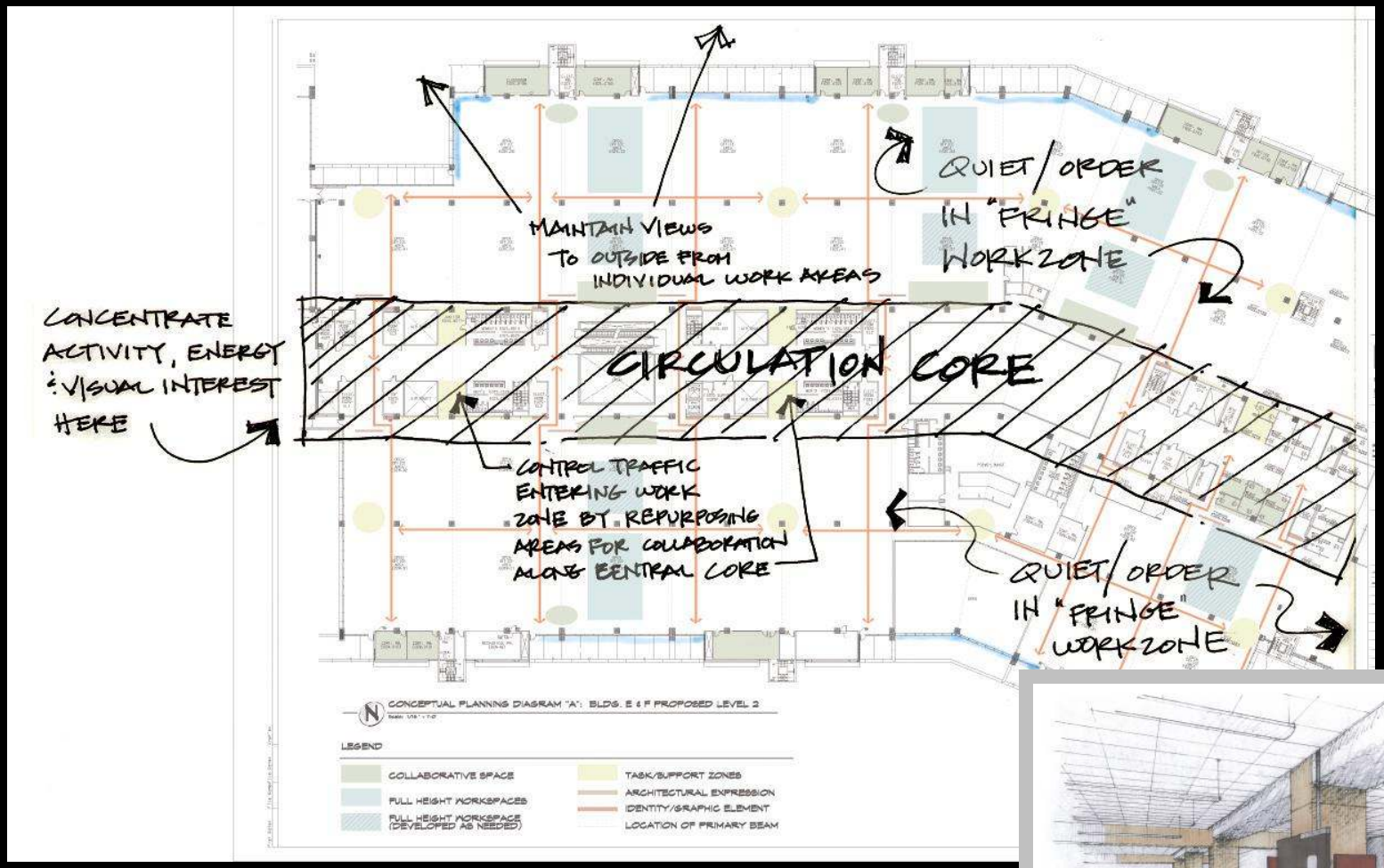
further buffering noise transmission to the private work zone. Additionally, the design of this area included spaces for departmental mail distribution and provided an opportunity to use graphics and colorcoding for departmental identification and wayfinding. The design team also modified existing workstation and private office furniture solutions in response to changing work patterns influenced by new technology and increasing demands for end-user flexibility.

One of the most significant and challenging aspects of the project came from the financial, logistical (asset management), and internal political processes associated with a project of this scale. Every design decision brought an unprecedented degree of scrutiny and evaluation to the design process. As a result, the project team relied extensively on both quantitative and qualitative research to inform key design issues. In addition to engaging industry experts to address lighting and acoustics issues, fieldinstalled mock-ups were created to test proposed furniture and finish choices, and extensive programming exercises were conducted with end-users to understand individual work patterns and perceptions of the overall work environment. Although challenging, the end result was satisfying in terms of aesthetics, function, and sustainability (the project achieved LEED-CI certification). Most importantly, this project demonstrated the benefits of research-informed design decisions in built form and serves as a worthy example of the “theory-to-practice” design model.

1 I was engaged in professional practice as a designer during the programming and schematic design phases of this project. After transitioning to full-time academia, I continued to consult on the design development phase, furniture specifications, and a comprehensive design guideline package for this project.

Fringe Benefits

Preliminary Planning Concept Diagram

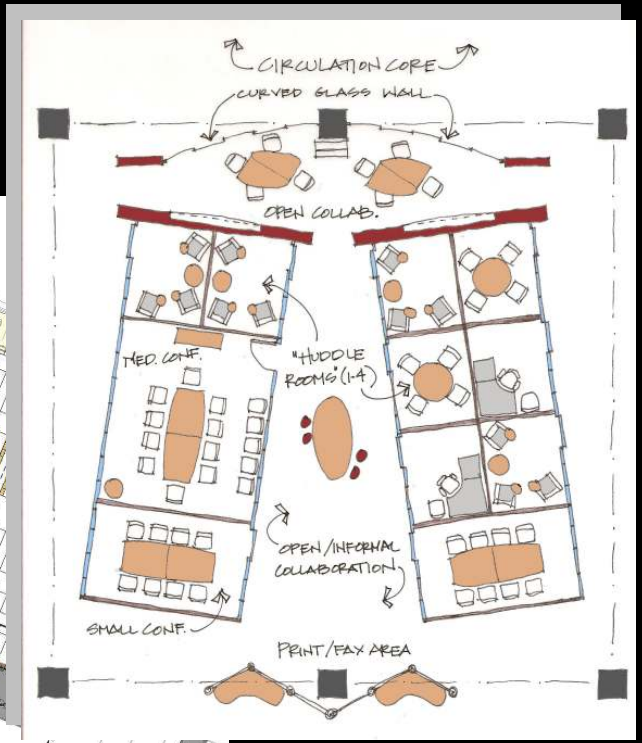


Sketch of proposed “communication center” designed to consolidate both departmental and corporate communication activities (represented by yellow circles on plan above)

