DESIGN AND SOCIAL JUSTICE

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# Table of Contents

## PAPERS

### TEACHING AND PEDAGOGY

BRUNNER, Lori .............................................................................................................................................9  
**Student Perspectives on Design, Learning, and Interior Design Education**  
(*Creative Process, Curricular Development*)

EDWARDS, M. Jean ....................................................................................................................................18  
**Challenging Residential in a Second-Year Design Studio: A Case Study**  
(*Creative Process, Theoretical and Conceptual Development*)

GUERIN, Denise and MARTIN, Caren ........................................................................................................27  
**Educators’ Opportunity to Determine What Happens Next to the Body of Knowledge!**  
(*Current Issues*)

JANI, Vibhavari and ASOJO, Abimbola ......................................................................................................38  
**An investigation of non-Western Perspectives in Interior Design Curriculum**  
(*Current Issues, Diversity, Global Issues, History*)

LU, Jiang .......................................................................................................................................................48  
**Global Cultural Experience through Mediators**  
(*Global Issues*)

MARTIN, Caren and GUERIN, Denise ........................................................................................................57  
**Integrating the Use of Research into the Design Process Experience**  
(*Research Methods*)

PARKINSON, Sharran, HARRIS, Debra and HAVENHAND, Lucinda .....................................................68  
**Creating a PhD Program in Design Environments**  
(*Current Issues, Curricular Development, Design Specialties, Environmental Quality, Global Issues*)

WALLACK, Catherine and WEBB, Jennifer ..............................................................................................75  
**Sustainability: An Exploration of Process and Project**  
(*Green Design*)

WEBB, Jennifer and MILLER, Nancy ..........................................................................................................82  
**Team Diversity: Building Strong Collaboration**  
(*Diversity*)
THEORY AND RESEARCH

ANDERSON, Barbara G., HONEY, Peggy L., and DUDEK, Michael T. .......................................................... 91

Interior Design’s Social Compact: The Missing Aspect of Our Quest for Professional Legitimacy
(Theoretical and Conceptual Development)

BARNES, Brooke, KANG, Mihyun, and CAO, Huantian ........................................................................... 99

Sustainable Characteristics of Earthbag Housing
(Green Design)

BEECHER, Mary Anne .................................................................................................................................... 107

“No Unimportant Folk: Lessons from the Social Justice Agenda of Martha Van Rensselaer”
(Current Issues, Gender Issues, History)

BENDER, Diane and MCCOY, Janetta ........................................................................................................ 115

Post-Graduate Design Education: A Feasibility Study of the Related Design Disciplines
(Current Issues, Curricular Development)

CARMEL-GILFILEN, Candy .................................................................................................................. 124

Recognizing, Understanding, and Implementing Crime Prevention and Design Strategies within Retail Settings
(Current Issues, Design Specialties, Human Behavior)

CLEMONS, Stephanie, WAXMAN, Lisa, CONIS, Nicole, MCKELFRESH, David, and BANNING, James ................................................................................................................................. 138

Infusing Third Place Theory into a Studio Environment: A Qualitative Inquiry
(Human Behavior)

CLINE, Holly and BEAMISH, Julia ........................................................................................................... 148

Examining Cooking Patterns by People in Wheelchairs
(Diversity, Special Populations)

EDWARDS, M. Jean ...................................................................................................................................... 155

Technology vs. Domesticity in the Farnsworth and Johnson Glass Houses
(History)

HADJIYANNI, Tasoulla .............................................................................................................................. 165

Homes as Sacred Places – Difficulties Endured by Minnesota’s Hmong and Somali Refugees
(Current Issues, Diversity, Human Behavior, Special Populations)

HARRIS, Debra ........................................................................................................................................... 174

Flooring in Patient Units: Testing Carpet Tile Seam Integrity for the Impediment of Microbial Contamination and Moisture to the Backing and Subfloor
(Design Specialties, Environmental Quality, Materials and Fabrication, Special Populations)
KAUP, Migette

An Analysis of Resident Room Design in the Changing Culture of Long-term Care: Examining the Design of Spaces that Promote Resident Autonomy
(Special Populations)

KAUP, Migette

Rethinking Nursing Home Architecture: Why Skilled Care Environments Don't Really Feel Like Home (and What We can do About It)
(Special Populations, Theoretical and Conceptual Development)

KOPEC, DAK and LACAPRA, Damon

Environmental Stimuli: Enhancing Perception and Cognition Among Infants and Toddlers
(Human Behavior, Special Populations)

LEE, Seunghae

Employee Satisfaction, Perceived Organizational Support, and Organizational Commitment in Alternative Officing
(Human Behavior)

MARSDEN, John

Design of Assisted Living Based on Perceptions of Older Adults and Family Members
(Special Populations)

MARSDEN, John, DICKINSON, Joan, and ANTHONY, Lori

Empirical Design Research: Faculty Definitions, Perceptions, and Values
(Current Issues)

MATTHEWS, Carl and HILL, Caroline

Sexism, Femininity, and the Language of Interior Design
(Current Issues, Gender Issues, Theoretical and Conceptual Development)

MAY, Bridget

Nancy Vincent McClelland: Advancing the Interior Design Profession in the Early 20th Century
(History)

NELSON, Mark

Gender, Interiority and Status in Architectural Theory: A Pattern of Downgrading the Feminine
(Gender Issues)

PABLE, Jill

Quick Three-Dimensional Sketches: Educator and Practitioners’ Use, Personal Competency, and Perceptions of Interior Design Student Preparedness
(Creative Process)
PERRITT, Mitzi R., CALHOON, Rhonda S., MCCUNE, E. D., and MCCUNE, Sandra L. .......................... 282
Effect of Light Source and Direction on the Cognitive Performance of College Students with ADHD
(Lighting)
RENGEL, Roberto and LIN, Yu Fong ........................................................................................................ 291
Typology of the Workplace
(Criticism, History, Research Methods)
SAHOO, Smita and HASSELL, Mary Joyce .............................................................................................. 302
Exploring Transparent Security Design: End Users Evaluate Their Personal Security
(Design Specialties, Human Behavior)
STAUFFER, Randy .................................................................................................................................... 315
The Poché: The Intersection between Ethics and Design
(Theoretical and Conceptual Development)
WACHTER, Hans-Peter .................................................................................................................................. 327
Online Interior Design Studio: Access and Student Experience
(Curricular Development, Human Behavior, Special Populations, Theoretical and Conceptual Development)
ZHU, Yun ................................................................................................................................................... 335
Participation as Learning-by-Doing in Habitat for Humanity
(Diversity, Human Behavior, Special Populations)

PRACTICE

DANIEL, Cherdena, DRAB, Ted, KANG, Mihyun, and RICHARDS, Lynne........................................... 344
Fortifying African American Identity: Designing a Theme Park Environment
(Diversity)

TEACHING FORUMS

COMMUNICATIONS AND MEDIA

FENG, Jin.................................................................................................................................................... 356
Presentation Inspired by Installation Art
(Creative Process)

TEACHING AND PEDAGOGY

CLINE, Holly .............................................................................................................................................. 365
Disability Ability: Providing Experiential Learning Experiences in a Large Lecture Format
(Diversity, Special Populations)
CRUMPTON, Amy and CARROLL, Robin ................................................................. 376

*Construction Through Design: A Three-Dimensional Project Experience*

(Curricular Development)

DONG, Wei and SCOTT, Suzanne .............................................................. 384

*Cultivating Culturally Literate Designers: Experiential Learning of Chinese Feng Shui and Its Application to Design*

(Current Issues, Global Issues)

HARRIS, Kent and ESKEW, Nita ................................................................. 386

*An Interdisciplinary Approach to Sustainable Design*

(Current Issues, Environmental Quality, Green Design, Materials and Fabrication)

HEGDE, Asha ................................................................................................. 395

*People Learn by Doing: Introducing Lighting Design Problem Solving in a Lecture Class*

(Curricular Development, Lighting)

LEE, Seunghae ............................................................................................... 407

*Instructions on Building Codes: Compliance with IBC 2006*

(Curricular Development)

PETERTSON, Tom, BROOKS, Darrin, MANSFIELD, Steve, and ROWE, Victoria ............... 413

*Smart and Sardonic: An Artist's Work Helps Students Rethink Design Process*

(Creative Process, History, Materials and Fabrication, Theoretical and Conceptual Development)

POLDMA, Tiitu ................................................................................................. 415

*Living in Complexity: Building Human Issues into Design Studio Experiences*

(Current Issues, Environmental Quality, Green Design, Human Behavior, Special Populations)

SONG, Jihyun .................................................................................................... 422

*Seeing and Thinking Volumetrically*

(Creative Process, Theoretical and Conceptual Development)

UBER, Terrence ............................................................................................ 425

*Bringing History into the Design Studio: Developing Historic Studio Projects as Educational Tools*

(History)

WALLACK, Catherine and MILLER, Nancy ...................................................... 432

*The Quilt Project: Stitching Together Material Culture, Motifs, and Meaning*

(Curricular Development)

PRACTICE

PEEK, Paula Frances, BIEAK-KREIDLER, Nicole, and FRANSON, Melissa ......................... 442

*Healthy Homes - Designing for Low Cost Housing*

(Current Issues, Environmental Quality, Green Design, Materials and Fabrication, Research Methods)
POSTERS

COMMUNICATIONS AND MEDIA

RANSDELL, Marlo ........................................................................................................................................ 446
The Online Learning Community in Interior Design
(Computers, Curricular Development)

TEACHING and PEDAGOGY

SWEARINGEN, Sally Ann and BRIDWELL, Leisha M. ........................................................................ 452
Implementing Green Design and Sustainability: A Prototypical House of the Future
(Green Design)

THEORY AND RESEARCH

HARRIS, Debra, BRANG, Melanie, HARPER, Lauren, JORDAN, Sandra, LAST, Christina, MANOS, Melissa, MAS, Jacqueline, and STEWART, Viviana ........................................................................... 460
Single Family Room (SFR) Neonatal Intensive Care Unit (NICU) Design: Testing Space Allocations for the Redesign of Existing NICUs for the SFR Configuration
(Current Issues, Design Specialties, Special Populations)

MOODY, Dana and VINEYARD, Michelle ........................................................................................... 471
The Evolution of Domestic Kitchen Design: Influence of the Social Determinants of Health During the Industrial Revolution
(History)

CREATIVE SCHOLARSHIP

INTERIOR DESIGN

CLARK-BROWN, Nancy ......................................................................................................................... 479
Mobius Kids
MERCER-BALLARD, Jeanne .................................................................................................................... 485
Mountain Island Branch Library
PABLE, Jill ................................................................................................................................................. 489
Homeless Shelter Design: A Psychologically Recuperative Approach
PARK, Jinbae .............................................................................................................................................. 496
Silo Café, NYC
VISUAL ARTS

COZZENS, Tim ..........................................................................................................................................500

Entry Table Series

GLOECKLER, Tad.....................................................................................................................................505

Arrived Perfect

NELSON, Mark ........................................................................................................................................507

Vestigial Architecture Gallery

SCHAFFER, Maura ....................................................................................................................................513

Renoir's Lunch

SCHAFFER, Maura ....................................................................................................................................516

The Lovers
Student Perspectives on Design, Learning, and Interior Design Education

Lori Brunner

Abstract

PURPOSE

The purpose of this study is to investigate how students conceptualize their learning and design experiences in an undergraduate interior design accredited program. In particular, how do they rate their own abilities in general skills and student preparedness, what interior design skills and knowledge areas are important to them, as well as what design activities are most significant and least significant in the design process? Many scholars argue that prior knowledge is an essential variable in design learning. However, if students’ perceptions of design are incorrect, inconsistent, or incompatible with experts, radical conceptual change is required in order to modify these misconceptions.

CONTEXT

Two initiatives spurred development of this research of interior design students’ perspectives—the interior design body of knowledge document and discussion (Martin & Guerin, 2005), and a recent university-wide student profile from the Office of the Provost on students’ opinions of their undergraduate experiences (CIRP; NSSE). Both draw attention to the fact that there is a need for research and discussion about interior design students’ perspectives.

Central to this study are metacognition in education, and novice conceptions of design. Dewey (1933) argues that the development of reflective thought is the most important goal of education. Metacognition is the monitoring and control of thought (Flavell, 1976). Also, Newstaller and McCracken (2001) believe that design students have well-developed prior conceptions and theories about the nature of design that conflict with understandings held by expert designers. Chi, Glaser, and Farr (1998) caution prior knowledge, however, is often incorrect.

SUMMARY OF RESULTS

The results of the survey highlight three central themes for discussion. First, both the larger university population and the interior design students rated themselves quite poorly on public speaking ability. This was consistent across grade levels. With numerous requirements for oral presentations in the interior design curriculum, why are students’ ratings so low? Second, learning theories and theories related to interior design were consistently rated as least important in comparison to the other interior design skills and knowledge areas. However, as the metacognition literature suggests, it is critical for students to understand the importance of monitoring and regulating one’s own thinking and learning. In addition,
interior design education has consistently stressed the importance of evidenced-based research and the value of research in the design studio (Guerin & Thompson, 2004). Are there discrepancies between students’ and educators’ perceptions of important aspects of design studio education? If prior knowledge is incompatible with expert understanding, the most drastic form of conceptual change is required because this knowledge is highly resistant to change. Third, the student group as a whole, as well as groups by grade level consistently revealed novice design conceptions in their beliefs of most important and least important design activities. Further study is needed to explore students’ meanings of several of the listed design activities. How does one understand a problem without first decomposing, abstracting, and synthesizing? Or, is the language the real issue between design disciplines, and/or between design educators?

REFERENCES

2005 Cooperative Institutional Research Program (CIRP).
2005 National Survey of Student Engagement (NSSE).
Student Perspectives on Design, Learning, and Interior Design Education

PURPOSE

The purpose of this study is to investigate how students conceptualize their learning and design experiences in an undergraduate interior design accredited program. In particular, how do they rate their own abilities in general skills and student preparedness, what interior design skills and knowledge areas are important to them, as well as what design activities are most significant and least significant in the design process? Many scholars argue that prior knowledge is an essential variable in design learning. However, if students’ perceptions of design are incorrect, inconsistent, or incompatible with experts, radical conceptual change is required in order to modify these misconceptions.

CONTEXT

Two initiatives spurred development of this research of interior design students’ perspectives—the interior design body of knowledge document and discussion (Martin & Guerin, 2005), and a recent university-wide student profile from the Office of the Provost on students’ opinions of their undergraduate experiences. The former addresses domain-specific knowledge and skills that educators and practitioners have found to be important to the discipline of interior design, while the latter addresses the more general learning experiences of students. Both draw attention to the fact that there is a need for research and discussion about interior design students’ perspectives.

REVIEW OF LITERATURE

Central to this study are metacognition or reflection in learning, and novice conceptions of design. Dewey (1933) argues that the development of reflective thought is the most important goal of education. Reflective thought enables the individual to take control of and responsibility for their own thinking in order to participate effectively as a member of a democratic society. The term “metacognition” has been attributed to Flavell (1976) who states, “metacognition refers to one’s knowledge concerning one’s own cognitive
processes and products or anything related to them…Metacognition refers, among other things, to the active monitoring and consequent regulation and orchestration of these processes” (Flavell, 1976, p. 232).

In terms of novice conceptions of design and the implications of these on the design of learning environments, Newstaller and McCracken (2001) believe that design students have well-developed prior conceptions and theories about the nature of design that conflict with understandings held by expert designers. Prior knowledge is an essential variable in design learning. Chi, Glaser, and Farr (1998) caution prior knowledge, however, is often incorrect. They discuss three types of misconceptions: incorrect, inconsistent, or incompatible. Incorrect misconceptions are relatively easy to change because they are part of false ideas. Inconsistent prior beliefs resist change because they are part of a larger mental model that has structure. When prior knowledge is incompatible with expert understanding, the most radical form of conceptual change is required because such knowledge is highly resistant to change.

**METHODOLOGY**

One interior design program in a large Midwestern university was selected and all students within the undergraduate interior design program were invited to participate. This survey included questions covering the three main areas listed in the Statement of Purpose. The survey questions were developed from a review of existing sources including: 1) Cooperative Institutional Research Program (CIRP) and the NSSE (National Survey of Student Engagement) survey items and summary data, 2) a survey of beginning interior design textbooks, 3) the Interior Design Body of Knowledge document (Martin & Guerin, 2005), and 4) past studies on the misconceptions of novice designers. The survey was administered at the beginning of class during a regularly scheduled studio time or lecture course.