Fringe Benefits

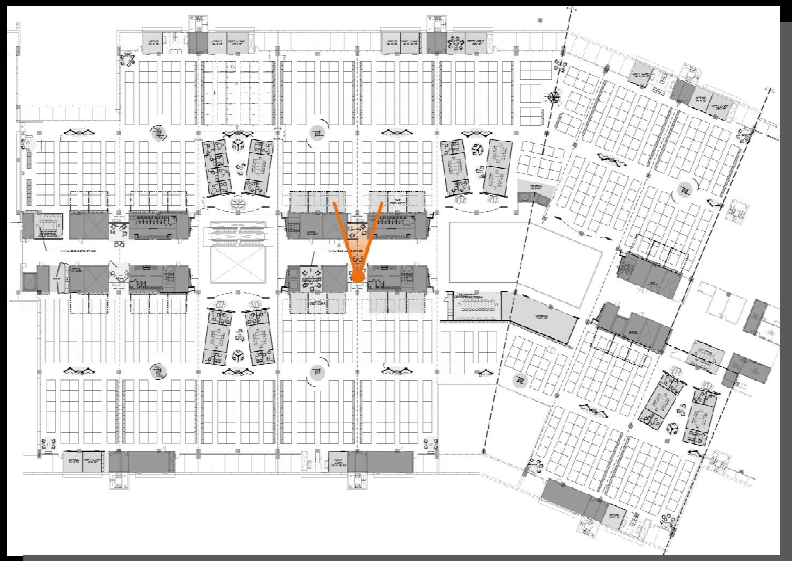
Final Floor Plan

Enlarged “neighborhood center” plan
(demountable walls – configuration varies)



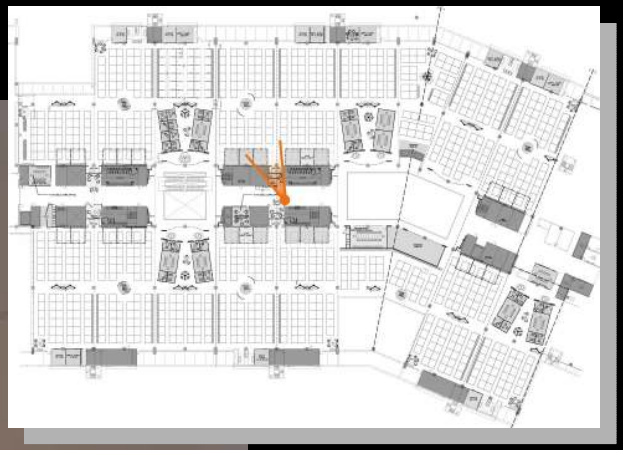
Fringe Benefits

New collaboration area along circulation core showing layering of textural elements



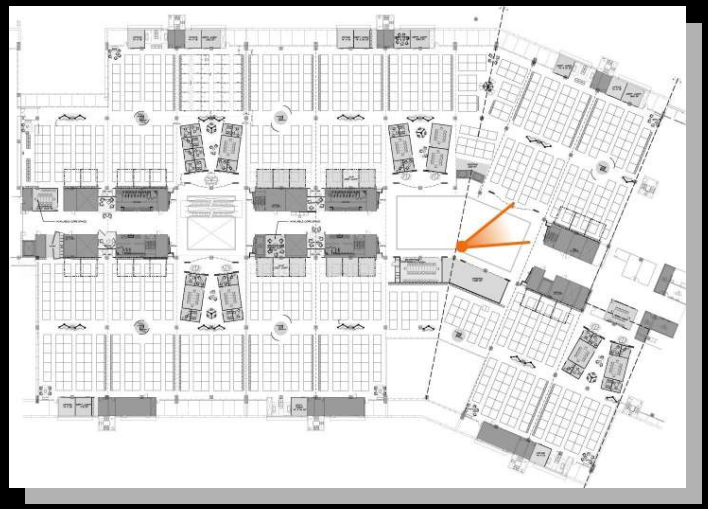
Fringe Benefits

New collaboration area along circulation core showing layering of textural elements



Fringe Benefits

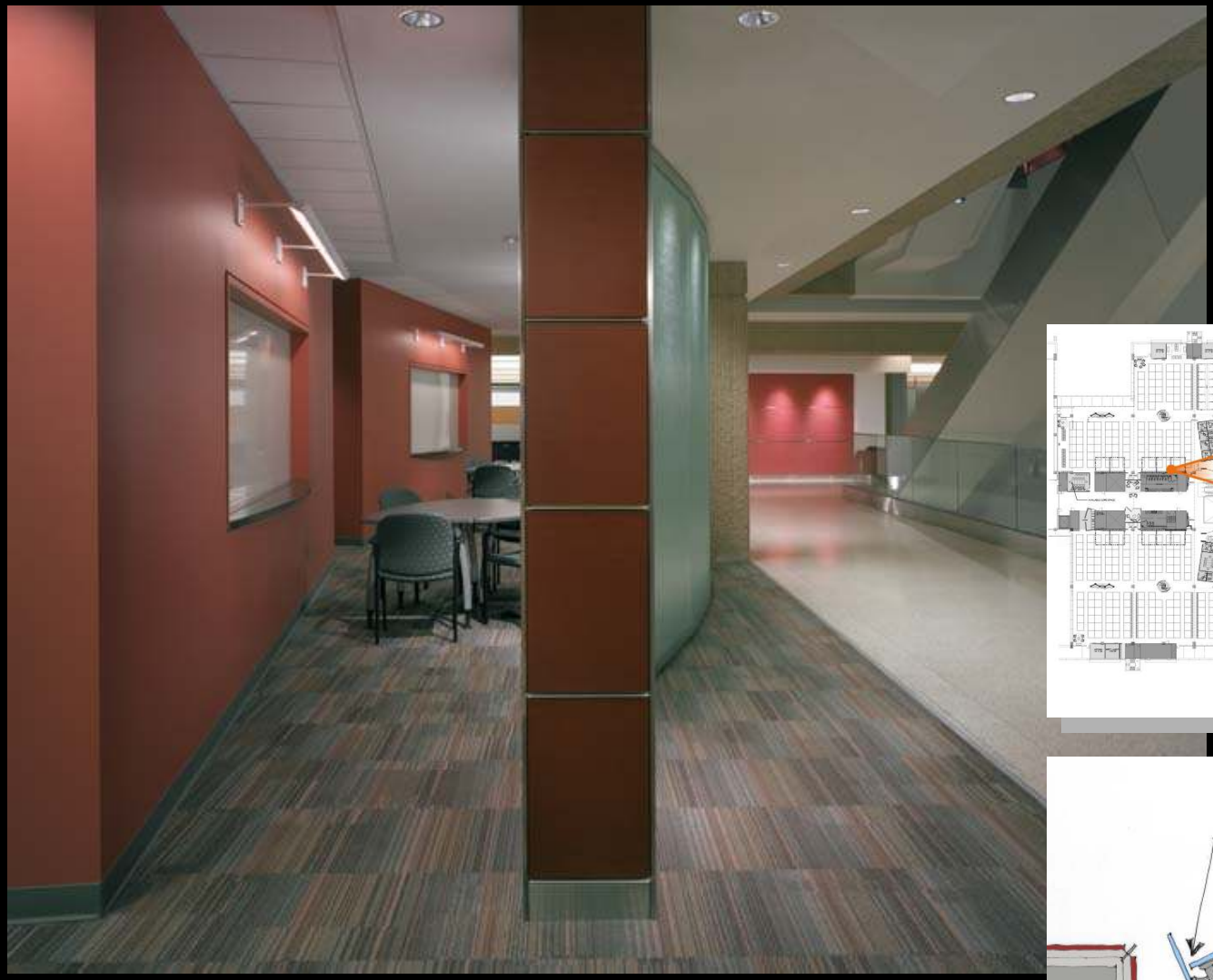
View of new "neighborhood center" (behind curved glass) and new entrance to primary work zone from central circulation core