**RESULTS**

Ninety-one undergraduate students were currently enrolled and on campus when the survey questionnaire was administered. Of the 91 students, 56 agreed to participate with a response rate of 61.5%. ANOVA and descriptive statistics were used to analyze the data.
General Skills and Student Preparedness

The general skills portion of the survey asked students to evaluate themselves on their leadership, self-confidence, writing, and public speaking ability. These categories were identical to the data compiled by the university’s Provost Office, which included the 2005 Cooperative Institutional Research Program (CIRP) and 2005 National Survey of Student Engagement (NSSE). With respect to leadership ability, 66.1% of the respondents rated themselves as at least above average compared to others in their age. This figure is consistent with CIRP results where 65.1% reported at least above average ability. The percentages of interior design students, who rated themselves as at least above average with respect to self-confidence, writing ability, and public speaking, were 66.1%, 58.9%, and 39.3%, respectively. In comparison, CIRP results indicated 64.3%, 46.5%, and 37.7%. Thus, interior design students’ results indicated a similar pattern in ratings with slightly higher ratings in all four of the general skills and student preparedness questions.

Interior Design Skills and Knowledge Areas

Next, students were asked to indicate the importance of 31 interior design skills and knowledge areas (see Appendix A) on a scale from 0 = I do not know, 1 = not useful, 2 = somewhat useful, 3 = useful, and 4 = very useful. The top five items viewed as most important by the group as a whole were:

1) Space Planning
2) Presentation
3) Materials
4) Profession of Interior Design, and 4) Color (tie)
5) Principles and Elements, and 5) Lighting (tie)

Interestingly, the top least important skills and knowledge areas as viewed by the student participants included:

1) Interior Design Theories
2) Learning Strategies
3) Building Systems
4) Historic Design
5) Furniture Selection

Parsing the data down by grade levels, Interior Design Theories ranked in the top least important skills and knowledge areas for all three grades. Learning Theories was also a top
five least important skill or knowledge area in the sophomore and junior groups. Learning Theories ranked sixth on the least important list for seniors.

*Design Activities*

In this portion of the survey, students were asked to rank the top most important design activities from a list of sixteen activities (see Appendix B). They were then asked to rank the top least important design activities from this same list of sixteen. This list was identical to Newsstetter and and McCracken’s (2001) survey where they studied novice conceptions of design at the Design Learning Laboratory at Georgia Tech University. As a whole, the interior design students’ *most* important design activities were: 1) Understanding the problem, 2) Using creativity, 3) Making decisions, 4) Sketching, and 5) Visualization. The *least* important design activities were: 1) Decomposing, 2) Abstracting, 3) Synthesizing, 4) Making Trade-offs, and 5) Building. Breaking the groups down into grade levels showed very similar rankings of student beliefs as the whole group.

Interestingly, the interior design students’ responses were very similar to Newsstetter and and McCracken’s (2001) study results of 290 freshmen computer science majors at Georgia Tech University. Their top most important design activities included: 1) Understanding the problem, 2) Using creativity, 3) Visualizing, 4) Brainstorming, and 5) Making decisions. The top least important activities included: 1) Making trade-offs, 2) Decomposing, 3) Synthesizing, 4) Generating alternatives, and 5) Sketching. The authors acknowledge, while they are important in design, they are generally not considered the critical design activities. What is even more enlightening is the list of least important design activities. These activities are generally viewed by design experts as very important (Newsstetter & McCracken, 2001).

**CONCLUSION**

The results of the survey highlight three central themes for discussion. First, both the larger university population and the interior design students rated themselves quite poorly on public speaking ability. This was consistent across grade levels. As future design practitioners, in addition to regular oral presentation requirements as students, why are design students’ ratings so low? Second, learning theories and theories related to interior design were consistently rated as least important in comparison to the other interior design
skills and knowledge areas. However, as the metacognition literature suggests, it is critical for students to understand the importance of monitoring and regulating one’s own thinking and learning. In addition, interior design education has consistently stressed the importance of evidenced-based research and the value of research in the design studio (Guerin & Thompson, 2004). Is there a disconnect between design students’ and educators’ perceptions of important aspects of design studio education? As was mentioned earlier, if prior knowledge is incompatible with expert understanding, the most drastic form of conceptual change is required because this knowledge is highly resistant to change. Third, the student group as a whole, as well as groups by grade level consistently revealed novice design conceptions in their beliefs of most important and least important design activities. Further study is needed to explore students’ meanings of “using creativity”, “understanding the problem”, and “making decisions”, for example. How does one understand a problem without first decomposing, abstracting, and synthesizing? Or, is the language the real issue between design disciplines, and/or between design educators?

In conclusion, this study is a first part of a larger, mixed-method design that will continue to explore interior design students’ perspectives on learning, designing, and technology. Qualitative data from semi-structured interviews of students will explore these areas in more depth, as well as the role of computer technology and its role in amplifying design thinking in the studio.

REFERENCES

2005 Cooperative Institutional Research Program (CIRP).
2005 National Survey of Student Engagement (NSSE).
### Appendix A: Interior Design Skills and Knowledge Areas

<table>
<thead>
<tr>
<th>S.</th>
<th>Principles &amp; Elements of Design</th>
<th>S.1</th>
<th>Human Factors</th>
<th>S.2</th>
<th>Computer Modeling</th>
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</thead>
<tbody>
<tr>
<td>1.</td>
<td>Color—Color theory, color psychology, Lighting</td>
<td>S.1</td>
<td>Building Systems</td>
<td>S.2</td>
<td>Adobe PhotoShop</td>
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<td>2.</td>
<td>Historic Design</td>
<td>S.14</td>
<td>Furniture Selection</td>
<td>S.2</td>
<td>Portfolio Design &amp; Preparation</td>
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<tr>
<td>3.</td>
<td>The Design Process</td>
<td>S.1 5.</td>
<td>Furniture Arrangement</td>
<td>S.2</td>
<td>Presentation (pres. boards)</td>
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<tr>
<td>4.</td>
<td>Programming</td>
<td>S.16</td>
<td>Detailing &amp; Specifications</td>
<td>S.2</td>
<td>Knowledge of other design disciplines (i.e. graphic design, architecture, landscape arch, fine arts, etc.)</td>
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<td>5.</td>
<td>Concept Development</td>
<td>S.17</td>
<td>Designing for Special Populations Research</td>
<td>S.2</td>
<td>Learning Strategies</td>
</tr>
<tr>
<td>6.</td>
<td>Theories related to interior design</td>
<td>S.1 9.</td>
<td>Drafting Techniques</td>
<td>S.2</td>
<td>Project Management</td>
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<tr>
<td>7.</td>
<td>Space Planning</td>
<td>S.2 0.</td>
<td>Manual Rendering / Physical Modeling (study models, final models)</td>
<td>S.3</td>
<td>Working in Teams</td>
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<td>8.</td>
<td>Materials</td>
<td>S.21</td>
<td>AutoCAD</td>
<td>S.3</td>
<td>The Profession of Interior Design</td>
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<td>9.</td>
<td>Sustainable Design</td>
<td>S.22</td>
<td></td>
<td>S.3</td>
<td>Other (please specify)</td>
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Appendix B: List of Design Activities

**DESIGN ACTIVITIES**
Of the sixteen design activities below, put a check mark next to the five **most important**.

<p>| | | | | | |</p>
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1. Making Decisions
2. Understanding the Problem
3. Using Creativity
4. Abstracting
5. Goal Setting
6. Building
7. Evaluating
8. Decomposing
9. Synthesizing
10. Visualizing
11. Sketching
12. Imagining
13. Making Trade-offs
14. Brainstorming
15. Generating Alternatives
16. Modeling

**DESIGN ACTIVITIES**
Of the sixteen design activities below, put a check mark next to the five **least important**.

<p>| | | | | | |</p>
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1. Making Decisions
2. Understanding the Problem
3. Using Creativity
4. Abstracting
5. Goal Setting
6. Building
7. Evaluating
8. Decomposing
9. Synthesizing
10. Visualizing
11. Sketching
12. Imagining
13. Making Trade-offs
14. Brainstorming
15. Generating Alternatives
16. Modeling
Challenging Residential Convention in a Second-Year Design Studio: A Case Study

M. Jean Edwards

Abstract

“Residential design becomes the proving ground, the experience with the familiar, that allows students to move from personal beliefs to understanding the nuances of place making for nonresidential clients as well.” (Kucko, p. iv)

PURPOSE

The ability to “move from personal beliefs” into areas outside personal preference and familiarity is a skill essential to effective design, whether the context be residential or commercial, local or global, profit or non-profit. One of the primary challenges of the beginning interior design studio, therefore, is to move students beyond the clichéd design responses that the TV design culture promotes, especially in the context of residential design. To meet this challenge it is necessary to broaden the context and encourage student investigations that go deeply into the unfamiliar and unknown. This paper proposes a pedagogical framework and vocabulary for organizing and understanding students’ explorations outside the realm of their familiarity and comfort. The methodology of such a framework as explored in a second year design studio is the subject of this paper.

METHODOLOGY

This paper presents a case study of a conceptual “dwelling” project that was completed in a first-semester, second-year interior design studio using a pedagogical framework grounded in the metaphor of language. The project engages a design process that organizes learning experiences in three discreet stages: Transcription, Translation, and Interpretation. Each of the three stages advances the level of investigation, comprehension and engagement on the part of the student.

In the case study project each student was assigned a particular vernacular housing type (Schoenauer, 2000). In the “transcription” phase, each student conducted a search for information through note-taking and preliminary drawing in a representational mode. The direct “transcription” of information is encouraged so that students become familiar with descriptive details and immersed in the specificity of unfamiliar material. In the “translation” phase, the two-dimensional “transcriptions” were rendered into three-dimensional studies that translate the researched material into spatial and material models. The execution of these models provides additional opportunity to make specific connections to the original subject. These modeled “translations” ultimately became the basis for the final level, “interpretation”. At this level students integrate their own experience with their enhanced understanding into a more finalized three-dimensional design.
SUMMARY

Students’ initial investigations of unfamiliar vernacular dwelling types allowed them to expand their vocabulary of forms. Their “transcriptions” of these forms into spatial and material models led them away from conventional design responses. Examples of student work demonstrate the process, and reveal the growth of understanding and sophistication that the students underwent over the course of their investigations. The final design “interpretations” show that students have not merely copied existing models, but they have transformed those models into fresh responses that are neither predictable nor predicted.

REFERENCES

Challenging Residential Convention in a Second-Year Design Studio: A Case Study

“Residential design becomes the proving ground, the experience with the familiar, that allows students to move from personal beliefs to understanding the nuances of place making for nonresidential clients as well.” (Kucko, p. iv)

PURPOSE

The ability to “move from personal beliefs” into areas outside personal preference and familiarity is a skill essential to effective design, whether the context be residential or commercial, local or global, profit or non-profit. One of the primary challenges of the beginning interior design studio, therefore, is to move students beyond the clichéd design responses that the TV design culture promotes, especially in the context of residential design. To meet this challenge it is necessary to broaden the context and encourage student investigations that go deeply into the unfamiliar and unknown. This paper proposes a pedagogical framework and vocabulary for organizing and understanding students’ explorations outside the realm of their familiarity and comfort. The methodology of such a framework is explored in a second year design studio.

CONTEXT

Residential studio projects have traditionally been the focus of beginning interior design studios. Today, these projects have additional challenges, particularly when attempting to approach them as opportunities for place making in a larger cultural sense. Students’ ideas about residential design are informed more often by HGTV shows and the hyper-interiors of the commercial market place, than they are by their own living experiences or by the living experiences of those with significantly different lives from their own. Although students often tell us that their interest in interior design began with the experience of “doing” their own rooms at home, their interest focuses on the appointments and décor of residential design rather than on the actual experience of “dwelling.” Consequently, their vision does not yet incorporate the profound or poetic possibilities inherent in the concept of “home.”
REVIEW OF LITERATURE

Writing in the *Journal of Interior Design* in 1998 Jane Kucko calls for a reevaluation of the role of residential design in interior design curriculums. She identifies the potential value that education in residential design provides students in the area of the creation of “place” or *genius loci*. Noting that learning “… to create a sense of place can be a difficult challenge and one that takes maturity and keen awareness of detail and human nature” (Kucko, 1998, p. iv), she proposes that residential design has the potential to offer students the opportunity to learn about place making in a context with which they have some existing experiential familiarity. Kucko (1998) concludes “Residential design becomes the proving ground, the experience with the familiar, that allows students to move from personal beliefs to understanding the nuances of place making for nonresidential clients as well” (p. iv).

In his book *Space and Place*, geographer Yi-Fu Tuan asserts, “The home provides an image of the past. Moreover in an ideal sense home lies at the center of one’s life, and center… connotes origin and beginning” (p. 128). Thus conceived, “home” becomes the locus of an investigation that engages the past in a dynamic way with both present and future.

The phenomenology of “dwelling” also provides a conceptual foundation for residential design broadly conceived. Conceptually, “dwelling” can be understood both as a noun (a place of abode) and as a verb (to live in a place). In both cases the idea of “place” is central to the understanding. “Dwelling” as place suggests both generalities of shelter and particularities of location. Hence, studies of vernacular or “rooted” architecture throughout the world and throughout history provide clues to the roles that spatial organization, materiality and resonant detail play in the creation of a particularized sense of place.

For the studio project under study students were assigned the essay “The First Roof” by Murray Silverstein (1993) in *Dwelling, Seeing, Designing: Toward a Phenomenological Ecology*, edited by David Seamon. This essay explores the roof form as an archetypal pattern that varies through time and place, but remains “a pattern which unites the roof and the earth it rests upon with the space inside and around it” (Silverstein, 1993, p. 79). The reading also introduces the idea of cultural specificity within the context of a universal pattern.
In the next phase students begin individual investigations selected from one of five cultural categories, all pre-modern and most non-Western: 1) pre-urban tribal cultures (African, Native American, Asian and Middle Eastern); 2) ancient urban cultures (Mesopotamia, Egypt, Greece and Rome; 3) Oriental traditional urban cultures (Islamic, Indian, Chinese, and Japanese); 4) European Medieval culture; or 5) European Renaissance culture. Derived from 6,000 Years of Housing by Norbert Schoenauer, these categories were assigned by the instructor; each student then selected a particular culture and dwelling type within the assigned category.

**PROCESS OR METHODOLOGY**

The following framework provides the pedagogical underpinnings of this project and can be adapted to other projects. The framework consists of three successive phases: *Transcription*, *Translation*, and *Interpretation*. Each phase relates metaphorically to the acquisition of language skills and processes of cognitive development. The first level, *Transcription*, involves the fundamental apprehension of new knowledge: through note-taking and preliminary drawing in a representational mode, students familiarize themselves with the “grammar” of the culture they are studying. Direct “transcriptions” in the form of drawings from photographs or from existing drawings immerse students in the details of the “foreign” material (Figure 1). These “transcriptions” eventually form the basis for a move to the next level, *Translation*. Students develop three-dimensional low relief studies that begin to “translate” their “transcripts” into the beginning of a spatial and material language (Figure 2).

In the third and final level, *Interpretation*, students begin to incorporate their own experience and understanding into an interpretive design response. A series of three-dimensional spatial models (Figure 3) begin the process of integrating their own ideas of making space and place with the knowledge gained from the translation explorations. The results transform the narrow confines of the familiar into the unpredicted and unexpected as expressed in a more finished three-dimensional model and in light and shadow drawings (Figures 4, 5 and 6).
RESULTS

Students’ initial investigations of unfamiliar vernacular dwelling types, derived from sources as widespread as Tibet, Chad, Egypt, Japan, and Eurasia, and stretched in time from the ancient to the medieval, allowed them to expand their vocabulary of forms. Their “transcriptions” of these forms into spatial and material models led them away from conventional design responses. Their final models reveal the growth of understanding and sophistication that the students underwent in the course of their investigations. A final concept board documents the process and reveals the creative development of the initial investigation (Figure 7).

SUMMARY

Second-year interior design students investigate residential design within the conceptual framework of language acquisition. This framework consists of three phases: Transcription, Translation, and Interpretation. Each phase progressively pushes them past the familiar and comfortable. Final design “interpretations” show that students have not merely copied existing models, but they have transformed those models into fresh responses that are neither conventional nor predictable. The resulting models also represent the beginnings of specific and resonant places.

REFERENCES

Figure 1. Student “transcription” drawings

Figure 2. Student “translation” studies
Figure 3. Three-dimensional “interpretive” studies

Figure 4. Interpretive study model in light study

Figure 5. Drawn interior light and shadow
Figure 6. Final model

Figure 7. Final concept board depicting process
Educators’ Opportunity to Determine 
What Happens Next to the Body of Knowledge!