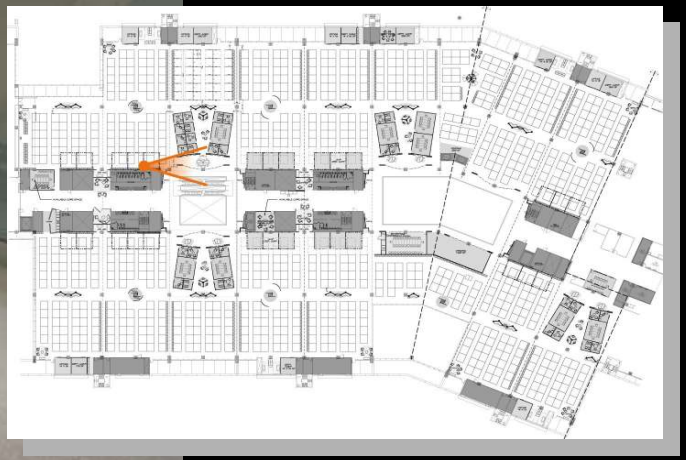


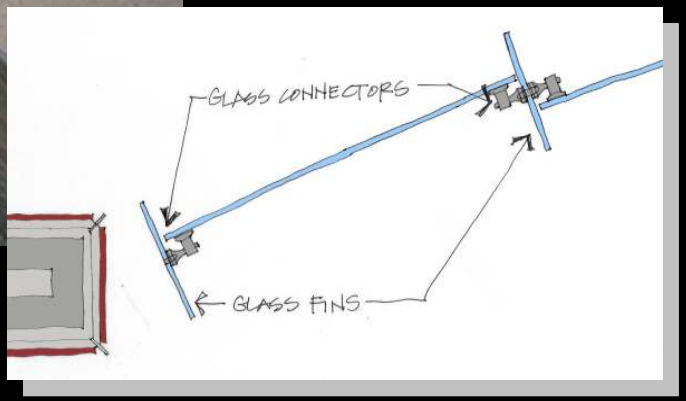
Preliminary sketch of proposed architectural expression at entrances to private work zone; color application varies by department for wayfinding

Fringe Benefits

View of new "neighborhood center" and open collaboration area



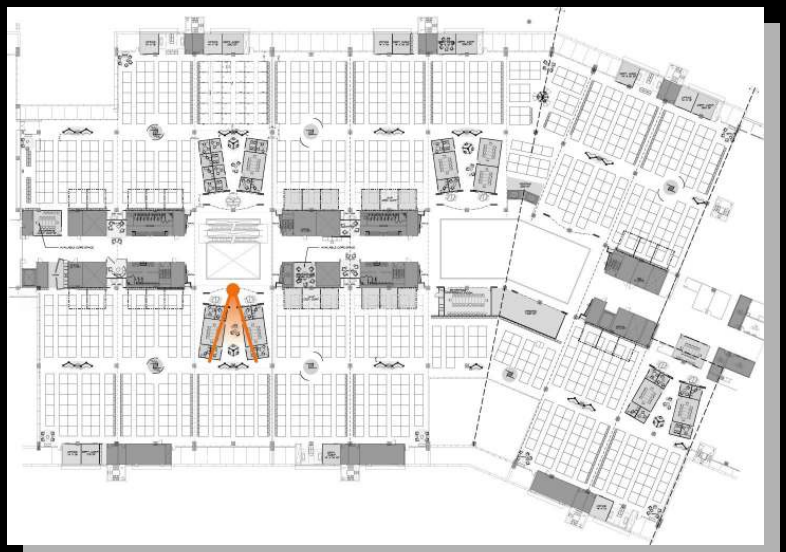




Original curved glass wall detail designed to emphasize layers of glass and activity in collaborative zone. (simplified in final design due to budget constraints)

Fringe Benefits

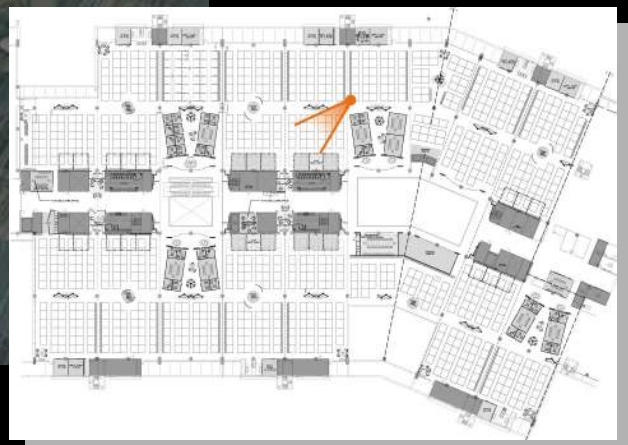
View of new "neighborhood center" and open collaboration area



Preliminary sketch showing view of "neighborhood center" (in background) from work zone

Fringe Benefits

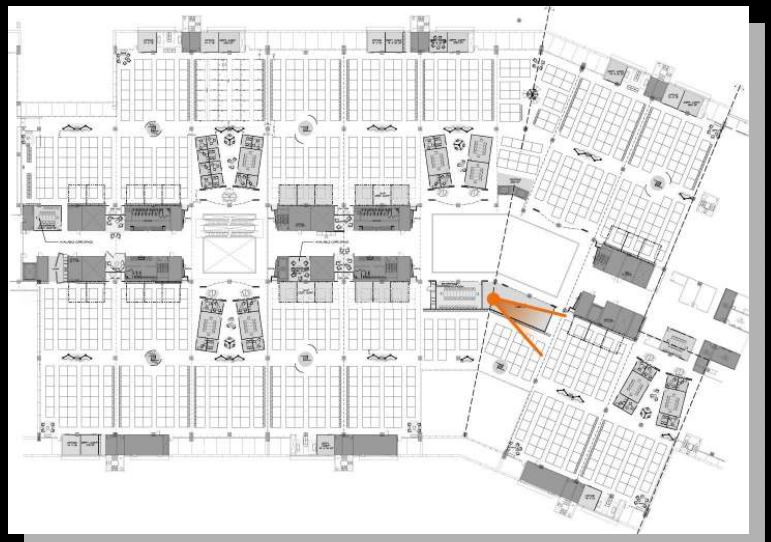
View of private work zone showing refurbished workstations and screens with corporate branding images



Fringe Benefits

View of new break area/lounge

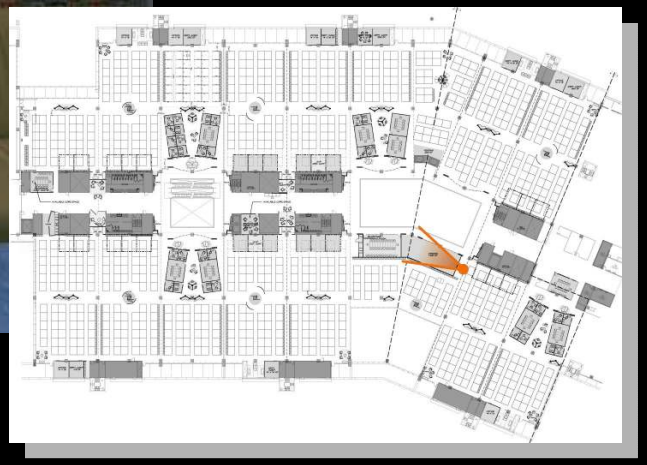
Preliminary sketch of proposed break area design



Fringe Benefits

View of new break area/lounge

Preliminary sketch of proposed break area design



Category of Submission: Design
North Idaho Retreat, 5,200 s.f.

Matthew Melcher

Washington State University Spokane

Program: The program for the *North Idaho Retreat* called for the construction of a new single-family residence on the south bank of the Pend Oreille River in northern Idaho. The clients desired a second home to serve as a four seasons retreat to gather with friends and family. To meet the needs of the clients, the home would have to accommodate the following; sleeping for 6 persons, kitchen with informal dining area, formal and informal living rooms, media room, 2.5 baths, and a separate formal dining room. It was requested that special consideration be given to developing interior and exterior living spaces with strong connections between them.

Site: The site, including three hundred feet of water frontage, is located in the panhandle region of northern Idaho. Nearby amenities include several lakes, alpine ski resorts, and back country hiking trails. The region is subject to a true four-season climate with hot, dry summer seasons and extreme winters. The property is partially wooded and includes an existing cabin that will serve as the future guest cabin. Due to local land use requirements it was necessary to physically connect the two buildings to one another (the pre-existing cabin was also designed by the author and is not included in this submission as it was completed in 2001).

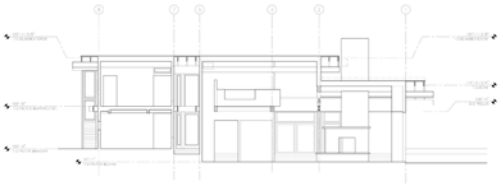
Client Profile: The clients are a married couple with a nine year old child. The wife, a human resource management professional, has a large extended family including 8 siblings who will visit often. The husband is a recent retiree and spends much of his time caring for their son and restoring antique automobiles. He also has a large extended family including two additional sons (by a previous marriage) and 5 grandchildren who will visit often. The couple may spend as much as one half of their time at the retreat home.

Solution: In response to the stated client desires, the author identified the primary project goal: *to design the interior to connect the users to the landscape through multiple means; space design and planning, material and color selection, natural and electric lighting, and building systems*. In order to achieve this goal, the author focused on treating the design of the interior and landscape as a single integrated problem. The architecture then developed as a by-product, serving to mediate between the two – to connect or disconnect as appropriate. In the resulting design, the home is divided into three functional zones; a public living space referred to as *the pavilion*, a private area containing the sleeping quarters, and a service area which includes the garage and mechanical systems. The three zones are separated from one another by circulation paths that are conceptually considered as penetrations of the exterior

landscape into and through the home (*shown as shaded areas on the floor plans*). The living pavilion is bordered on three sides by exterior courtyard spaces serving to visually, spatially, and programmatically connect the interior to the landscape. Material selections connect the user to locally available natural resources including the fir beams and casework, maple floors, locally quarried slate, granite, and concrete. Nearly all of the color in the project is a product of the material selection which is complemented by direct and natural lighting. The painted walls are earth neutrals and intended to recede visually with the exception of the lime green kitchen wall where paint color is used as an accent. Day-lighting is abundantly provided through generous glazed windows, large sliding doors, and a two story skylight channel that brings south light into the kitchen area on the north side of the home. Much of the electric lighting is focused directly onto selected natural material surfaces. These surfaces then serve the function of large luminaries to provide colored light within the interior. The home is heated using a multi-zoned in-slab radiant system. This heat allows for comfort while barefooted and encourages lounging on the floor. Passive cooling is achieved through a system of servo-motor controlled operable windows located as high as 25 feet above the finished floor. Motorized window treatments withdraw into custom built housings integrated into the walls of the pavilion allowing the user to control visual exposure. The heating system, motorized windows, window treatments, stereo, and lighting are all integrated and controlled through a central computer system and each can be remotely monitored and controlled though the internet. Additional features included a steam shower unit, oversized off-center pivot hinge entry doors, an interior steel bridge and cantilevered overlook.

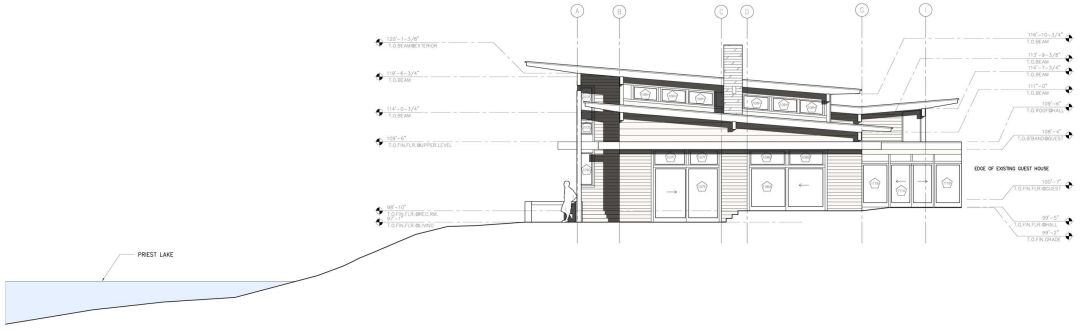
Responsibilities: The author was responsible for the architectural design, interior design, landscape design, casework design, and lighting design for the *North Idaho Retreat* including all construction administration and consultant coordination. In addition, the author was responsible for the selection and specification of appliances, equipment, materials, color and finishes.