Denise Guerin, and Carin Martin

Abstract

PURPOSE

The purpose of this presentation is to conduct an interactive session with conference participants to get their ideas on the future of interior design’s body of knowledge (BOK). Since the 2006 conference, a task force has been established by the Issues Forum (ASID, IIDA, IDC, IDEC, NCIDQ, and CIDA) to determine what the next stage should be in furthering the profession’s body of knowledge. There are many ideas about what steps should occur, and interior design educators’ voices need to be heard. Educators are the researchers and theorists of the profession; their ideas will underpin new methods of data collection, new analysis methods, and new ways to use the body of knowledge.

METHOD

Each participant will receive an executive summary of the report: The Interior Design Profession’s Body of Knowledge, 2005 edition (Martin & Guerin, 2006), which will be briefly reviewed so all participants have an understanding of the study’s purpose, method, and findings. The limitations will also be reviewed so all participants understand concerns that must be addressed. The majority of the session will have participants working in small groups to respond to the questions in Figure 1. Each group will report their responses to all participants where they will be recorded and disseminated to the task force.

Figure 1. Participant Questions

<table>
<thead>
<tr>
<th>Group</th>
<th>Question</th>
</tr>
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</table>
| Group 1 Role of Teaching | • Are there knowledge areas missing from the BOK that you currently teach or should be included?  
                          | • Are there knowledge areas included that you do not teach?               
                          | • What do you think you should teach that is not included?               |
| Group 2 Role of Curriculum | • Is there a role for the BOK in an interior design curriculum? If so, what? If not, why not?  
                          | • What use is a body of knowledge to an interior design educator?        |
| Group 3 Use and Misuse  | • How should the interior design profession use the BOK                  |
                          | • What are the benefits of having a defined BOK? Disadvantages?          |
| Group 4 Data Collection | • What other methods should be used to collect data?                     
                          | • How do we get at the richness of knowledge that is embodied in
<table>
<thead>
<tr>
<th>and Analysis</th>
<th>an interior design practitioner…not a list, but a synergistic whole?</th>
</tr>
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</table>
| **Group 5 Recommendations for Task Force** | • What should the task force be concerned about?  
• What is the next step for the task force? |

**RESULTS**

First, the groups’ responses will be distributed to the task force and, perhaps, placed on IDEC’s Web site to facilitate dialogue on the topic. Second, this protocol of thought-sharing can be used by the task force to encourage dialogue among the members of other Issues Forum organizations. Finally, the importance of having IDEC members and conference participants have time to respond to the report in an informed way is overdue and creates value for the members. This presentation will allow them to contribute to the development of the state of the profession and how it is defined.

References

Educators’ Opportunity to Determine  
What Happens Next to the Body of Knowledge!

PURPOSE

The purpose of this presentation is to conduct an interactive session with conference participants to get their ideas on the future of interior design’s body of knowledge (BOK). Since the BOK was first discussed at the 2006 IDEC conference, a task force has been established by the Issues Forum (ASID, IIDA, IDC, IDEC, NCIDQ, and CIDA), the original funders of the BOK study. The task force is to determine what the next stage should be in furthering the profession’s body of knowledge. There are many ideas about what steps should occur, and interior design educators’ voices need to be heard. Educators are the researchers and theorists of the profession; their ideas will underpin new methods of data collection, new analysis methods, and new ways to use the body of knowledge.

Context

Common questions asked of a profession’s members are, what is a body of knowledge, and, what is your profession’s body of knowledge? The underlying implication is, what is the specialized knowledge that makes you who you are? A body of knowledge is the abstract knowledge (Abbott, 1988) that defines a profession’s jurisdictional boundaries, the ever-moving, ever-changing blurry lines that surround, intersect, and, sometimes, collide with other professions’ boundaries. These jurisdictional boundaries hold the abstract or specialized knowledge practitioners of a profession know and use to practice; it defines a profession’s body of knowledge. This abstract knowledge must evolve, grow, and demonstrate its value; additionally, it must be defined, documented, and discussed so the profession can determine if it represents the practice. It is important to identify what a profession says constitutes its own specialized knowledge as a basis of understanding what they have written about themselves or what society says about them. As those outside the interior design profession are constantly taking stock of its characteristics, abilities, and knowledge areas; it is crucial that the interior design profession does the same for itself. Only by knowing where a profession is today can its members determine where they want to be and future steps for maintenance and development of the profession’s abstract knowledge.
Collecting data from existing published documents that have been developed by a profession’s recognized entities, e.g., its accrediting or examination body, tells what the profession itself has already identified as part of its abstract knowledge. This is also the way to determine if it represents a true picture of the current profession or if there are omissions or errors in these documents. This becomes a starting point for the further development of a profession’s abstract knowledge. After a body of knowledge is defined, documented, and distributed, the profession’s members must have opportunities to dialogue and contribute to its understanding, use, and continued development. It is appropriate for such a discourse to begin with the profession’s educators because their backgrounds allow them to offer a multitude of method and analysis options.

Review of Literature

Other professions have defined bodies of knowledge relative to their practices. The nursing profession (Gunther & Raile Alligood, 2002) reviewed its body of knowledge to define high quality nursing. The investigators searched research articles for keywords that addressed the characteristics of high-quality nursing care, they then sorted the keywords into categories. Landscape architecture (American Society of Landscape Architects, 2004) undertook a study of their profession to identify core competencies that help define a body of knowledge and what knowledge is expected of all graduates from accredited landscape architecture programs.

Several interior design researchers, educators, and practitioners have investigated the interior design profession’s body of knowledge in various ways. Harwood (2003) investigated the education and practice relationship of interior design and architecture and found both overlap and clear differences in knowledge required to practice each profession. Klinkhamer (2003) conducted a survey of practitioners and found that knowledge areas change as one moves through the career cycle. Marshall-Baker (2003) investigated various disciplines with which interior design shares knowledge. She found that art, architecture, and social science, along with interior design engage in the theoretical design, structure, and function of the built environment.

Poldma (2003) investigated the origins of interior design practice, research, and education knowledge. She suggests the profession requires a more in-depth examination of the theoretical and philosophical basis of practice—that which does not yet exist, but must be developed by the profession. Thompson (2003) also suggested an interdisciplinary
theoretical framework as the basis for understanding, developing, and documenting the 
interior design profession’s body of knowledge.

These works may be helpful in determining the task force’s next step. This 
presentation will focus on The Interior Design Profession’s Body of Knowledge, 2005 edition (Martin 
& Guerin, 2006) and provide educators an opportunity to give input that will move the study 
of the profession’s body of knowledge forward.

METHOD

There are two methods discussed here, first a brief summary of the research method 
used for the study; second, the method used to elicit dialogue and feedback from IDEC 
conference participants. The content of interior design profession’s entities’ documents was 
collected and analyzed to identify the knowledge areas (KAs) of interior design practice. 
FIDER (2002), NCIDQ (2004a; 2004b), and regulatory jurisdiction language (2005) of 32 
jurisdictions (states, provinces, districts, and territories) documents were used. The KAs 
were sorted by theme, collapsed into categories, and counted for weighting of importance. 
Following a systematic process, the weighting of each KA was added to give a total category weight.

Two steps were then taken to validate the study’s process and findings. First, a group 
of design practitioners and educators, referred to as the Panel of Experts, reviewed the data 
collection, analysis, and weighting methods; determined if the categories developed and 
named adequately reflected the KAs; and, validated these processes and outcomes. Second, 
an independent research methodologist, hired by the funders, reviewed the report and 
validated the method and results. The complete method used can be found on the IDEC 
Web site (www.idec.org) in the published report, but is too lengthy for this narrative.

The method used to promote dialogue about the body of knowledge for this 
presentation follows. Each participant will receive an executive summary of the report: The 
Interior Design Profession’s Body of Knowledge, 2005 edition (Martin & Guerin, 2006), which will be 
briefly reviewed so all participants have an understanding of the study’s purpose, method, 
and findings. The limitations will also be reviewed so all participants understand concerns 
that must be addressed. The majority of the session will have participants working in small
groups to respond to the questions in Figure 1. Each group will report their responses to all participants where they will be recorded and disseminated to the task force.

**Figure 1. Questions for each Group**

<table>
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<th>Question</th>
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| Group 3<br>Use and Misuse | • How should the interior design profession use the BOK  
• What are the benefits of having a defined BOK? Disadvantages? |
| Group 4<br>Data Collection and Analysis | • What other methods should be used to collect data?  
• How do we get at the richness of knowledge that is embodied in an interior design practitioner…not a list, but a synergistic whole? |
| Group 5<br>Recommendations for Task Force | • What should the task force be concerned about?  
• What is the next step for the task force? |

**RESULTS AND DISCUSSION**

The results of the BOK study are shown in Figure 1. Weighted Knowledge Areas by Category and Figure 3. Model: The Interior Design Profession’s 2005 Body of Knowledge. This BOK represents a single point in time as entity documents, the profession’s abstract knowledge, and other profession’s jurisdictions continue to change. Figure 3 shows the BOK model as six categories of irregular, interlocking shapes. This indicates the ongoing expansion and contraction of the interior design profession’s jurisdictional boundaries as they are influenced by acquisition of abstract knowledge and the jurisdictional boundaries of related, “adjacent” profession’s bodies of knowledge, e.g., architecture. These are the results that will be discussed by the participants.
The results of the groups’ responses will be distributed to the task force and, perhaps, placed on IDEC’s Web site to facilitate dialogue on the topic. This protocol of thought-sharing can be used by the task force to encourage dialogue among the members of other Issues Forum organizations. Additionally, the importance of having IDEC members and conference participants have time to respond to the report in an informed way is overdue and creates value for the members. This presentation will allow them to contribute to the development of the state of the profession and how it is defined.

CONCLUSIONS

This 2005 edition of the interior design profession’s body of knowledge is not predictive of the profession’s future, but finds what is today’s reality via the organizational documents. It also shows that a body of knowledge is a living phenomenon; it is not static, but changes as practice changes, typical of all professions (Abbott, 1988). It will be interesting to see if participants’ responses to the BOK will mirror the recommendations of Marshall-Baker (2003), Poldma (2003), Klinkhamer (2003), or Thompson (2003). The combined suggestions may be the basis of what could initiate the next study of the profession.

By starting this dialogue with the profession’s educators, the course of investigation will have some guidelines, and perhaps be accelerated and intensified. It was the goal of the funders of this study that open and honest discourse evolve with the publication of this study, and educators and researchers have an important role to play in that process. This presentation has the potential to foster intellectual discourse that will set the protocol for all the profession’s members.
Figure 2. Weighted Knowledge Areas by Category

* Each KA value is noted in [brackets]

**Human Environment Needs [Value = 334]**

- Programming (problem identification, requirements) [49]
- Research process (studies, data collection, recording, analysis) [47]
- Client’s/user’s needs, goals, preferences, and requirements [32]
- POE (post-occupancy evaluation) process and implementation practices, survey, and observation [28]
- Analysis of client’s/user’s needs, activities, and goals [22]
- Accessibility issues (barrier-free, universal design) [16]
- Cultural factors and influences [15]
- Strategic planning (organizational issues) [14]
- Existing site conditions (measurement, record) [12]
- Human factors (ergonomics, anthropometrics) [12]
- Economic factors, influences, and trends [10]
- Environmental factors, issues, and requirements (sustainability, indoor air quality, energy conservation) [10]
- Human behavior and design theories [10]
- Facility issues [9]
- Project context, location, surroundings, view, and geography [9]
- Psychological factors and issues [9]
- Psychology of color [9]
- Social factors, issues, and trends [9]
- Conflict resolution [1]

**Interior Construction, Codes, and Regulations [Value = 329]**

- Building codes, laws, regulations; life safety standards (movement, stairs, corridors, ramps, exits) and requirements; welfare [36]
- Lighting fixture and lamp selection, application, and specifications [34]
- Building systems (mechanical, electrical, plumbing, structural) [31]
- Working drawings for non-load bearing interior construction [31]
- Permitting processes [27]
- Specifications for non-load bearing interior construction [23]
- Reflected ceiling systems, plans, and specifications [20]
- Electrical plans and preliminary specifications [18]
- Schedules [15]
- Analysis of life safety requirements [13]
- Data/voice telecommunication systems and plans [12]
- Fire and life-safety principles (compartmentalization, detection, suppression) [12]
- Non-load bearing interior construction systems and methods [12]
- Security systems [10]
- As-built drawings [9]
- Power distribution systems and plans [2]
- Energy management [1]
- Indoor air quality [1]
Design [Value = 256]

interior components design and detailing (custom furniture, cabinetry, millwork, floor patterning, textiles) [34]
design process (preliminary design, schematic design, design development, analysis) [30]
space planning (non-load bearing interior construction) [30]
aesthetics [22]
design concept [16]
design(s) [15]
lighting design [15]
problem solving [15]
visual representation types (bubble diagrams, adjacency matrices/charts, stacking/zoning diagrams, block plans, square footage allocations) [15]
elements and principles of design [14]
function [13]
quality (interior environment) [13]
sculpting [9]
color concept (selection, application) [6]
history (art, architecture, interiors, furnishings) [3]
two- and three-dimensional design [3]
color principles, theories, and systems [1]
decorative elements selection and application [1]
wayfinding/signage [1]

Products and Materials [Value = 235]

materials (products, sources, selection, cost, installation, maintenance, specifications) [39]
furnishings, fixtures, and equipment drawings, specifications, and installation [36]
finishes (selection, cost, schedules, plans, specifications) [31]
specifications [20]
fixtures (location, specifications) [14]
furnishings [14]
supplier/vendor requirements (information, installation plans, shipping instructions) [14]
cabinetry [13]
equipment documents (location, specifications) [13]
furniture documents (location, specifications) [13]
product attributes (selection, cost, application, properties, performance criteria) [13]
installation methods and costs [9]
schedules [5]
sustainable resources [1]

Professional Practice [Value = 233]

contract administration (bidding/negotiation, contract documents) [34]
business practices [31]
consultant work (consultation, collaboration, integration) [31]
project management (scope, schedule, budget, fee) [25]
obervation, punchlists/deficiency reports [27]
business processes (marketing, strategic planning, accounting procedures, real estate issues) [20]
problem review and evaluation during alteration and construction [13]
client consultation [13]
ethics [10]
professional certification, licensing, and/or registration requirements [10]
legal forms of business (sole proprietorship, corporations, partnerships) [9]
legal responsibilities [9]
professional design organizations [1]

**Communication [Value = 109]**
oral, visual, and written communication [21]
presentation techniques/media [21]
drawings [19]
preliminary designs, drawings, and sketches [13]
drafting/lettering (manual) [10]
study models [10]
sketches [8]
client consultation [5]
computer-aided drafting and lettering [1]
metric system [1]

**Figure 3. Model: Interior Design Profession’s 2005 Body of Knowledge**
REFERENCES


Design and Social Justice: An Investigation of Current Status of Inclusion of Non-Western Perspectives in Interior Design Curriculum

Vibhavari Jani and Abimbola Asojo

Abstract

ISSUE

The inclusion of non-Western perspectives in interior design education has always been a difficult, complex, and elusive subject. Discussions about non-Western design education began at the 1986 IDECIII meeting. 20 years later, authors’ survey on this subject suggests that the status of providing non-Western perspectives in interior design curricula is a mix of progress and frustration. On one hand, progress has been made in terms of changes in accreditation requirements. Today, the Council for Interior Design Accreditation (CIDA) recognizes the importance of non-Western cultures and its contributions and promotes inclusion of “global perspectives” by setting an accreditation standard requiring interior design programs “to provide learning experiences that address a global perspective and approach to thinking and problem solving, viewing design with awareness and respect for cultural and social differences of people.” On the other hand, our surveyIV of IDEC members on this subject suggests that non-Western perspectives; be it history, design theory and philosophy are marginalized in most interior design curriculum today.

In this paper, the authors argue that the absence of diverse perspectives or limited emphasis of non-Western perspectives in design curriculum is an issue of social justice. The term "social justice" was coined by the Jesuit Luigi Taparelli in the 1840s, based on the teachings of Thomas Aquinas. Social justice is a concept that describes the advancement of society towards a just world. In this context, the authors discuss the historical inequities in teaching design and describe why they consider these inequities an issue of social injustice and why this situation should be corrected. When the notion of social justice is applied to design, the authors believe that the concept requires that interior design be taught from an
inclusive perspective which acknowledges the contributions of all world cultures not just western European tradition.