BUILDING SECTIONS



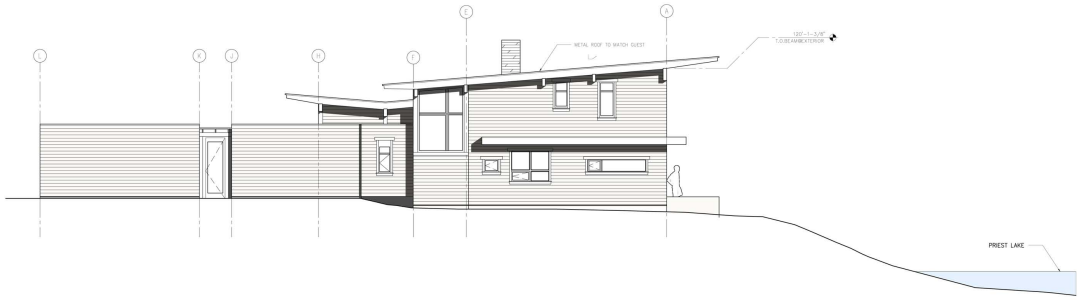
NORTH IDAHO RETREAT

IDEC 2009 CREATIVE SCHOLARSHIP COMPETITION



WEST ELEVATION

SOUTH ELEVATION



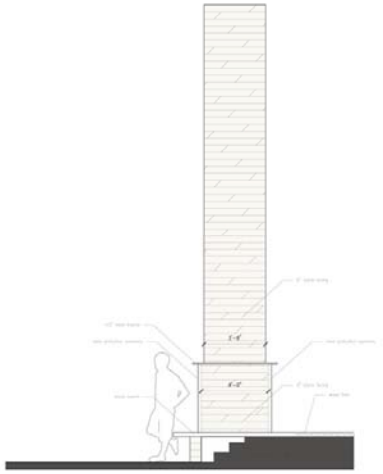
EAST ELEVATION

NORTH ELEVATION

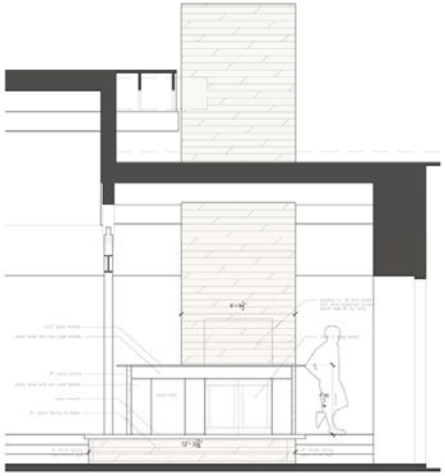
FIR CASEWORK, CLOUD LIGHTING

CUSTOM STEELTABLE, LIME WALL

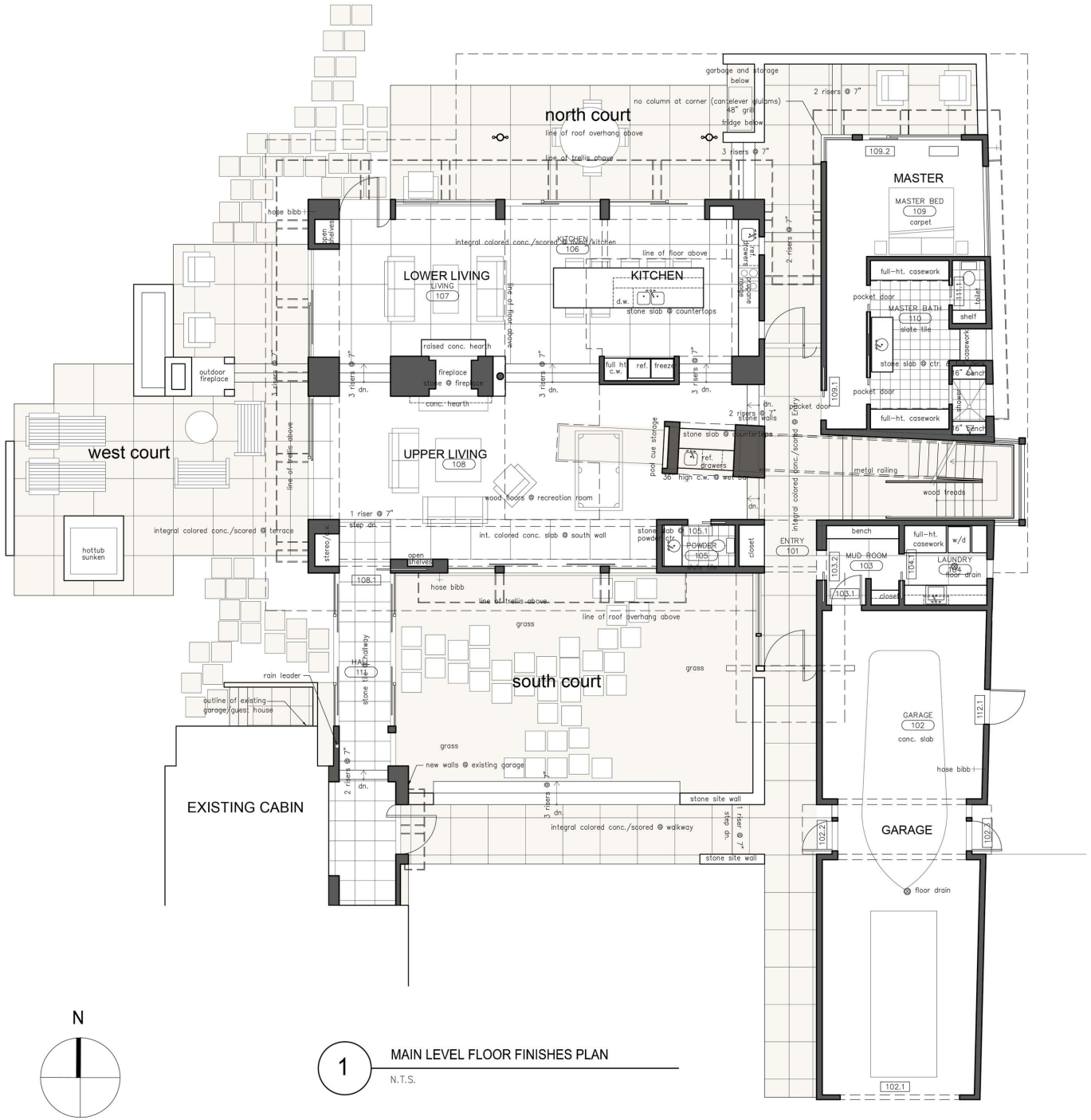
STAINED MAPLE STAIR, STEEL BRIDGE

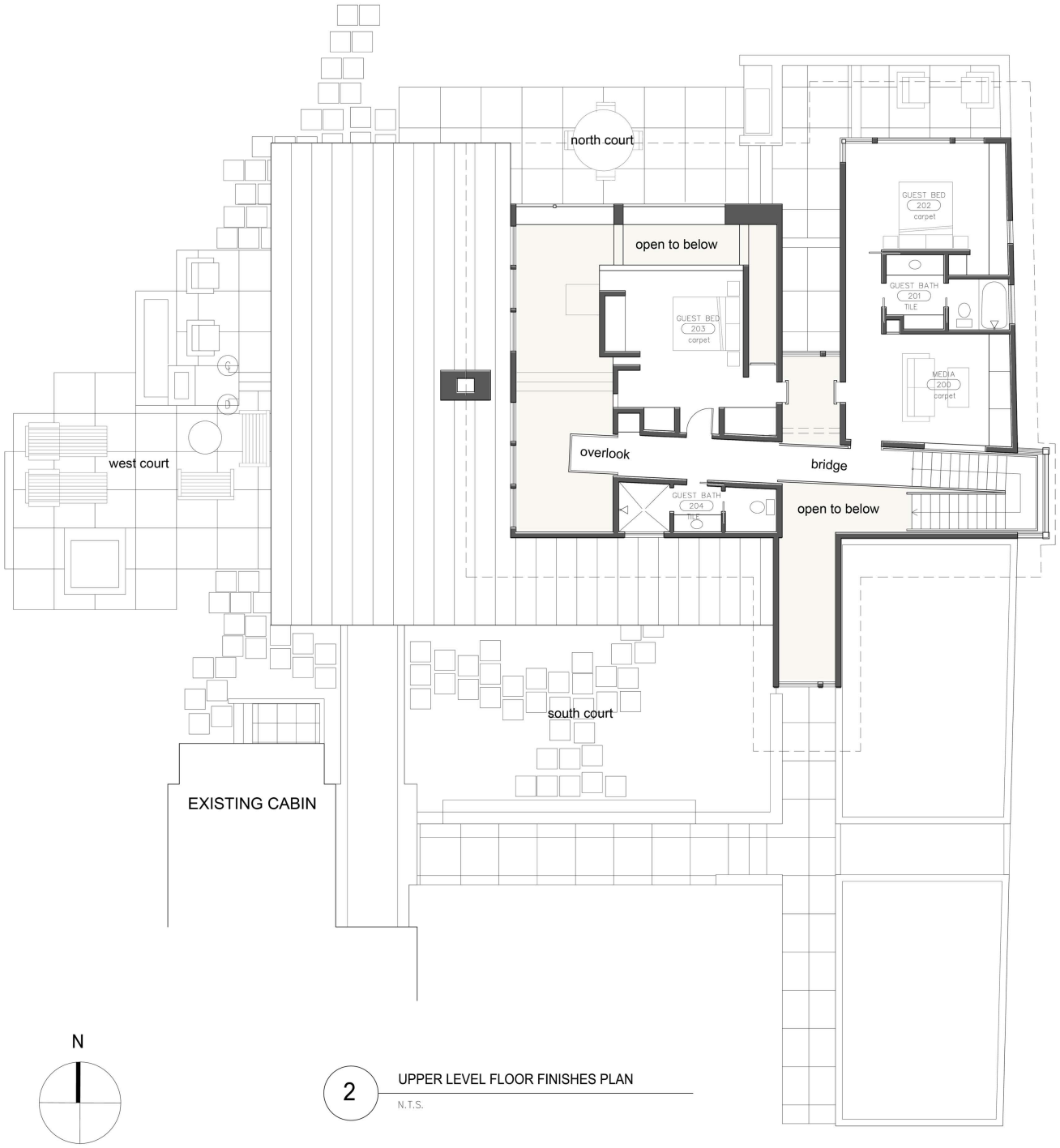


UPPER LIVING ROOM PALETTE: MILD STEEL, V.G. FIR, SLATE, MAPLE, LEATHER, WOOL



SLATE AND STEEL FIREPLACE DETAILS AT LIVING ROOM


north court
west court
south court
LOWER LIVING
LIVING
107
KITCHEN
106
UPPER LIVING
108
MASTER
MASTER BED
109
carpet
MASTER BATH
110
ENTRY
101
MUD ROOM
103
LAUNDRY
104
POWDER
105
HALL
111
GARAGE
102
EXISTING CABIN
garbage and storage below
no column at corner (cantelever allums)
line of roof overhang above
line of trellis above
line of floor above
hose bibb
integral colored conc./scored @ main kitchen
d.w.
stone slab @ countertops
raised conc. hearth
fireplace
stone @ fireplace
conc. hearth
outdoor fireplace
full ht. ref. freezer
pocket door
full-ht. casework
shelf
slate tile
stone slab @ ctr.
16" bench
shower
toilet
casework
pool cue storage
ref. drawers
36" high c.w. @ wet bar
wood floors @ recreation room
metal railing
wood treads
integral colored conc./scored @ Entry
stone walls
int. colored conc. slab @ south wall