**PROCESS**

To understand the status of inclusion of non-Western perspectives, the authors prepared a survey to investigate how interior design educators integrate non-Western issues in design curriculum. In this paper, the authors will share their findings on the current state of inclusion of non-Western perspective in interior design curriculums in the United States.

**CONCLUSION**

In conclusion, the authors will discuss what critical issues educators must address to eradicate this injustice. The authors also propose five values (optimism, respect, sharing, engagement, innovation) which could serve as the foundation to change these inequities so that it no longer exists or “the other” is viewed with sensitivity. The authors believe that these values will guide future changes and will prove useful in achieving desired results. The authors believe that universities, administrators, educators, practitioners, professional organizations and community can play a greater role in shaping a future for design education and ask that these entities individually and collectively work together in eradicating this injustice to create a just and harmonious world where diversity is respected and all human beings, regardless of their race, religion, color or culture they belong to, has an equal standing and can be proud of their cultural heritage.

**End Notes**

1. The authors define “non-Western” as cultures outside of western European tradition.


3. Council for Interior Design Accreditation standard 2d states: a *global* perspective and approach to thinking and problem solving (viewing design with awareness and respect for cultural and social differences of people; understanding issues that affect the *sustainability* of the planet; understanding the implications of conducting the practice of design within a world market). (p. II-9)

4. Please see attachment 1 for questionnaire for our survey.
REFERENCES


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The inclusion of non-Western perspectives in interior design education has always been a difficult, complex, and elusive subject. Discussions about non-Western design education began at the 1986 IDEC meeting. 20 years later, authors’ survey on this subject suggests that the status of providing non-Western perspectives in interior design curricula is a mix of progress and frustration. On one hand, progress has been made in terms of changes in accreditation requirements. Today, the Council for Interior Design Accreditation (CIDA) recognizes the importance of non-Western cultures and its contributions and promotes inclusion of “global perspectives” by setting an accreditation standard requiring interior design programs “to provide global perspective.” On the other hand, our survey of IDEC members on this subject suggests that non-Western perspectives; be it history, design theory and philosophy are marginalized in most interior design curriculum today.

In this paper, the authors argue that the absence of diverse perspectives or limited emphasis of non-Western perspectives in design curriculum is an issue of social justice. The term "social justice" was coined by the Jesuit Luigi Taparelli in the 1840s, based on the teachings of Thomas Aquinas. Social justice is a concept that describes the advancement of society towards a just world. In this context, the authors discuss the historical inequities in teaching design and describe why they consider these inequities an issue of social injustice and why this situation should be corrected. When the notion of social justice is applied to design, the authors believe that the concept requires that interior design be taught from an inclusive perspective which acknowledges the contributions of all world cultures not just western European tradition.

REVIEW OF LITERATURE

In a report titled Building Community: A New Future for Architecture and Practice sponsored by the Carnegie Foundation for the Advancement of Teaching, Boyer and Mitgang (1996) note “the
need for inclusiveness is more urgent than ever. Repeatedly, we were told by practitioners and educators that much of the future of the profession lies beyond U.S. borders, in developing nations and in non-Western cultures” (p. 96).

Discussions about non-Western design education began in the 1986 Interior Design Educator’s council annual meeting. Fairbrass and Harris (1986) encouraged interior design educators to integrate international activities into their classrooms by exposing students to other cultures, their history, and life styles. The fall 1994 Futures roundtable in Chicago, Illinois consisted of 16 participants representing interior design practice and education who met to determine trends in the profession (Hasell & Scott, 1996). The resulting list included areas such as technology, art and culture, education, the environment, and business. Global cooperation, business values, cultural diversity, and technology were noted as important areas to be addressed by interior design profession (Hasell & Scott, 1996). In a more recent study, Guerin and Thompson 2004 note “interior designers can no longer approach design solutions from an ethno-centric design perspective. Instead, the global implications of created space and environment are upon us” (p.5). Furthermore, the Council for Interior Design Accreditation recognizes the importance of global design issues, the 2006 Standard 2d notes: “Program must provide learning experiences that address a global perspective and approach to thinking and problem solving (viewing design with awareness and respect for cultural and social differences of people; understanding issues that affect the sustainability of the planet; understanding the implications of conducting the practice of design within a world market). (p. II-9)”

All these trends suggest the increasing need to engage interior design students in non-Western design discourse is not new. Yet not much progress is made in terms of providing non-Western perspectives inclusion in Interior Design education.

Methodology

To understand the status of inclusion of non-Western perspectives, the authors prepared a survey to investigate how interior design educators integrate non-Western issues in design curriculum. The survey was sent out electronically to IDEC members on the IDEC listserv. The survey included questions of how non-Western cultures are integrated in design curriculum in the US, what kinds of courses are offered on non-Western issues, if required non-Western courses were offered, what specific aspects and cultures were focused on, how students responded to the issues, why non-Western perspective are absent if they
are not being taught, study abroad destinations, and what kinds of resources will help offer non-Western perspectives to students. Please see attachment 1 for survey questions.

DISCUSSION AND FINDINGS

The authors’ survey results indicated that majority of Interior Design Programs do not have a dedicated course focusing on non-Western design. Only 4 participants indicated that they dedicated design studio that deals with non-Western perspectives. Among these participants, 1 indicated that they focus on Japan, Mexico, South America, another indicated that they focus on Middle East and Asia and one design studio was focused on residential environment while the other was focused on commercial environment. All but one participant said that they try to address non-Western cultures in their History courses. However, when asked which aspects they focus on while teaching non-Western perspectives, the answer was predictable: “general aspect” and did not qualify how they defined “general.”

In answer to which aspects do you focus on while teaching non-Western perspectives the participants’ response varied: and indicated that they teach color, privacy, space perception and patterns of behavior. In response to how their students responded to non-Western perspective, all but two participants said that the students seemed interested in learning about non-Western perspectives. When asked why non-Western perspectives are not integrated in your curriculum? Overwhelming response was received as lack of funding research and lack of availability of teaching materials. When questioned what resources will help you as educators to offer non-Western perspectives to your students? Majority of participants requested visual text book and information (slides, presentations, CD-ROM). Majority of participant also indicated that their program offer Study Abroad Programs, however, majority of programs destinations were European countries, only 1 program offered destination in Asia and another in South America.

Interior design educators are constantly challenged to introduce diverse issues in design education and are responsible for integrating diverse discourses in design curriculum but our survey shows that most programs provide cursory view of non-Western traditions and do not provide in-depth information or dedicated courses. Even interior design history education has seen little experimentation since its early inception. History textbooks provide limited stylistic information, dates and dimensions of non-Western monuments. Rarely any
attempts are made to enquire about the appropriateness and/or relevance of such models of teaching and learning to contemporary interior design or to the larger objectives of design education.

The absence of diverse perspectives or limited emphasis of non-Western perspectives in design curriculum is an issue of social justice. Our students learn these social biases early on from the society they live in and educational institutions they attend validate these biases by ignoring non-Western perspectives. These biases create social injustice in form of discrimination, hatred and if corrective measures are not put in place, it will fuel more conflicts in the world. Therefore the authors believe that the concept requires that interior design be taught from an inclusive perspective which acknowledges the contributions of all world cultures not just western European tradition so that students are aware of other cultures and its contribution in the world, can understand importance of acquiring a “world view” that offers them an ability to think, observe and reflect before reacting to a new way of life so that they can understand another human beings point of view and accept differences and embrace similarities existing in various cultures.

Conclusion

In conclusion, the authors found that 20 years after the discussion and recommendation for inclusion of non-Western perspectives was suggested at the IDEC annual meeting in 1986, Interior Design programs have not made much progress in that direction. The authors found that funding for research on non-Western perspectives and availability of visual information will help educators in addressing these issues. It seems paramount that Interior Design programs start looking into providing non-Western perspectives seriously to eradicate this injustice. The authors also propose five values to assist in this endeavor: optimism respect, sharing, engagement, innovation which could serve as the foundation to change these inequities so that it no longer exists or “the other” is viewed with sensitivity. The authors believe that these values will guide future changes and will prove useful in achieving desired results. The authors believe that universities, administrators, educators, practitioners, professional organizations and community can play a greater role in shaping a future for design education and ask that these entities individually and collectively work together in eradicating this injustice to create a just and harmonious world where diversity is respected and all human beings, regardless of their race, religion,
color or culture they belong to, has an equal standing and can be proud of their cultural heritage.

REFERENCES


Survey on How Design Educators Integrate Non-Western Issues in Design Curriculum

Please check below if you would like to participate in this study:

Yes _____ No _____

Do you have a dedicated course focusing on non-Western design?

Yes _____ No _____

If yes, which course/s incorporate non-Western cultures?

History _____ Design Studio _____ Theory _____

Other______________________________________________

Do you offer any dedicated design studio projects that deal with non-Western culture?

Yes _____ No _____

If yes, give a brief example:

Do you offer non-Western perspectives in your history courses?

Yes _____ No _____

If yes, which non-Western cultures/countries do you focus on?

Which aspects do you focus on while teaching non-Western perspective?

How did your students respond to the non-Western perspective? Were they:

Interested_____ Somewhat Interested_____ Not Interested At All _____
If they were not interested, what were the reasons? Check all that apply.

_____ Social Biases
_____ Fear of learning about new cultures
_____ Lack of interest in understanding the complexity of cultural nuances
_____ General lack of interest in learning anything new
_____ Fear of offending others
_____ Lack of interest in understanding international issues

Why non-Western perspectives/issues are not integrated in your curriculum?

_____ Lack of expertise in faculty pool
_____ Lack of availability of teaching materials
_____ Lack of knowledge of non-western design precedents
_____ Lack of funding for research
_____ Fear of trying something new

What resources will help you as educators to offer non-Western perspective to your students?

_____ Textbooks
_____ Visual information (slide, presentation, CD-ROM)
_____ Others

Do you offer study abroad programs?

Yes _____ No _____

If yes, where?

Africa _____ Europe _____ Asia _____

Australia _____ South America _____ North America _____

Tell us your favorite destination:
Global Cultural Experience through Mediators

Jiang Lu

Abstract

PURPOSE

The purpose of this paper is to explore the approaches that allow interior design students to obtain in-depth understanding of the prominent issues of Non-Western cultures in an interactive way. This paper demonstrates, through an experiment in an interior design studio, that researchers of non-Western cultures can be used as mediators between the students and a particular indigenous culture for the students to explore the culture interactively and join the effort in cultural conservation in that remote locale.

CONTEXT

In a time of globalization, the global perspectives related to interior design have caught the attention of interior educators, as reflected in the CIDA (CIDA, 2006) Professional Standard. In recent years, courses on global perspectives have appeared in interior design curricula, non-Western designs have been introduced in historical surveys, and non-Western cultures have been used as context of design projects. However, a major obstacle is that we have limited access to the cultures that we are interested in. To solve this problem, researchers who conducted field research in a different culture were invited to participate in an interior design studio to act as mediators between the remote cultural site and the students.

To learn about an indigenous culture from people with life experience in that culture is more interactive than to read a book on that culture. The design problem is to design a community culture center in a small village named Dang jia shan in northern China. The members of the research team did field research in the village participated the design process as informants. The interaction between the students and the research team members deepened the students’ understanding of the circumstances in that small mountain village against a world of globalization. The great impact of the life experience in the village the research team members received was transferred to the students.

The global perspective in this particular context went far beyond the professionalism of interior designers as defined in the CIDA Professional Standards. The concern about the survival of the village tradition in a time of globalization revealed some more fundamental issues than the implications of an international design market.
CONCLUSIONS

This experiment in the interior design studio with the participation of researchers with first-hand experience of a particular culture as mediators can effectively enhance the learning experience dealing with non-Western cultures. When the recorded research data are reinforced by the researches stories from multiple angles, they become easier to understand and impressive. The interaction with the research team members and the exchange of life experience in the research field provide not only the information that is needed for the design, but also philosophical inspirations beyond the project and design. This project shows that when a design project is rooted in a specific place and related to the life of real people, we can find the most fundamental issues of design that is important in a global scale. This project also shows that studies of non-Western culture makes us think about the entire planet and let us realize that there are more design can contribute beyond the market of our professional world.

REFERENCES


Global Cultural Experience through Mediators

PURPOSE

The purpose of this paper is to explore the approaches that allow interior design students to obtain in-depth understanding of the prominent issues of Non-Western cultures in an interactive way. This paper demonstrates, through an experiment in an interior design studio, that researchers of non-Western cultures can be used as mediators between the students and a particular indigenous culture for the students to explore the culture interactively and join the effort in cultural conservation in that remote locale.

CONTEXT

In a time of globalization, the global perspectives related to interior design have caught the attention of interior educators, as reflected in the CIDA (CIDA, 2006) Professional Standard. As Rachel Pike points out in her interpretation of the CIDA definition of global perspective, the CIDA definition has three parts that include the awareness and respect of other cultures, the sustainability as a global issue, and the implications of a global design market (Pike, 2006). In recent years, courses on global perspectives have appeared in interior design curricula, non-Western designs have been introduced in historical surveys, and non-Western cultures have been used as context of design projects. Awwad-Rafferty’s studio project for native American tribes is a good example (Awwad-Rafferty, 2006) These efforts have no doubt broadened our scope and increased our awareness of other cultures, especially the non-Western cultures. However, there are limitations. One major obstacle is that we have limited access to the cultures that we are interested in. It is usually unpractical to arrange our students to visit the remote site and have direct contact with people on the other side of the planet. Although we can learn about a particular culture through research on published anthropological and folkloristic studies, the lack of interactivity will reduce the impact and the effect of our projects.

To solve this problem, researchers who conducted field research in a different culture were invited to participate in an interior design studio to act as mediators between
the remote cultural site and the students. To learn about an indigenous culture from people with life experience in that culture is more interactive than to read a book on that culture.

In the summer of 2005 and 2006, supported by the EarthWatch Institute, the author of this paper and three other PIs conducted field studies of the cave dwellings in the village of Dang jia shan, a small mountain village in northern Shaanxi province of China. The research teams were composed of over 50 volunteers from ten countries. This is an important project in that it documents vernacular architecture and the vestiges of a disappearing culture before it is lost forever. The village has a long history and rich cultural traditions. The villagers are being relocated to a new settlement that is closer to highway and water. The houses in the new village are built in a modern style that is very different from the traditional cave dwellings in the old village (Fig.1).

![Fig. 1](image1.png) House in old village ![House in new village](image2.png)

The field research indicates that villagers are giving up their very sustainable traditional way of life and adopting a much less sustainable modern life style. The stylistic changes of the housing form are results of the modernization movement induced by the trend of globalization. It is a great challenge to preserve the cultural traditions and keep the continuity of tradition in the new village in order to influence future generations. This challenge was brought into an interior design studio. The design problem is to design a community culture center in the new village where the people of Dang jia shan will move in. The center will serve the village council for its activities and special events such as exhibitions, educational programs, entertainment, and accommodation of visitors. The new
center should represent the specific local genre, or style to symbolize the renewal of the Chinese village tradition. The center should be a unique public facility that is the hub of the new village. The design should have special design themes that relate to the cultural heritage of the village. The design should also consider a possibility that the center will open to people from other villages and even international tourists from abroad. The students were required to use the principles of sustainable design that the Chinese traditional cliff cave dwellings coincide with, and highlight the core concept of Chinese culture – being in harmony with Nature – that is well reflected in the architecture of traditional cave dwellings (Lu & Feng, 2005).

There are sixteen interior design students in this design studio and they are all born in the US. A few of them have international travel experience. The members of the EarthWatch project research team were invited to participate in the design process as informants that the student designers could interview. Most of them were volunteers from different walks of life. They shared their experience of doing field research and living in the village for two weeks and provided the needed information the students needed. They also provided their opinions about the students’ design proposals.

The interaction between the students and the research team members deepened the students’ understanding of the circumstances in that small mountain village against a world of globalization. Profound questions and answers regarding the meaning of life and human society and the relationship between the cultural tradition and advancement of modern technology were exchanged. The great impact of the life experience in the village the research team members received was transferred to the students. The global perspective in this particular context went far beyond the professionalism of interior designers as defined in the CIDA Professional Standards. The concern about the survival of the village tradition in a time of globalization revealed some more fundamental issues than the implications of an international design market.

**PROCESS**

The design studio spent four weeks in the project. Based on the information provided by the instructor, a PI of the project-“Chinese Village Tradition” for two years, students interviewed 11 research team members who participated the project field work in the 2005 and/or 2006 in Dang Jia Shan village (Fig.2). They are from three different
countries and all speak fluent English. There are overall 36 interview replies which focuses on 16 different individual projects. Some messages students received are long essays with pictures, and notes.