stone slab @ powder ctr.
bench
full-ht. casework
w/d
floor drain
closet
open shelves
stereo/tv
hottub sunken
integral colored conc./scored @ terrace
1 riser @ 7" step dn.
2 risers @ 7"
3 risers @ 7"
grass
rain leader
outline of existing garage/guest house
stone hallway
new walls @ existing garage
stone site wall
integral colored conc./scored @ walkway
conc. slab
floor drain
hose bibb
N
1
MAIN LEVEL FLOOR FINISHES PLAN
N.T.S.



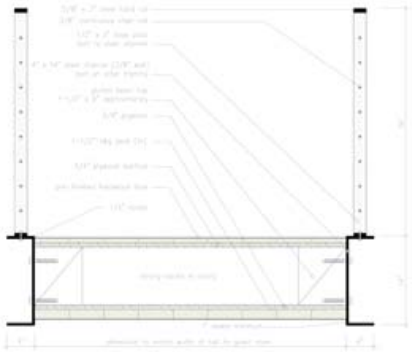
2 UPPER LEVEL FLOOR FINISHES PLAN

N.T.S.

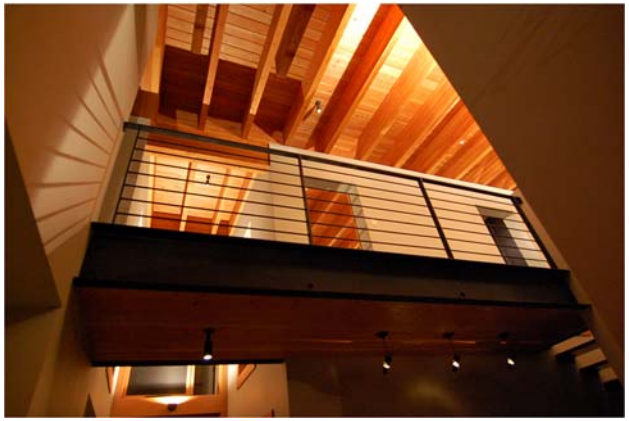
FIR BEAMS, UP-LIGHTING

STAINED MAPLE FOOR, WINDOW WALL

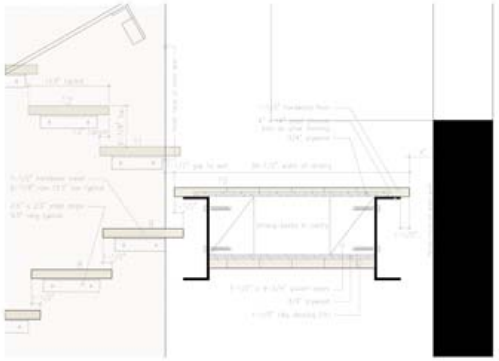
STEEL STRUCTURE AND FIREPLACE



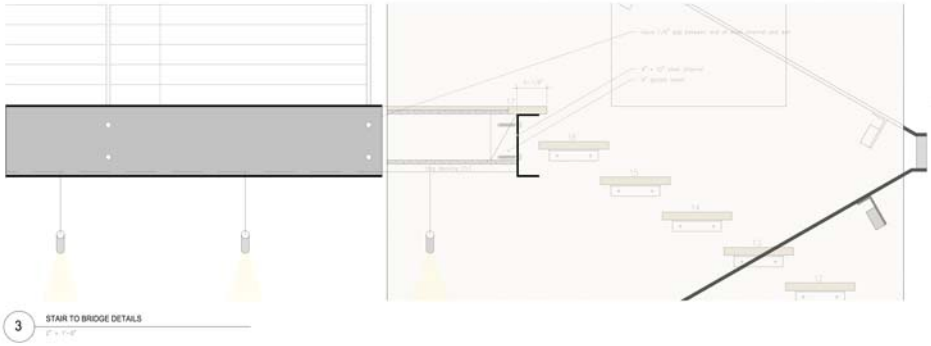
2 BRIDGE SECTION



STEEL BRIDGE FRAMES GALLERY WALL BELOW



1 LANDING SECTION



3 STAIR TO BRIDGE DETAILS

STAIR AND BRIDGE DETAILS

GUEST LOFT ABOVE KITCHEN

VIEW OF RIVER, NORTH COURT, AND WEST COURT FROM LIVING

UPPER LIVING ROOM FROM HALL

MAPLE STAIR SPILLS INTO GALLERY

HALL CONNECTS TO ORIGINAL CABIN

KITCHEN, DINING, BAR, GUEST LOFT

Category of Submission: Design
Intimate Immensities; miniatures, an interior architecture;

Andrea Mina

RMIT University
Melbourne, Australia

Small scaled objects and manual modelling are at the core of my research which is being undertaken through a doctorate which at present has as its working title ‘Intimate Immensities; miniatures, an interior architecture’.

The central focus of this research investigates the manual making of small scale objects which for the ease of this discussion may be referred to as miniatures. However these objects do not refer to a larger scaled version of something else nor do they reference any particular precedent. They are ‘things’ unto themselves and are made at a scale which is in fact one is to one. In this sense it is preferable to refer to them as objects rather than as models as the reference to models would have the implication they are smaller scaled versions being used to represent something else which would be manifest at a larger scale.

Through the use of common materials and in some instances their seemingly unlikely application, an architecture at full-scale has been/is being constructed following a working method that has as its premise the notion that an architecture at the point of destruction/disintegration may be redeemed through concerns for the ‘interior’.

The work is predicated on ideas of tensions; tension between durability and fragility, between completion and destruction, between erosions and revelations, between the object and the frame and between making and the exclamation thereof.

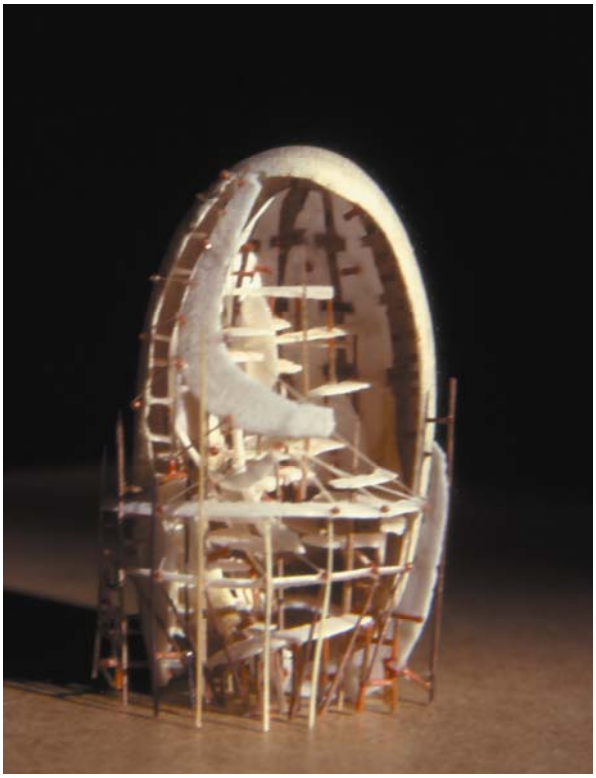
One of architecture’s most fundamental characteristics is its capacity to provide for and accept human occupation. If we accept we can and may be projected into extraordinary mental spaces albeit for infinitesimally small moments of time and in doing so virtually occupy two spaces in the same moment of time, then the work may be viewed in the context of a very particular type of architecture. This is architecture at full scale but at a very small and enigmatic size. Through its form and by the images it may evoke or project the work may act as catalyst and facilitator for momentary flights of fancy driven by personal narratives in the hope for those split-second moments of occupation.

To physically encounter the diminutive is in itself an experience of disjuncture. It is these immeasurable moments of virtual occupation that are the central concerns of this work and it is to this end that the individual pieces remain untitled, freed from prescriptive narrative desiring to remain material instead of metaphysical. Central to my research is the idea that we cherish within us an innate common architectural imagining capable of being triggered through associations and composition. Yet it is through these

miniatures' overt architectural connotations and their strong assertion of interiority (and hence inhabitation) that there is aspiration in the making for the object to act as a catalyst for projections into this common architectural imagining and thus simultaneously, an occupation of those virtual spaces. These highly personal and infinitesimal spaces of imaginative flight are analogous to those daydreams described by Bachelard,

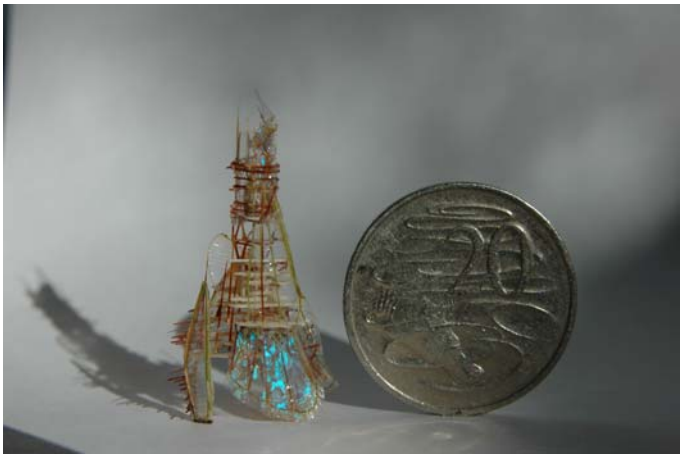
'Daydreams of this sort are invitations to verticality, pauses in the narrative during which the reader is invited to dream. They are very pure, since they have no use.'1

Untitled #1: 50mm diameter x 110mm high, balsa wood, cuttlefish bone, seaweed stalk and pods, jarrah timber, pine, red gum, cat hair, pva glue



Untitled #2: 15mm diameter x 35mm high, balsa wood, cuttlefish bone, seaweed stalk and pods, jarrah timber, pine, red gum, bamboo, pva glue.

Untitled #3: 15mm diameter x 25mm high, balsa wood, sea urchin spine, cat hair, pva glue.



Untitled #4: 10mm diameter x 20mm high, cuttlefish bone, sea urchin spine, cactus spike, cicada wing, butterfly wing, pva glue.

Category of Submission: (Design)

Insertions

Charlotte Pease

Western Michigan University

This pool and support spaces are located in a twelve-story building, whose users include: condominium owners, apartment residents, and guests of the hotel. It is located off of the second floor lobby, to which, it is visually and physically accessible.

This project proposes an interesting point of discussion for the Interior Design Program's materials class, particularly how materials react to moist environments and in utilizing a material in a variety of ways.

Wood insertions were used to introduce a warmer and expanded material palette, as well as, define distinct seating areas. A metal railing between the fitness area walkway and the pool deck was removed and a twenty-five foot long wood bench was built. This provides expanded seating for the pool and jacuzzi, and opens the space up for better visual monitoring. Another insertion was a ten-foot high, twenty foot long, freestanding wall. This wall screens the locker area, provides a designated space for towel storage, and defines a seating zone. Additionally, a wood liner was introduced along one end of the space to make a strong material and textural statement. Along its length, the liner transforms from cladding, to shelving, to veil for windows into an adjacent corridor.

Emphasis on the pool is created by translucent canopies above the pool that filter daylight as it enters the space and can be illuminated at night. The suspended panels provide another material utilized in the space, help with acoustics, and visually lower the height of the roof above the pool.

The expanded material palette, new finishes, and division of the original large space into smaller, more defined zones have dramatically changed the perception of the pool area.