Fig.2  Field work data

**FINDINGS**

In the design project, students learned the features of traditional cliff cave dwelling coincide with nowadays sustainable design principles. They saw how the builders of the traditional cliff cave dwellings made best use of the materials given by Nature and created healthy shelters for their dwellers with the minimum negative impact on the environment. These findings inspired them in their design to reach sustainability. Students also experienced the art of dwelling which reflects the core concept of Chinese culture – being in harmony with Nature.
More importantly, students started to view tradition as an aspect in design, and they realized that tradition is a dynamic and continuous development. They became more conscious about cultural and social contexts of design. This project and the interviews also let the students realize the importance of people and their life in design. Without the help of the research team members sharing their experience with the students, inspiring students in spirit and providing first-hand materials, and discussing possibilities of design themes constructively to the students, the above results would be hardly achieved in such a short period of time. Communicating with research team members with different professional backgrounds opened students’ views and perspectives. The lively, interactive, and constructive communications helped the students to analysis and summarize their design themes and ideas quickly, and to present them clearly, in order to introduce their projects to their interviewees. Through this communication process, students are either encouraged or challenged on their themes or solutions which make them think deeply and with sophistication (Fig. 3).

Fig. 3a Student’s presentation board
Fig. 3b  Student’s presentation board

Fig. 3c  Students’ work
CONCLUSIONS

This experiment in the interior design studio with the participation of researchers with first-hand experience of a particular culture as mediators can effectively enhance the learning experience dealing with non-Western cultures. When the recorded research data are reinforced by the researches stories from multiple angles, they become easier to understand and impressive. The interaction with the research team members and the exchange of life experience in the research field provide not only the information that is needed for the design, but also philosophical inspirations beyond the project and design. This project shows that when a design project is rooted in a specific place and related to the life of real people, we can find the most fundamental issues of design that is important in a global scale. This project also shows that studies of non-Western culture makes us think about the entire planet and let us realize that there are more design can contribute beyond the market of our professional world.

REFERENCES

Integrating the Use of Research into the Design Process Experience

Caren Martin and Denise Guerin

Abstract

PURPOSE

Evidence-based design is becoming increasingly important to practitioners as well as their clients who must focus on the bottom line. Educators have found important benefits for students from integrating the use of research into the classroom in terms of improved ability to think critically (Gibson, 1994) and to increase students’ ability to identify and apply research findings to their design solutions (Dickinson, 2004). However, it is typically difficult to get students to use appropriate research during the design process. The purpose of this presentation is to share teaching strategies that integrate research into the design process experience. Four assignments will be discussed that teach students the value of research and how to identify the types of research evidence required to guide design decisions made during the programming and schematic design phases of the design process. InformeDesign®, an online database tool, will be discussed among other methods and sources, to illustrate integration of research in the classroom experience for students who are often intimidated by research. This research experience will enable students to carry evidence-based design knowledge into practice, possibly accelerating the adoption of evidence-based design criteria by the profession.

PROCESS

Using research findings to inform and support design decisions is the foundation of evidence-based design (Malkin, 2005). As the interior design profession engages to an ever increasing degree in the application of research, it is imperative that educators prepare students to enter that arena with confidence and contribute to it fully. The presenters currently teach lecture and studio courses to interior design students in which an understanding and development of evidence-based design is required. They have developed and tested several assignments that teach students the value of research, and how to gather, evaluate, and integrate it in the design process, whether as a team or individual experience. These assignments and typical outcomes will be presented, with ample opportunity for discussion.

SUMMARY OF RESULTS

The overall goal of the assignments is for students to understand the “value of research” (Guerin & Asher Thompson, 2004) to prepare them to become valuable contributors in the professional design studio. Students are given a myriad of opportunities
to investigate sources of evidence-based research; determine what research evidence is necessary to address a design problem; and integrate the use of research in their design process. InformeDesign’s features as research tools, among others, are discussed as a means to facilitate the students’ learning. The assignments focus on identifying research findings that can be used in the programming phase to enrich their understanding of the client’s needs, as well as applied as evidence-based design criteria during the schematic design phase, informing their design solutions. This is important, as there is evidence that once in the professional design studio, former interior design students with research experience learned in the classroom setting, increase the use of evidence by practitioners who may not have engaged in applying research findings to their design process. The beneficiaries of integrating research in the classroom will be the profession and people that inhabit the spaces they design.

**REFERENCES**


Integrating the Use of Research into the Design Process Experience

PURPOSE

Evidence-based design criteria are increasing in importance to design practitioners as they learn that evidence-based design can provide a predictably more positive design solution as well as a better bottom line for their clients. Students have been using research in their design process, but they are not always able to recognize the difference between various types of research (trend, product, industry, scholarly). It is imperative for students to be able to integrate evidence-based research into their design process.

The purpose of this presentation is to share teaching strategies used to integrate research into the design process experience. Student assignments and typical outcomes will be presented that teach students to identify the type of research evidence required to underpin the programming and schematic design phases. The assignments are based on student use of a design and human behavior searchable database, InformeDesign. This presentation will suggest four assignments through which students can learn to identify research required, gather research evidence, and apply it in the design process. Moreover, if incorporated early into the curriculum, these assignments will minimize the mystery and fear many students experience regarding research. Assignment descriptions and typical outcomes will be reported.

CONTEXT

Evidence-based design has become recognized as a goal in design practice through the Pebble Project since 2000 (The Center for Health Design, 2005). Like the clients they serve, healthcare designers have modeled their evidence-based practice on the continuous loop medical model that begins with diagnosis, then inference, followed by treatment based on evidence that fuels new research, and so on (Martin & Guerin, 2005). D. Kirk Hamilton (2005) encourages engagement in this process described as a system of levels, ranging from using benchmarking evidence (Level 1), to engaging in and publishing case studies to fuel new knowledge as contributions to the body of knowledge (Level 4).
Cutting-edge design firms employ an evidence-based design process in their practices through the use of data that have been gathered and analyzed in a systematic way to inform the design process (Goetz, 2003; Tisch, 2006). They are leaders in the profession; others are being prompted to follow given the surge of information about evidence-based design in the trade journals and as presented during continuing education events. As use of evidence-based design criteria is not used universally by practitioners, it is imperative for design educators to prepare students to use evidence-based design criteria to solve problems. There is evidence that once in the professional design studio, former interior design students with this research experience from the classroom setting increase the use of evidence by practitioners who to date have not had the ability or desire to do so previously.

However, there is a hurdle for interior design students who want to employ evidence-based design into their decision-making process. They have both cognitive and practical difficulty gaining access to relevant research findings, typically found in refereed journals. Furthermore, students cannot always interpret the statistical findings easily because they do not have the research background to do so. This lack of process knowledge will handicap them as practitioners, placing them behind both their peers and senior colleagues in the professional studio. Additionally, practitioners do not have the time to read lengthy research articles due to tight design fees and the perceived need to safeguard project hours for other tasks during the design process.

The key to engaging interior design students in the use of research is to make the experience frequent and incremental in level of complexity. InformeDesign, created primarily as a research tool for practitioners, has been found to be of great use to educators determined to immerse students in an evidence-based design approach whether through lecture or studio course venues. The “practitioner-friendly” language makes the text of Research Summaries, the newsletter, Implications, or the Web Casts content relevant and understandable. Whether used as a primary source for integration into the programming phase of a studio project or for an overview of issues for a senior thesis, students are able to gain new knowledge relevant to their understanding and assigned work. Also, InformeDesign provides access to the original scholarly journal articles, making students aware of refereed journals previously unknown for future investigation.
REVIEW OF LITERATURE

Today, evidence-based design is being practiced by many healthcare designers as it provides optimal patient experiences; however, it also supports sound business principles for the client (Malkin, 2005). Generally, interior design practitioners consider product, material, and code research as the extent of research necessary for practice (Guerin, 2006). Dickson and Carll White (1993) identified practitioners’ perception of “research” as the information used/applied to a problem versus the concept of research as a systematic process. This viewpoint was further echoed by a study conducted in the early 1990s to determine the importance of FIDER’s Standards, which ranked “Research” (theories and methodologies; experimental, survey) lowest in importance, even though they also ranked “Theory” (elements and principles of design; design theories; spatial composition; environment/behavior studies) highest in importance (Hines & Albanese, 1994).

More recently, a comprehensive study by Martin and Guerin (2006) about the interior design profession’s body of knowledge sponsored by the design industry brought forth evidence that focuses on research across the life cycle of the interior designer. That study noted that the “research process” was second highest in importance in the overall category, “Human Environment Needs,” which was considered the premier knowledge area and to be “owned” by the interior design profession, over any of the six categories (Sosnowchik, 2006, p. 26).

Bringing research into the classroom is a reliable way to introduce knowledge into practice. However, for this to occur, students must be educated about the “value of research” (Guerin & Asher Thompson, 2004, p. 1). Interior design educators are developing assignments that value theory and the use of research. For example, Dickinson (2004) reported junior-level students participated in a nursing home design project that focused on the research process through observation (tours), interviews, reflective observation (journaling), and a literature review. The final designs reflected the substantial knowledge accumulated through the research process employed by the students. Also, Gibson (1994) reported that during a third-year assignment, students learned the critical importance of research when analyzing the placement of furniture as it affected users’ behavior. Through development and application of an experiment to test their hypotheses, students were also able to gain confidence in their ability to think critically. Furthermore, “If not taught these
skills, the next generation of designers will be unable to distinguish between valid scholarly research and unsubstantiated beliefs” (p. 45).

Due to the emerging use of evidence-based design in practice, the disconnect between how “research” is defined by researchers/educators and practitioners, and the need for the profession to further develop its body of knowledge, it is imperative that education about research be introduced in the classroom. These students represent the profession’s future practitioners.

**PROCESS**

The presenters currently teach lecture and studio courses to interior design students in which an understanding and development of evidence-based design is required. They have developed and tested several assignments that teach the value of research, and how to gather, evaluate, and implement it in their design process whether as a team or individual experience. These assignments and typical outcomes will be presented, with ample opportunity for discussion.

**Discussion**

Many assignments have been developed to assist students in understanding the value of evidence-based design and identify appropriate research to use in the design process—four will be presented (see Figure 1). One assignment uses InformeDesign as a tool to gain initial insights on a topic new to the student about sustainable design from a practitioner (Web Cast) in concert with identifying environmental regulatory agency literature (via the Internet).

A second assignment requires research findings that inform programming about security for a childhood development office in a compromised neighborhood and then the application of design criteria transformed from those findings to create an appropriate design solution. Engagement in multiple sources reinforces the importance of looking broadly for applicable knowledge. In all cases, students include citations, get to know of experts in an arena of research, and begin to learn how to determine if the findings of a study are generalizable. Assignments also charge students with finding evidence that supports theory (e.g., place attachment) used as a basis for their designs. Complete assignment specifications and typical outcomes will be presented during the session.
CONCLUSIONS

Evidence-based design is an emerging force in the practice of interior design (Malkin, 2005). Research has been a foundation of the academy (Guerin, 1992). Bringing evidence-based design into classroom assignments prepares today’s students to be tomorrow’s practitioners. Once educated about use of research in the creation of evidence-based design, they will carry this best practice with them into the field, educating current practitioners perhaps not accustomed to applying evidence into their design process. The beneficiaries of integrating research in the classroom will be the profession and people that inhabit the spaces they design.

REFERENCES

Goetz, I. (2003, September). Natural leaders: Examining the firm’s role in the advancement of the profession. Interiors & Sources, 67.
Figure 1. Assignments Integrating Research into the Design Process Experience

<table>
<thead>
<tr>
<th>Assignment Purpose</th>
<th>Tasks</th>
<th>Outcomes</th>
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| **Assignment 1 (Exposure to Expert Knowledge):**  
Understand the issues of sustainability and “green” design as being addressed by LEED™ (Leadership in Energy and Environmental Design). | - Go to InformeDesign’s Web Cast Archives at www.informedesign.umn.edu and watch Kevin Flynn's Web Cast, “Sustainable Design/LEED.” It is approximately 90 minutes in length.  
- When done watching the Web Cast, go to Continuing Education Credits on the Web Cast Archives page. Download the “Sustainable Design/LEED Evaluation Form.”  
- Consider the information presented and answer the questions noted within it fully.  
- Consider your answers in relationship with environmental regulatory bodies and case studies reviewed in class. | - Students experience navigation through a Web site and learn to operate Breeze technology.  
- Students gain background knowledge about sustainability as determined by LEED guidelines so as to participate in a classroom discussion about case studies presented by a LEED-AP guest expert in class.  
- Students gain an understanding of guidelines and standards versus regulations. |
| **Assignment 2 (Use in Programming):**  
Identify necessary data to be | - Find, read, and analyze Research Summaries (from InformeDesign) on corporate culture.  
- Define culture, include citations. What are its | - Students “learn how to learn” about new issues and topics that affect design of the built environment as related to human behavior |
collected via interview or questionnaire from users to support definition of a company’s culture.

- What does the literature say about the relationship of culture and employees?
- What criteria have been found to relate to culture in the built environment?
- Using data from the above, prepare a brief on the relationship between culture and the built environment.
- Next, write five questions to ask employers about their perception of their firm’s culture.
- Write five questions to ask of management about their perception of their firm’s culture.
- Briefly discuss: are the questions different? Are they the same? Why?

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<tr>
<th>Assignment Purpose</th>
<th>Tasks</th>
<th>Outcomes</th>
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</table>
| Assignment 3 (Use in Programming and Schematic Design): Identify data that addresses issues posed by a client or a | - Each team is to fully research a topic relative to the project, such as security, privacy, collaboration, etc., as randomly drawn.  
- Find, read, and analyze Research Summaries (from InformeDesign); review online data and how to use literature to learn about issues.  
- Students learn how to write research-based interview or questionnaire questions.  
- Students learn that different levels of hierarchy may have different answers.  
- Students enhance their ability to think critically. |
project; organize a large amount of data; apply knowledge from research into creation of the design solution.

- Write an executive summary of your findings and identify design criteria that address the issue(s) assigned. Include citations for sources.
- All executive summaries are to be posted on the course WebCT site by the due date/time.
- Develop prototypes for activities that will occur within the space; bubble and block diagrams must reflect knowledge gained from the programming research.
- Develop a design solution based on the design concept, expressed through the program, reflective of the findings of all the research.
- **Preliminary floor plans, elevations, and 3-D sketches notated to indicate research findings.**

<table>
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<tr>
<th>Assignment 4 (Use in Thesis Development):</th>
<th>Read InformeDesign’s <em>Implications</em>, 2(1).</th>
<th>Students gain basic knowledge about the practical and theoretical underpinnings of the</th>
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<td></td>
<td>Complete “Research 101” tutorial (all 3 parts).</td>
<td>Students learn how to create a hierarchical order of information and subsequently a hierarchical order of needs and how they can be best met for the health, safety, and welfare of the occupants of the space.</td>
</tr>
<tr>
<td></td>
<td>Students learn how to research in a collaborative manner.</td>
<td>Students learn how to integrate research findings into their design concept and design solution; they begin to learn how to balance creativity and necessity as they consider a myriad of needs posed by various issues.</td>
</tr>
<tr>
<td></td>
<td>Students enhance their ability to problem solve in a more critical manner, given an abundance of information and creative options.</td>
<td>Students learn how to create a hierarchical order of information and subsequently a hierarchical order of needs and how they can be best met for the health, safety, and welfare of the occupants of the space.</td>
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Students learn how to research in a collaborative manner.

Students learn how to integrate research findings into their design concept and design solution; they begin to learn how to balance creativity and necessity as they consider a myriad of needs posed by various issues.

Students enhance their ability to problem solve in a more critical manner, given an abundance of information and creative options.
| Become aware of the research process, vocabulary, and research methods for application to the Senior Thesis. | ▪ Respond to the tutorial’s questions; review responses in small groups report back to class.  
▪ Complete the instructor’s scenarios, demonstrating your understanding of research vocabulary and methods  
▪ Be prepared to discuss the senior thesis in context of this assignment. | research process.  
▪ Students share what they are learning about the research process through group discussion.  
▪ Students gain an in-depth understanding of the basis for the senior thesis specifically, and further knowledge about research in general. |
Creating a PhD Program in Design Environments

Sharran Parkinson, Debra Harris and Lucinda K. Havenhand

Abstract

PURPOSE

This paper will present the creation of a PhD Program in Design Environments, with emphasis in health care design, administered by the Department of Interior Design. The paper will demonstrate how the program and curriculum is founded upon the strategic planning ideals of the University (I. national reputation as “a learning-centered” research university; II. international recognition for research and scholarship; III. preeminence for the academic medical center; and, IV. a model for university community). Health care design, environmental stewardship, and cross-disciplinary activities are three primary initiatives that guide the mission of the PhD Program in healthcare design based upon the University ideals.