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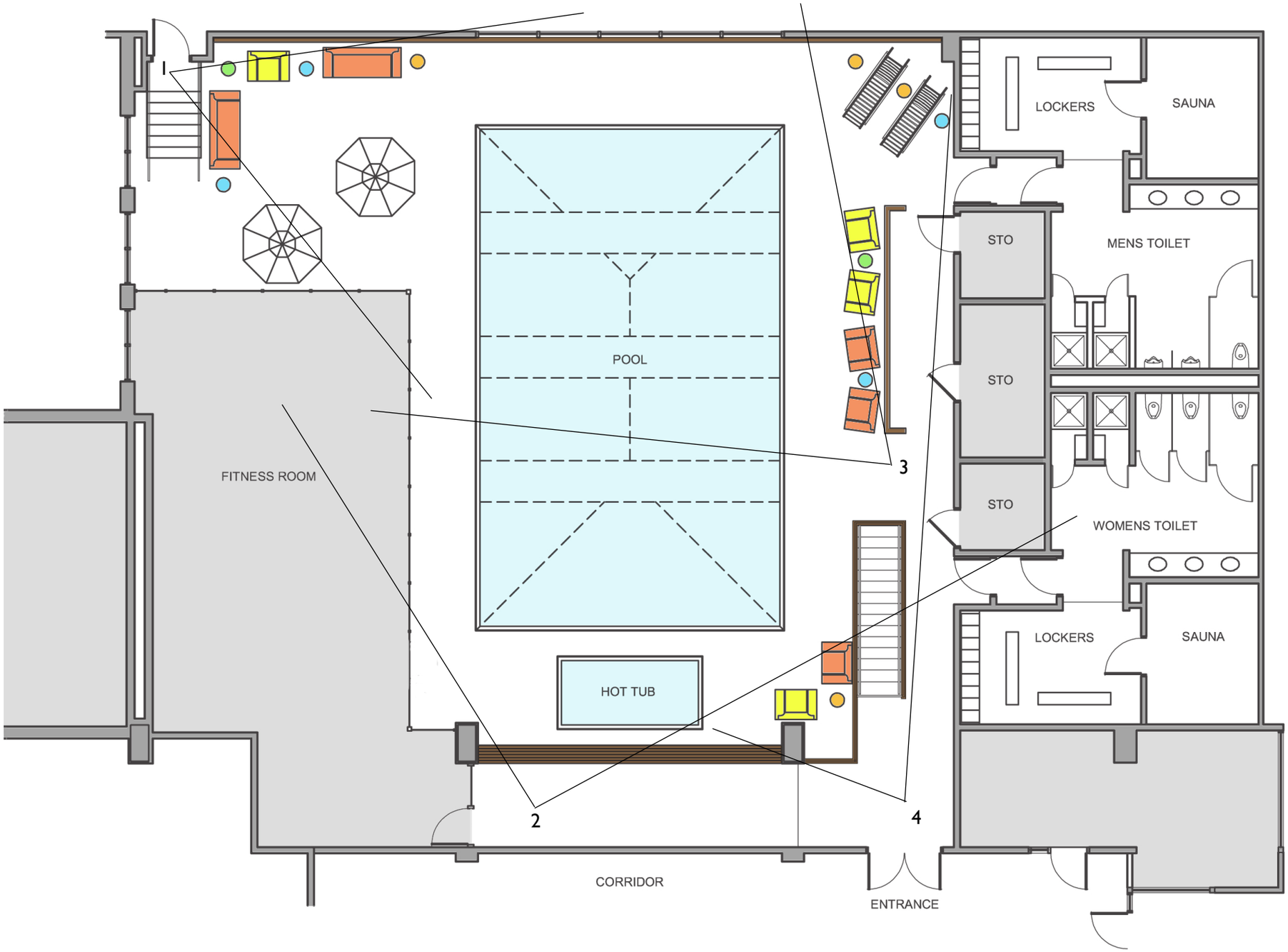
INSERTIONS


1
FITNESS ROOM
POOL
HOT TUB
2
3
4
CORRIDOR
ENTRANCE
LOCKERS
SAUNA
STO
MENS TOILET
STO
STO
WOMENS TOILET
LOCKERS
SAUNA

1

2

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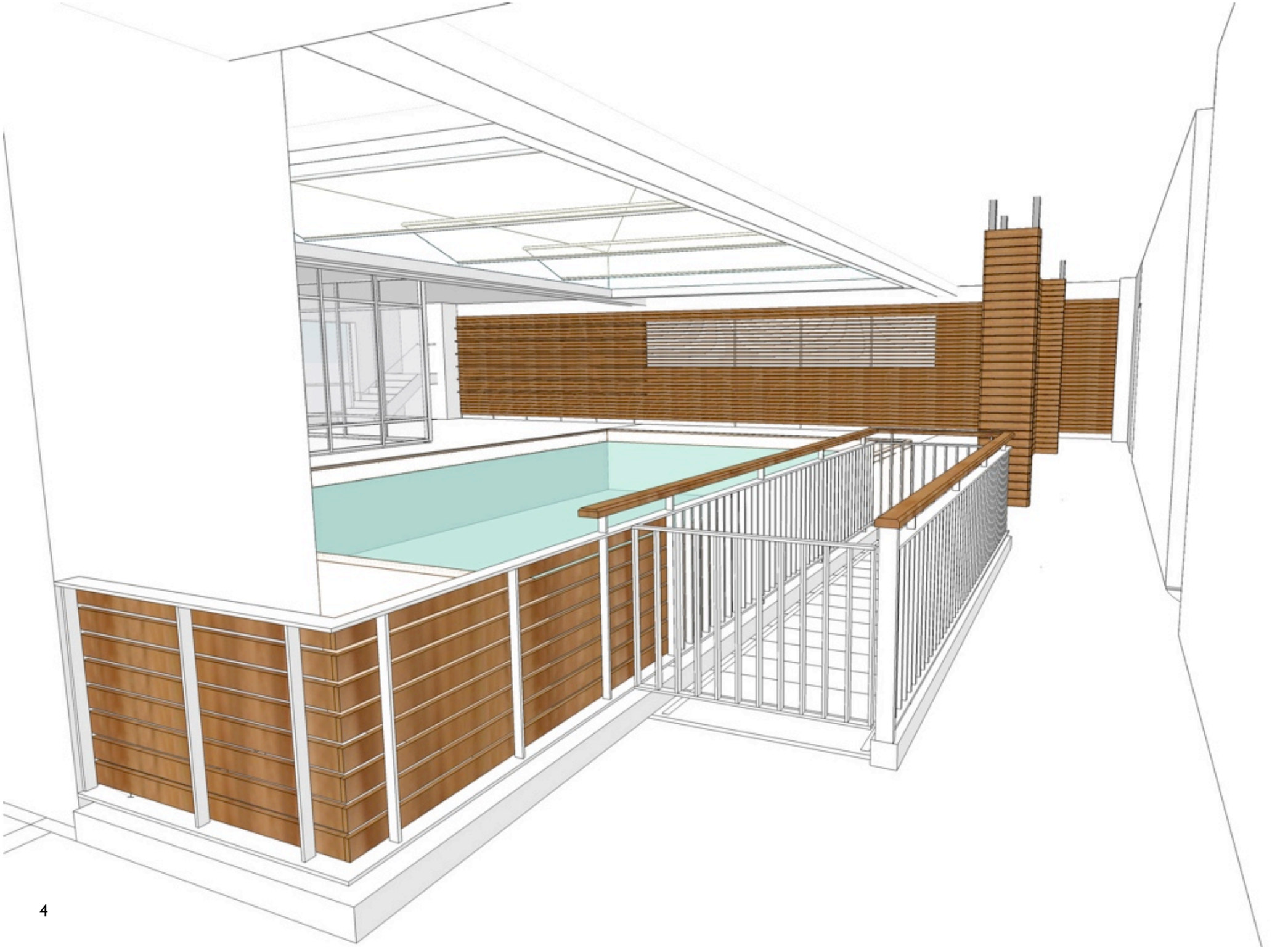

4

3 FT
3 FT