An important feature of the program is the development of cross-disciplinary graduate courses, service, and research opportunities in cooperation with the university’s academic medical community for the reason that health care administrators working with designers will affect the quality of health care design on a global scale in the coming decades. The Interior Design Department, located within the School of the Arts, therefore has built bridges with the Department of Health Administration, School of Allied Health Professions, by sharing courses within the new curriculum.

PROCESS

The Interior Design Department was able to secure state funding to create this program. The paper will present and analyze current research and literature that makes the program viable for the future of health care design research. It will include comparisons with other similar programs and will present the admission requirements and the curriculum.

SUMMARY

The program curriculum responds to the needs of students who wish to pursue careers in research, creative work, teaching, and other specialized roles in healthcare design professions or professions that link together design, health, and the social economy. The program will be attractive to students and faculty because of the unique opportunity to work with the medical campus, and students with educational backgrounds in the health or social sciences and medicine are encouraged to apply for admission. Student research methods may be either theoretical or applied and dissertation topics may include diversity and ethnic identity in the healthcare environment, ethics and sustainability in a large urban healthcare environment, or spatial differentiation in healthcare facilities.

Because of its location within a school of the arts, the program will include opportunities not only for designers typically associated with the built environment to apply for admission, but also opportunities for those with academic backgrounds in other areas of
art and design to apply. With this in mind, creative research projects may include graphic communication and cultural identity in the urban hospital or visual and intellectual stimulation in palliative care units. In conclusion, students from different disciplines will learn to promote environmental stewardship by supporting and creating aesthetic environments and design solutions that are holistic and responsive to the well being of human needs and the community.

REFERENCES


Weeks, Katie (2005). Building boom: Driven by a maturing population, aging facilities, and increased competition for patients, healthcare construction continues to surge, Contract, 10, 54.
Creating a PhD Program in Design Environments

PURPOSE

The new PhD program in Design Environments, with emphasis in health care design, responds to current research and critical needs in health care design and environmental stewardship. The Interior Design Department has partnered with the Department of Health Administration to create the new degree by sharing cross-disciplinary graduate courses. The exchange will provide interdisciplinary opportunities for faculty and graduate students to give service to the community, to write grants, and to generate research and creative work.

The program consists of 45-54 credits: 30 credits of core courses, 6 credits of electives, and a minimum of 9 dissertation credits. Required competencies in economics, statistics, or design may require additional course work. The program will follow an executive model providing opportunities for students to enhance their leadership skills, to have access to lectures taught by experts, and to have interdisciplinary workshops and case study analysis as part of graduate study.

CONTEXT

The following initiatives guide the mission of the program:

1. Health care design initiative. A focus of the program is to provide students with expertise in creating healing environments in relationship to health care facilities design, planning, sustainability, and assessment. This may include, but is not limited to long-term and short-term care facilities, hospitals, palliative care units, centers created for social economy and health, etc. Within this context, designing the built environment for community health, environmental studies, and urban planning as well as the consideration of human factors including child and family studies, aging and gerontology studies are important considerations.
2. Environmental stewardship. Important ethical concerns have centered on the practice of sustainable design and development within the context that value is added by good design.

3. Cross-disciplinary initiatives. Cross-disciplinary courses planned with the School of Allied Health Professions include but are not limited to: (a) theories of art and design, (b) interdisciplinary health care design workshops, (c) selected topics in health care design (d) health system organization, financing, and performance, and (e) organization behavior and design in health care management. This exchange will lead to several possible interdisciplinary outcomes. Graduate students in the Health Administration, Business, Sociology, Nursing, Medicine, etc., are invited to enroll in the seminars and earn course credit to earn concentrations in health care design. Similarly, doctoral students in Design Environments will have opportunities to earn certificates and concentrations offered by the School of Allied Health Professions (i.e., Gerontology).

**REVIEW OF LITERATURE**

Scientific literature has confirmed that conventional hospital design adds to stress and danger; the Center of Health Design, a non-profit research and advocacy organization whose mission is to transform health settings into healing environments that improve outcomes, has identified more than 600 published evidence based design studies. Carmona, Carmona, and Clarke (2003) additionally have collated research that examines environmental stewardship and value added by good design, including healthcare design, in a *Bibliography of Design Value for the Commission for Architecture and the Built Environment*. The bibliography offers an evidential base to back arguments that better design adds social, economic and environmental value and is therefore a worthwhile investment.

“Post-Graduate Design Education: A Feasibility Study of the Related Design Disciplines” reports the benefits of post-graduate programs in design. Bender & McCoy (2005) find many attributes that include design leadership and enhanced opportunities for funded research due to new revenue streams. Harris, Girard, and Pijawka (2003) report in “Interdisciplinary Doctoral Education in Environmental Design: Assessment of Programs, Issues, Structure, and Vision,” that the national movement among US universities toward
interdisciplinary study and research is reflected in the growth of interdisciplinary PhD programs in environmental design. Their study found that there is a growing demand for these programs and that innovative approaches have been implemented to combine various disciplines. In a study by the Pew Charitable Trust in 2001 on understanding the nature of PhD education through PhD students, 61.2% of the PhD students from 27 universities in both the sciences and the arts surveyed reported very strong interest in doing interdisciplinary work (Bender and McCoy, 2005). Almost half of the students surveyed later into their degree program were interested in accruing interdisciplinary perspectives given the chance to do so again. With this in mind, it seems clear that many PhD students value interdisciplinary perspectives to enhance their varied disciplinary work.

In “On the Value of Architecture and Facility Management in Health Administration Education,” Verderber (2002) provides information on interdisciplinary courses taught to health administration students in a graduate level health administration program in the School of Architecture at Tulane University. These cross-disciplinary courses provide the future healthcare executive with theory and applied knowledge on the history of healthcare facilities, issues in facility planning and management, principles of patient and staff focused design, campus master planning, participatory methods to involve end users in the design of their work, and care settings. He concludes that students exposed to this interdisciplinary learning will understand the adept application of key facility planning and will likely have a competitive advantage in their daily professional work.

**FINDINGS**

The Phd program in Design Environments will endeavor to meet the demands of a substantial level of health care construction activity in the US. The forecast of annual capital spending on health facilities in the US is rising from over $15 billion in 2005 to $25 billion in the year 2010 (Gabel, 2005). Geographic opportunities appear nationally, Modern Healthcare magazine's recent survey found more than $1 trillion completed, in-progress, or planned healthcare projects in 2004 (Weeks, 2005).

Several factors influencing this growth can be traced to the end of World War II. First, the aging of the baby boomers places a need for healthcare facilities. By 2010, there will be 40 million Americans over the age of 65. Health care also providers can do more for
the patient today than they could 10 years ago because of medical and technological advances. These advances are changing the hospitals as they add more specialized units that once were designated to regional facilities. This observation is concurred by Rick Wade, vice president for the American Hospital Association, “There were facilities that were once so sophisticated you only had them at regional medical centers, like orthopedic surgery, cancer care, and heart care…. those kinds of technologies are advancing and people expect almost every hospital to have some of them.” Wade says that many hospitals are adding rehabilitation centers as medical advances allow doctors to treat injuries that were previously crippling, including joint and hip injuries, cardiac problems (Weeks, 2005). With proper care these patients can return to a good if not high quality of life.

The passing of the Hill-Burton Act shortly after World War II led to unprecedented federal spending on healthcare construction. Many of the structures built then have never been updated. Most hospitals built today are mainly replacement hospitals or dramatic renovations of these existing facilities. Technology has advanced so far from the 1940s and 1950s that logistically and economically, it is not feasible to renovate the older facilities. Floor plans and circulation are reexamined from a new design standpoint because of new technology, work processes, and greater patient loads. Furthermore, hospitals and other health care facilities are becoming increasingly competitive, and finances depend on attracting new patients or residents.

**SUMMARY**

As previously cited, health administrators and care providers, working with architects and designers will affect the quality of healthcare delivery on a global scale in the coming decades (Verderber, 2004). With this in mind, the function of the health care environment in relationship to environmental stewardship is critical and the new Phd program in Design Environments will provide a curriculum where artists, designers, and health care professionals can work together to gain expertise in solving the complexities of healthcare design and planning. The creation of a healing environment will be likely to deliver a competitive advantage to the spaces they design and the organizations (healthcare facilities, architectural firms, design firms) for which they work. If this is not recognized, these organizations will suffer the economic consequences in an increasingly competitive and
demanding economic environment (Verderber, 2004). This growth is recognized by the
increasing number of new codes, environmental restrictions, and new manufacturing of
products (e.g., bioactive textiles, Crypton technology, etc.) related to health care design, as
well as the increased emphasis on health care design evidenced in scholarly journals, and the
formation of healthcare design organizations (e.g., The Center for Healthcare Design) who
are developing strong political and lobbying powers.

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Sustainability: An Exploration of Process and Project

Catherine Wallack and Jennifer Webb

Abstract

PURPOSE

The adoption of the ‘Cradle to Cradle’ philosophy by the Interior Design Educators Council has challenged interior design educators to reconsider not only the content but, more importantly, the process by which students are taught sustainable design principles (IDEC, 2005). The purposes of this paper are two-fold. First, the pedagogical challenges of teaching sustainable design will be discussed in the context of deep learning (Warburton, 2003). Second, a first-year studio project, developed over two years, will be used as an example of rethinking the design process relative to sustainability. This project was intended to encourage deeper learning of sustainability and simultaneously reduce the waste typically created as the result of studio projects.

PROCESS

The Shelter project was developed with the intention of increasing student awareness of issues related to sustainability. Introducing these topics at the beginning of the design education is critical to the development of students’ sensibilities about design and the environment. For the first iteration of the shelter project, small groups of students were required to use recycled and recyclable materials to create temporary occupiable shelters. In the second year of the project, deep learning strategies were utilized to further develop this project in response to missed opportunities recognized in the first iteration. In the this version of the project, students were given a number of additional requirements. With deep learning, students use analytic skills and investigate underlying meanings (Martin & Säljö, 1976). Therefore, students completed reflective writing assignments both at the beginning and end of the project addressing their understanding and habits about sustainability. In order to respond to the issue of waste more fully, students were asked to document shelter materials after the demolition of the actual structure. These additional assignments encouraged greater engagement in the process. Warburton (2003) believes that deep learning is critical to education in sustainability because of the interdependence of systems and the dynamic contexts in which the problems are framed.

SUMMARY

Student responses suggest their awareness of sustainability was increased by the project. Reflective writing proved to be an appropriate learning tool for this particular issue
and, in the context of deep learning, allowed students to better appreciate the significance of sustainable issues. One goal of the project was realized. Waste associated with many projects was significantly reduced as students composted, recycled, and returned materials. Adhesives and other solvents were eliminated from the project entirely.

This effort in teaching sustainable principles in terms of process rather than content alone made a meaningful difference in student learning outcomes. Further evaluation of the same cohort of students is planned throughout their education in order to discover whether the attitudes expressed in the original writing assignment continue to evolve.

REFERENCES

Sustainability: An Exploration of Process and Project

PURPOSE

Recent years has seen what appears to be burgeoning concern for the environment and, at times, the public seems to support sustainable initiatives everywhere from their home, their workplace and to their interior design studio. A second glance, however, reveals the true division between words and actions. Consider the opposing ideologies that have resulted in the 39-gallon trash bag and the solar powered compacting trashcan or the 9 miles per gallon SUV and the 52 miles per gallon hybrid. More specifically, consider the premise of sustainable interior design and the practices typically employed in the university design studio. Do project requirements result in unnecessary waste that defies the very sustainable premises we are trying to emphasize?

The adoption of the ‘Cradle to Cradle’ philosophy by the Interior Design Educators Council has challenged interior design educators to reconsider not only the content but more importantly the process by which students are taught sustainable design principles (IDEC, 2005). The purposes of this paper are two-fold. First, the pedagogical challenges of teaching sustainable design will be discussed in the context of deep learning (Warburton, 2003). Second, a first-year studio project, developed over two years, will be used as an example of rethinking the design process relative to sustainability. This project was intended to encourage deeper learning of sustainability and simultaneously reduce the waste typically created as the result of studio projects.

FRAMEWORK

The concept of deep learning (Marton & Säljö, 1976) suggests that students must utilize higher-level cognitive skills to create deeper and more meaningful engagement with a discipline. In contrast, surface learning does require students to go far beyond memorization and rote responses to closed-ended questions. With deep learning, students use analytic skills and investigate underlying meanings. Significant to the achievement of deep learning, Ramsden (1997) believes that an individual’s level of engagement and motivation to
understand is critical. Warburton (2003) believes that deep learning is critical to education in sustainability because of the interdependence of systems and the dynamic contexts in which the problems are framed.

**REVIEW OF LITERATURE**

Much has been written about education and environmental issues. However, there is limited pedagogical material that addresses the interrelationship between sustainability and design education (Clare, 2001). In the United Kingdom, education specifications have been developed for design education; this is in response to what is perceived as an “unsustainable consumer culture” (Chick, 2000, p. 163). While the UK recognizes the role design and design education plays in the economy, no such response has been initiated in the United States.

In the hallmark publication *Ecological Literacy*, David W. Orr (1992) states that our education must be relevant to a sustainable society and must reach beyond a specific agenda. Orr argues that our education must provide a north arrow or direction and that it must be accompanied by a motivational force. Critical to his discussion is the concept of system where each element impacts every other element. Motivation and systemic solutions are the foundation of deep learning theory.

William McDonough (2004) further emphasizes the need for deep versus surface learning. He describes sustainability as a “descriptive term for a range of cultural responses to the environmental and social impacts of economic growth” (McDonough, 2004, p. B7). McDonough states that a reductivist approach is inadequate and that design solutions must work within closed loop cycles. Deep learning relative to any discipline can be achieved with the appropriate paradigm shift.

The existing literature offers a solid foundation for surface learning relative to sustainable design by providing definitions, factual information and how-to’s for studio projects, but this is far from adequate. For education to be effective relative to these critical issues, students must develop the motivation and system approach that allow them to be truly cradle-to-cradle designers. In a recent presentation, Stewart-Pollock and Pillote (2005) conclude that a system approach to green design education is necessary. It is not surprising in this first generation of sustainability education efforts, that learning resources are oriented toward the creation of course content and materials rather than addressing teaching method.
A truly meaningful paradigm shift will require educators to consider not just what they teach, but also how they teach.

**PROCESS**

The introduction of sustainable design principles at the beginning of a designers’ education is imperative to developing long lasting habits and values. Further, these topics at the beginning of the design education is critical to rethinking the role existing studio culture plays in the development of students sensibilities about design and the environment. Deep learning is necessary to develop the level of engagement with environmental concerns to make a lasting impact.

The Shelter project, developed over two years, consisted of a number of distinct phases. During the first iteration, the project required small groups of students to design and construct their own temporary, occupiable shelter for a person based on a specific concept. The groups were required to collect and construct the shelters from recycled and recyclable materials. In preparation, students viewed a presentation with images of structures created utilizing ordinary materials. Examples included a Shigeru Ban paper house, the Corn Palace, and the Beer Can House. Teams then developed conceptual sketches and created mockups to test their ideas. Their final constructions were installed outside over a two day period and then were to be disposed of appropriately. Each team submitted a notebook documenting the process from ideation and materials collection through construction. The second iteration included several changes as missed opportunities were observed in the first iteration. Several groups, for example, altered their recyclable materials to the point that they were no longer readily recyclable. One group spray painted large sheets of cardboard. Even more disappointing was another group's decision to throw away their recyclable shelter components directly into a trash dumpster.

In response to these observations, the project was reconsidered and deep learning strategies were further integrated. Greater emphasis has been placed in class during preliminary critiques on both the sources for materials and the destinations for the materials after the project. In addition, students were asked to respond in reflective writing assignments about the definition of sustainable design, recycling, their personal recycling habits and those of Americans in general. Perhaps most significantly, students were required
to track their project beyond deconstruction using photodocumentation. The individual building components were observed days after the shelters demolition in their next locations. Students recorded items being composted, recycled, or returned to original location as well as being disposed of in the trash. This increased documentation encouraged students to reflect on the consequences of their actions.

Content analysis was utilized to examine students’ reflective writings. Students responded to the questions both before their project started and at the completion of the project in its entirety.

DISCUSSION

Findings from the project suggest that considerations of the future disposal of the project during the design process continued to be a challenge. Students continued to struggle with the intermingling of materials and their desire to alter materials to better fit their design goals. Connections between dissimilar materials are difficult and often had to be reversible to allow for proper recycling. In response, additional mockups assigned during the design process allowed more instructor feedback and, as a result, projects were significantly more recyclable. These mockups also allowed for sturdier design solutions and informed students about the importance of connections and structural integrity. Mockups were presented in a group setting and provided the opportunity for teams to learn from each others’ experiments.

Findings from the reflective writing suggest that many students did not fully realize their role in the greater environmental context. Initially, a number of students indicated they did not recycle due to difficulty in finding appropriate venues. In contrast, the same group believed that Americans wasteful and often selfish. This disconnect illustrates the conflict between thought and action.

SUMMARY

Student responses suggest their awareness of sustainability was increased by the project. Reflective writing proved to be an appropriate learning tool for this particular issue and, in the context of deep learning, allowed students to better appreciate the significance of
sustainable issues. Reflection facilitated a deeper understanding of their roles in the creation (and the potential resolution) of environmental concerns. The hands-on nature of the project made these issues accessible to the students and allowed greater recognition of underlying meanings.

While changes to the project did not fully address the instructors’ concerns, progress was made in development of student thought. This effort in teaching sustainable principles in terms of process rather than content alone made a meaningful difference in student learning outcomes. Further evaluation of the same cohort of students is planned throughout their education in order to discover whether the attitudes expressed in the original writing assignment continue to evolve.

REFERENCES

Team Diversity:
Building Strong Collaboration

Jennifer Webb & Nancy Miller

Abstract

PURPOSE

Teamwork has become a significant part of the college classroom. The purpose of this paper is to incorporate existing literature with research findings about team formation to create recommendations for educators. There are three objectives for this project: summarize literature on team formation methods and outcomes; present research data detailing student perspectives on team formation methods; and make recommendations for educators.

LITERATURE REVIEW

Teams can be formed in a variety of ways. Muller (1989) summarizes methods by which groups can be formed: instructor assigns randomly, instructor assigns on basis of competence, post project list and sign up for one, student select with size constraint, algorithms based on questionnaires, students bid resources for a desired project. Other methods include proximity out of class (Onwuegbuzie, 2001), personality (Barrick & Mount, 1998), random (Berge, 1998), or balanced (Muller, 1989).

Teams can vary in the degree of heterogeneity in skills, background, and ability. The interaction of task type, team size, and degree of homogeneity may influence the effectiveness of the team. Shaw (1981) notes that projects requiring creativity benefit from more heterogeneity. Bradshaw (1989) found that “teams composed of homogeneously high intellect members did not perform .... [as well as] heterogeneous teams who had a wider range of perspectives and active discussion”.

Each team formation method has strengths and weaknesses. Random selection of teams is used for short-term projects. Teams with matched skills, background and ability are made generally by the instructor. Muller (1989) examined matched teams and balanced groups reported higher levels of group satisfaction, challenge, and shared workload. Instructors avoid self-selection assuming friends stick together in homogeneous teams. In general, Onwuegbuzie (2003) indicates that heterogeneous groups will attain higher levels of performance. Zajak (1997) examined literature on friend and non-friend interaction and found that friends offer more positive verbal and nonverbal encouragement, interacted more, and were more democratic.

METHOD

82
Participants were solicited via IDEC listserv. Of the 264 faculty holding IDEC memberships and participating in the organization’s listserv, 8% (n = 21) agreed to distribute questionnaires to their students. Students (62%, n = 213) were eligible if they had completed one or more projects in a studio course.

The questionnaire was self-administered and covered topics on teamwork in the interior design studio. The questionnaire includes sections covering student’s behaviors during team projects, team project structure, and instruction on leadership and teamwork.

SUMMARY

The findings suggest that students are conscious of team formation advantages or pitfalls. Pitt (2000) states any method of selecting teams provides inherent advantages/disadvantages and a degree of chance; faculty must consider each project and the desired learning outcomes.

Comments from students indicate that, more than anything, predictability is important. The ability to get along and find common ground as well as schedules and skills impacts attitudes. Students indicate that appropriate and supportive feedback from peers is important and necessary for task completion. Faculty must be aware that no single method serves all purposes and that both task content and task process should be considered.

REFERENCES


Team Diversity:

Building Strong Collaboration

INTRODUCTION

If you were eavesdropping on student thoughts concerning team selection methods for class projects, you might hear:

I always get stuck with people who are friends . . . . I am the outcast . . . . they don’t work up to my expectations . . . . [faculty] don’t know areas of interest, strengths, where people live . . . . pair worst with best . . . . you end up not liking your friends . . . . you could have major conflicts when your grade depends upon it.

These are a few comments from university students completing a teamwork survey. They reflect students’ frustration concerning collaborative projects and the team formation process.

Studies addressing team, collaborative, and cooperative learning in the classroom further reflects the frustration of instructors. Berge (1998) notes critical differences between workplace and classroom. Workplace teams are composed on the basis of schedule, skills, and availability where classroom teams must fill what ever role is needed and to make him/herself available. Berge also notes trust, culture, infrastructure, and accountability lacking in the classroom setting. Connerly and Mael (2001) state that the workplace draws upon established relationships missing from student work groups. Their findings also suggest failure increases as a function of adaptation, trust, and cohesion not developed in student teams. Additionally, team members often receive no recognition for individual achievement. These factors complicate the formation and function of classroom teams.

The purpose of this paper is to incorporate existing literature with research findings to create recommendations to educators. There are three objectives for this project: 1) summarize existing literature on team formation methods and outcomes; 2) present research data detailing student perspectives on team formation methods; and 3) make recommendations for educators.
BACKGROUND

Teams are formed in a variety of ways. Muller (1989) summarizes methods including instructor assigned either randomly or skills/competence, post project list and sign up, students self-select with size constraint, algorithms based on questionnaires, students bid resources for desired project. Other methods include proximity out of class (Onwuegbuzie, 2001), personality (Barrick & Mount, 1998), random (Berge, 1998), or balanced (Muller, 1989).

Teams can vary in heterogeneity of skills, background, and ability. The interaction of task type, team size, and team heterogeneity may influence overall team effectiveness. Onwuegbuzie (2003) indicates that heterogeneous groups will attain higher levels of performance. Shaw (1981) notes that projects requiring creativity benefit from heterogeneity. Perry and Euler (1988) suggest that homogeneous teams generated by peer selection tend to be harmonious in the beginning but lack a range of perspectives and can be limited in the quality of effort. Bradshaw (1989) found that “teams composed of homogeneously high intellect members did not perform .... [as well as] heterogeneous teams who had a wider range of perspectives and active discussion”. Conversely, Barrick, et. al. (1998) discovered that teams with high cognitive abilities performed better than those teams with lower cognitive abilities. Further, their findings indicate shared levels of conscientiousness resulted in overall higher performances.

The majority of findings suggest that heterogeneity leads to improved team performance. There is risk involved on the part of the instructor as well as the students and, despite planning, the project may not turn out as anticipated.

Random selection of teams is used frequently for short term projects. Teams formed randomly equalize the risk to everyone. This method is promoted by Berge (1998) because neither students nor faculty are fully aware of each person’s skills and knowledge as compared to workplace teams.

There is also support for the formation of teams based on skills, background, or ability. These matchings are made generally by the instructor and decisions are typically based on exam scores, interviews, or past experience with students. Oswald (1996, p. 1) states that “more and better information come from a group of people with various resources and skills.” Muller (1989) examined the differences between balanced groups and
unbalanced groups and found balanced groups reported higher levels of group satisfaction, challenge, and shared workload. Feichtner and Davis (1985) discovered that students are “more likely to have a positive experience in a class where groups are either formed by the instructor or by a combination of methods”.

Instructors avoid self-selection due to the assumption that friends stick together and produce lack of focus or homogeneity. Onwuegbuzie, et. al. (2003) details a study where teams self-selected on the basis of academic major, professional background, and proximity to home and not on aptitude or ability. The findings suggested that homogeneous teams do not necessarily result from self-selection. Zajak and Hartup (1997) examined literature on friend and non-friend interactions. Friends offered more encouragement, increased interaction and discussion, and engaged in conflict management more effectively than non friends.

Knowledge concerning the other person and trust in that person may be significant when friends choose to work together. Connerly and Mael (2001) conducted interviews to determine desired teammate qualities: academic attitudes, abilities and relevant experiences, intrapersonal temperament, interpersonal, work preferences, background, and availability limitations. When students self-select teams, they are already familiar with teammates. Jones and George (1998) found that unconditional trust already exists between friends and enhances the team performance.

**Method**

**Participants.** Faculty with Interior Design Educators’ Council (IDEC) memberships were contacted by an email listserv for participation. Of the 264 faculty holding IDEC memberships and participating in the organization’s listserv, 8% (n = 21) agreed to distribute questionnaires to their students. All students were eligible to participate as long as they had completed one or more projects in a studio course.

**Instrument.** Student instruments were developed following a literature search and a pilot study. The pilot study was distributed to five faculty and 40 students enrolled in interior design courses at three universities. The pilot study posed a range of qualitative questions later developed into quantitative, scaled questions for the study. The questionnaire included information about demographics, current team project involvement and experience quality,
common roles and practices on team projects, classroom leadership and team training, team formation methods, peer evaluations, and best/worst experiences.

**Design and Procedure.** Questionnaires were mailed to the faculty. Instructions for administering the questionnaire were similar to course evaluations. When the instructor arrived in class, a student was asked to distribute and collect the student surveys and place into the return envelope and seal it. The faculty member left the classroom while students completed the survey. The faculty member made arrangements for the envelope to be mailed back to the researchers. The faculty requested 341 student instruments and 62% (n = 213) were returned.

**DATA ANALYSIS**

Descriptive statistics were used to define participant characteristics and are summarized in Table 1. The majority of respondents were females in their third or fourth year in a FIDER accredited program. Students were asked to indicate in which team formation methods they had participated (Table 2). The majority (86%) had participated on teams formed by different methods.

Content analysis was used to examine responses about preference or aversion to particular team formation methods (Table 3). For those preferring self-selected teams, respondents’ reasons included predictability about habits and compatibility as well as schedules and strengths. Teacher selected teams were preferred because it emulated the workplace, removed distractions, produced strong teams, and allowed him/her to open new doors. For respondents who preferred personality evaluations, they indicated that it smoothed out later problems. Randomly formed teams were preferred because respondents believed it was fair, no one would be left out and that you “don’t always get to work with your friends.”

For respondents who believed self-selected teams was a poor method, impact on friendships, concerns over being left out and project quality were cited. Teacher selected teams were disliked because there was a general feeling that teachers separate friends and that strong/poor students were paired. Working with individuals you did not like with or the potential of someone not working hard were the most common complaints when working in randomly formed teams. Teams formed by personality tests left many other factors unconsidered.
Table 1. Characteristics of Student Participants.

<table>
<thead>
<tr>
<th>Category</th>
<th>Percentage</th>
<th>Sample Size</th>
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</thead>
<tbody>
<tr>
<td>Gender</td>
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</tr>
<tr>
<td>Male</td>
<td>5% (n = 11)</td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>95% (n = 202)</td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>24.9 years</td>
<td></td>
</tr>
<tr>
<td>Year in Program</td>
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<td></td>
</tr>
<tr>
<td>First</td>
<td>0.0004% (n = 1)</td>
<td></td>
</tr>
<tr>
<td>Second</td>
<td>12.2% (n = 26)</td>
<td></td>
</tr>
<tr>
<td>Third</td>
<td>31.4% (n = 67)</td>
<td></td>
</tr>
<tr>
<td>Fourth</td>
<td>46.9% (n = 100)</td>
<td></td>
</tr>
<tr>
<td>Fifth</td>
<td>8.9% (n = 19)</td>
<td></td>
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<tr>
<td>FIDER Accredited Program</td>
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<td></td>
</tr>
<tr>
<td>Yes</td>
<td>80.7% (n = 172)</td>
<td></td>
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<tr>
<td>No</td>
<td>16.4% (n = 35)</td>
<td></td>
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<tr>
<td>No Response</td>
<td>2.8% (n = 6)</td>
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<tr>
<td>Currently Working on Team Project</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>38.0% (n = 81)</td>
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</tr>
<tr>
<td>No</td>
<td>59.6% (n = 127)</td>
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<tr>
<td>No Response</td>
<td>2.3% (n = 5)</td>
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<tr>
<td>Current Team Experience*</td>
<td>3.71 (n = 78)</td>
<td></td>
</tr>
<tr>
<td>Overall Team Experience*</td>
<td>3.47 (n = 197)</td>
<td></td>
</tr>
</tbody>
</table>

* Team Experience was rated on a scale of 1 = Horrible and 5 = Great

Table 2. Participation on Teams Utilizing Different Selection Methods.

<table>
<thead>
<tr>
<th>Selection Method</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teacher Select</td>
<td>82% (n = 189)</td>
<td>18% (n = 42)</td>
</tr>
<tr>
<td>Random Select</td>
<td>35% (n = 80)</td>
<td>64% (n = 150)</td>
</tr>
<tr>
<td>Self Select</td>
<td>21% (n = 48)</td>
<td>79% (n = 184)</td>
</tr>
<tr>
<td>Personality Test</td>
<td>62% (n = 144)</td>
<td>38% (n = 87)</td>
</tr>
</tbody>
</table>

Table 3. Best and Worst Team Formation Types.

<table>
<thead>
<tr>
<th>Selection Method</th>
<th>Best</th>
<th>Worst</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teacher Select</td>
<td>13% (n = 29)</td>
<td>23% (n = 47)</td>
</tr>
<tr>
<td>Random Select</td>
<td>15% (n = 32)</td>
<td>32% (n = 64)</td>
</tr>
<tr>
<td>Self Select</td>
<td>59% (n = 123)</td>
<td>27% (n = 53)</td>
</tr>
<tr>
<td>Personality</td>
<td>8% (n = 19)</td>
<td>15% (n = 30)</td>
</tr>
<tr>
<td>Other</td>
<td>3% (n = 6)</td>
<td>3% (n = 6)</td>
</tr>
</tbody>
</table>
CONCLUSIONS

The findings suggest that students are frequently more conscious of team formation and subsequent advantages or pitfalls that instructors might believe. Students had participated on teams created in many ways and their comments clearly indicate there are strengths and weaknesses to all methods. Pitt (2000) applied gaming theory to a collaborative, academic project. Any method of selecting teams provides inherent advantages/disadvantages and a degree of chance; faculty must consider each project and the desired learning outcomes.

Comments from students indicate that, more than anything, predictability is important. The ability to get along with teammates and to find common ground as well as common meeting times and complimentary skills impacts attitudes across the board. Additionally, students indicate that appropriate and supportive feedback from their peers is important and provides the necessary motivation for task completion. In planning collaborative projects, faculty must be aware that no single method serves all purposes and that both task content and task process should be considered.

REFERENCES


Interior Design’s Social Compact: The Missing Aspect of Our Quest for Professional Legitimacy

Barbara Anderson, Peggy L. Honey, and Michael T. Dudek

Abstract

PURPOSE

Interior designers have been seeking recognition as a distinct profession for more than fifty years. Current efforts for professional recognition include academic accreditation, apprenticeship, examination, licensure, and self-regulation through professional associations. There is a significant aspect of professionalism unaddressed by interior designers: the social compact to do good.

Historically, a social compact allowed the professions to define their body of knowledge and system for education, apprenticeship, and licensure in exchange for self-regulation of the members and a compact for ethical behavior that brought a public good. (Sullivan, 2005, 36) The current crisis of public confidence in the professions stems from the fact that the professions have not been attending to their obligation to act ethically and provide a public good. (Sullivan, 2005) This paper calls interior design educators to the task of clarifying the profession’s obligation to society to provide a public good in return for the rights and privileges of professional status.

CONTEXT

Interior designers have been making progress toward professionalization, however they have not articulated the purpose of the profession in providing a public benefit or a social good. What is the societal value of interior designer work beyond the economic gain that it provides to the professional?

Professional interior design organizations have adopted codes of ethics with which members must comply to maintain the benefits of professional membership. These codes of ethics principally address business ethics that maintain a fair playing field for professionals (and clients) within a capitalistic market economy. These ethical codes do not address the interior design profession’s civic responsibility, or the public good side of the compact between professions and society.

Interior designers have had mixed success in arguing that they provide a public good through the protection of health, safety, and welfare. In combination with other factors, this is the primary basis for state interior design title and license acts.

Sustainability could be one of the areas in which the profession provides a public good. There are other areas of public good, such as environment and behavior that could be the province of the interior design profession, but few of them are exclusive to interior design. Are there societal benefits that are the primary or even exclusive domain of interior
designers? This question must be answered to advance the profession beyond its current perception as a fashion-driven and insignificant occupation.

SUMMARY

The interior design profession is at a critical juncture in our search for legitimacy. We can follow the other professions as they turn their backs on the social compact to do good and focus on protecting their domain through articulation of their professional expertise. Or we can secure our future as a profession that serves the common good by articulating the public value for which we stand and then working to contribute to the good of humanity in all that we do. Only when we have moved from a defensive position of proving expertise to an offensive position of committing to the public good will we both deserve and gain public recognition as a valued profession.

REFERENCES

Interior Design’s Social Compact: The Missing Aspect of Our Quest for Professional Legitimacy

PURPOSE

Interior design professionals have been working to define interior design as a distinct profession for more than fifty years. Efforts for professional recognition have included academic accreditation, apprenticeship, examination, licensure, and self-regulation through professional associations. There is, however, a significant aspect of professionalism unaddressed by interior designers: the social compact to do good.

In William M. Sullivan’s *Work and Integrity: The Crisis and Promise of Professionalism in America*, (2005) he describes the history of the professions in America and the crisis of public confidence in professions to act professionally. He explains how professions developed as a way to identify specially trained and skilled experts. Historically, the social compact was that professions could define their body of knowledge and system for education, apprenticeship, and licensure in exchange for self-regulation of the members and a compact for ethical behavior that brought a public good. Sullivan clearly places the blame for the crisis of public confidence in the professions on the fact that the professions have not attended to their obligation to act ethically and provide a public good. This paper calls interior design educators to the task of clarifying the interior design profession’s obligation to society to provide a public good in return for the rights and privileges of professional status.

CONTEXT

Sullivan’s characterization of a profession, which follows, provides a context for discussion of this issue for interior design educators:

A profession is typically described as an occupation characterized by three features: specialized training in a field of codified knowledge usually acquired by formal education and apprenticeship, public recognition of a certain autonomy on the part of the community of practitioners to regulate their own standards of practice, and a commitment to provide service to the public that goes beyond the economic welfare of the practitioner. (Sullivan 2005, 36)
The discussion of the body of knowledge for interior design is an example of the effort by interior designers to define the codified knowledge of the interior design profession, thus drawing a distinction between interior design and other disciplines. A more productive effort would be to define the unique and valuable role interior designers play in society. (Sullivan 2005, 59)

Interior designers are addressing self-regulation of practice standards in several ways. The Council for Interior Design Accreditation provides a measure of the adequacy of interior design education through accreditation of worthy academic programs. The National Council for Interior Design Qualification (NCIDQ) administers professional examinations that measure baseline competencies for practitioners. The NCIDQ has recently instituted a formalized internship process for newly graduated students.

Another example of self-regulation in interior design is the adoption of codes of ethics by professional organizations. Members must comply with the codes to maintain the benefits of professional membership. These codes of ethics, however, principally address business ethics that contribute to sustaining a fair playing field for professionals (and clients) within a capitalistic market economy. These ethical codes do not address the interior design profession’s civic responsibilities—the public good side of the compact between professions and society.

Interior designers have had mixed success in arguing that they provide a public good through the protection of health, safety, and welfare. In combination with other factors, this is the primary basis for state interior design title and license acts. There are a number of other areas in which interior designers can contribute to the public good. Currently, one of the most obvious of these is the environmental movement.

The emphasis on sustainability in all areas of environmental design is evidenced within the interior design profession in part by the adoption of the following resolution at the International IDEC meeting in 2005: “Be it resolved that IDEC supports the concepts of socially responsible design including the cradle to cradle paradigm as an integral part of interior design education.” (IDEC 2005 Annual Report, 2)

The emphasis on sustainability in interior design education is also evidenced in The Council for Interior Design Accreditation’s (Council) recent revisions to the Professional Standards for accreditation (see Figure 1). The Council now requires accredited programs to
teach environmental ethics as part of the teaching of professional values. In the revised standards effective January 1, 2006, the expectation is that students in accredited programs will learn environmental ethics and the role of sustainability in the practice of interior design.

**Council for Interior Design Accreditation--Professional Standards**

**Standard 2 Professional Values**
The program MUST provide learning experiences that address:
- professional ethics and the role of ethics in the practice of interior design.
- environmental ethics and the role of sustainability in the practice of interior design.

**Definition of environmental ethics provided by Council for Interior Design Accreditation:** “A value system supporting adoption of ecologically responsible behaviors and practices.”

**Definition of environmental ethics from the Stanford Encyclopedia of Philosophy:**
“the discipline that studies the moral relationship of human beings to, and also the value and moral status of, the environment and its nonhuman contents.”
http://plato.stanford.edu/entries/ethics-environmental/

**Definition of environmental ethics from the Stanford Encyclopedia of Philosophy:** “the discipline that studies the moral relationship of human beings to, and also the value and moral status of, the environment and its nonhuman contents.”
http://plato.stanford.edu/entries/ethics-environmental/

**Figure 1**

Clearly, environmental ethics could be one of the areas in which the interior design profession provides a public good. It seems to these authors that there are other areas of public good, such as environment and behavior, which could be the province of the interior design profession, but that few of them are exclusive to interior design. Are there societal benefits that are the primary or even exclusive domain of interior designers? This question must be answered to advance the profession beyond its current perception as a fashion-driven and insignificant occupation.

**REVIEW OF LITERATURE**

The literature on professional ethics for architecture and design is almost entirely focused on the profession of architecture. *Ethics and The Built Environment*, edited by Fox
(2000) is the most comprehensive source for a discussion of ethics and architecture. Among more recent ecology-focused books for architects and designers there is usually a chapter in each on environmental ethics. An example of one such book is *Building for Life: Designing and Understanding the Human-Nature Connection*, by Kellert (2005).

Publications that focus on interior design and professional ethics typically address the ethics of business practices. Just a few articles (mostly in professional journals) address professional ethics beyond business practices. They tend to focus on sustainability in general, wise use of resources, health and well-being, design for the disadvantaged, and the like. There are many related books on cultural meaning, sense of place, and creating environments that support human needs; for example Christopher Day’s *Places of the Soul* (2004).

There is a strong body of literature on professionalism and ethics, teaching ethics across the curriculum in higher education, teaching ethics at all educational levels as a foundation for moral development, and the like. Interior design is seldom mentioned in these books and articles. This is likely because of interior design’s comparatively low status within all professions where medicine (doctoring) and law reign supreme and professions that have traditionally been the domain of females like teaching, nursing, and interior design are considered of lesser prestige.

**DISCUSSION**

Sullivan (2005) places the obligation to teach the values of public engagement and ethical and social responsibility of the professions squarely on the shoulders of the professorate. The academy plays a primary role in establishing each field’s obligation to society for the greater good and in preparing students to become professionals willing and able to fulfill the compact between the professions and society (Sullivan 2005, 195-226). Sullivan is clear that professional schools must “serve as a rallying point for professional renewal” (226). But how do we define the interior design profession’s obligation to society? Surely it deserves clearer articulation than professional and environmental ethics, meeting client and user needs, and having a global perspective as are described in the Council’s Standards for Professional Values.

One way to consider the interior design profession’s obligation to society to provide a civic good is to evaluate what we do, both the things we do by tradition and the
innovations we bring to the environmental design field, to determine if what we do is in the best interest of society. Mihaly Csikszentmihalyi (1996) addresses the need for new ideas in each field or domain to be careful evaluated as to their impact on the public good in *Creativity: Flow and the Psychology of Discovery and Invention*:

Each field expects society to recognize its autonomy, yet each feels in the last analysis accountable only to itself, according to the rules of its own domain. For all of these reasons, it is useless to expect fields to monitor their own creative ideas in terms of the long-range public good. (324)

Csikszentmihalyi further speculates:

But it is probably the case that within each field there are enough individuals with both expertise and a sense of the public good who could be deputized to serve the interests of society. (325)

Should interior design educators be “deputized to serve the interest of society”? We agree with Sullivan’s (2005) assertion that “…many of the academic disciplines have specialized expertise in dealing with the human world, especially questions of what might and should be” (12). We believe interior design educators must take a significant share of the responsibility for articulating the social compact for the profession of interior design.

**SUMMARY**

The interior design profession is at a critical juncture in our search for legitimacy. We can follow the other professions as they turn their backs on the social compact to do good and focus on protecting their domain through articulation of their professional expertise. Or we can secure our future as a profession that serves the common good by articulating the public value for which we stand and then working to contribute to the good of humanity in all that we do. Only when we have moved from a defensive position of proving expertise to an offensive position of committing to the public good will we both deserve and gain public recognition as a valued profession.
REFERENCES


Sustainable Characteristics of Earthbag Housing

Brooke Barnes, Mihyun Kang, and Huanhian Cao

Abstract

PURPOSE

The purpose of this study was to develop understanding of the earthbag building system, while calling attention to its sustainable properties. The earthbag building system uses locally available soil in combination with woven bags which are filled and stacked to form a building. “Earthbag construction is one of the most inexpensive building methods on the planet,” as the system utilizes locally available, naturally occurring materials (Kennedy & Wojciechowska, 2005, p. 175). Ease of construction, construction time, and adaptability and durability are further strengths of the earthbag building system (Wojciechowska, 2001; Kennedy & Wojciechowska, 2005; Hunter & Kiffmeyer, 2004). Using the United States Green Building Council’s (USGBC) Leadership in Energy and Environmental Design Home (LEED-H) Program this study identified the sustainable characteristics of the earthbag building system. Distinction was made between characteristics of sustainability inherent to the earthbag building system and those fulfilled by designer decisions.

METHODOLOGY

An interview was conducted with Kelly Hart, the earthbag homeowner/designer in order to collect data. Site observation of the Hart home was also conducted and consisted of still photographs and a video taped guided tour. The Hart home is located in Crestone, Colorado, and was constructed by Hart using the earthbag construction technique. The Hart interview and Hart home site observation were analyzed to determine compliance with the LEED-H certification and rating system. After determining which LEED-H criteria were fulfilled by the Hart home, reason for compliance was divided into two categories: compliance attributable to the earthbag building system and compliance attributable to designer decisions.

SUMMARY

Sustainability of the earthbag building system was analyzed using LEED-H criteria. By category of LEED-H criteria, the earthbag home met the following: Location and Linkages—three of four requirements, Sustainable Sites—five of five requirements, Water Efficiency—zero of three requirements, Indoor Environmental Quality—six of ten requirements, Materials and Resources—six of six requirements, Energy and Atmosphere—eight of eleven requirements, Homeowner Awareness—zero of one requirement, and Innovation and Design Process—one of one requirement. Based on the analysis, the earthbag building system possesses inherently sustainable properties. Compliance with guidelines in the
following categories may be attributed directly to the earthbag building system: Indoor Environmental Quality, Materials and Resources, Energy and Atmosphere, and Innovation and Design Process. Similarly, compliance in the following categories may be attributed to decisions made by the homeowner/designer: Location and Linkages, Sustainable Sites, Water Efficiency, and Materials and Resources. The use of an earthbag building technique ensures some level of sustainability. However, the inherent sustainability properties of the earthbag construction technique may be complimented and enhanced by choices made by designers. Therefore, the earthbag building system’s sustainable characteristics and properties can be enhanced by the design decisions in compliance with the LEED-H certification and rating system. By studying an existing earthbag residence in conjunction with the USGBC LEED-H program, it was possible to develop the understanding of the sustainable properties of the earthbag building system.

REFERENCES

Sustainable Characteristics of Earthbag Housing

STATEMENT OF PURPOSE

The purpose of this study was to develop understanding of the earthbag building system, while calling attention to its sustainable properties. Using the U.S. Green Building Council’s (USGBC) Leadership in Energy and Environmental Design Home (LEED-H) Program this study identified the sustainable characteristics of the earthbag building system.

FRAMEWORK

Sustainable characteristics were assessed using criteria set forth by LEED-H. In August 2005, USGBC initiated a one-year trial of its LEED-H program. The voluntary program strives to promote the adoption of sustainable building practices by members of the home building industry (U.S. Green Building Council, 2005). These practices include the sustainable use of energy, water, building construction, and land resources, as well as the enhancement of indoor environmental quality, and include the following categories: home location, site sustainability, water efficiency, indoor environmental air quality, materials and resources, energy and atmosphere, homeowner awareness, and innovation and design process.

REVIEW OF LITERATURE

The earthbag construction technique can be defined as construction that uses locally available soil in combination with woven bags, which are filled and stacked to form a building. This type of “construction enables the [use] of monolithic architecture, [allowing] an entire structure to be built from foundation and walls to roof using the same materials throughout” (Hunter & Kiffmeyer, 2004). Those materials include bags, fill, gravel, barbed wire, wood, and plasters.

Although it is not yet well known throughout the home building industry, the earthbag building system is gaining popularity for many reasons (Wojciechowska, 2001). “Earthbag construction is one of the most inexpensive building methods on the planet,” as the system utilizes locally available, naturally occurring materials (Kennedy & Wojciechowska, 2005, p. 175). Ease of construction, adaptability and durability, construction time, are further strengths of the earthbag building system (Wojciechowska, 2001; Kennedy & Wojciechowska, 2005; Hunter & Kiffmeyer, 2004). The earthbag building system is advantageous as it does not rely on the use of manufactured components, which
improves indoor environmental quality (Kennedy & Wojciechowska, 2005). Rather, through the use of the natural materials described previously, earthbag homes allow a constant exchange of air from interior to exterior, regulate humidity levels, purify toxins emitted from manufactured products, and serve as natural deodorizers (Hunter & Kiffmeyer, 2004). Therefore, while addressing the issues of affordability, durability, and adaptability, among others, the earthbag building system utilizes relatively inexpensive and locally available materials and allows for the creation of a sustainable home.

METHODOLOGY

An interview with Kelly Hart, the homeowner/designer, and site observations of his earthbag home were conducted to collect the data. To determine the sustainable characteristics of the earthbag building system, Hart’s earthbag home was evaluated using the LEED-H certification and rating system.

The interview with Hart consisted of 16 open-ended questions developed prior to the interview. The interview was conducted in the Hart home and videotaped to reduce interviewer bias and increase reliability. The video was used to create a transcript of the interview. Site observation of Hart’s earthbag home was conducted. The Hart home is located in Crestone, Colorado, and was designed by Hart using the earthbag construction technique. A guided tour of the home was videotaped, with Hart providing an in-depth analysis of the methods, materials, and philosophy used to design his home. The video was used to create a transcript of the Hart home tour. The interviewer also took still photographs of the Hart home, documenting construction and design details of the earthbag building technique and sustainable features of the home.

The Hart interview and Hart home site observation were compared to the LEED-H certification and rating system in order to determine the sustainable properties of the earthbag building system. Only when the Hart home fulfilled the recommended sustainable measure was the home determined to comply with one of the 42 sustainable criteria set forth by LEED-H. In addition, where criteria recommended sustainable measures for equipment such as HVAC and the Hart home utilized no such equipment, yet substituted a sustainable solution such as natural heating and cooling, the home was found to be in compliance. After determining which LEED-H criteria were fulfilled by the Hart home, the reason for
compliance was investigated. Researchers divided the fulfilled criteria into two groups: criteria that were fulfilled by the earthbag building system and those that were fulfilled by designer decisions.

RESULTS

By category of LEED-H criteria, LEED-H requirements fulfilled by the Hart home are shown in Table 1. The Hart home is located in a sustainable community in Crestone, Colorado, as prescribed by LEED-H requirement Location and Linkages 1. The Hart home, as well as the sustainable building community, has avoided encroachment on the nearby Great Sand Dunes National Park and Preserve (Location and Linkages 2). The Hart home is located within approximately one-half mile of green space and approximately five miles of existing community services (Location and Linkages 3). Construction of the home left the surrounding trees and foliage intact as stated in requirements Sustainable Sites 1 – 4, clearing only the area necessary for the home’s foundation. Water use and run-off control are achieved through the presence of naturally occurring foliage, as is shading of earthen sidewalks and driveway. Naturally occurring foliage also reduces the need for toxic pest control, as does the inherently pest resistant earthbag construction technique (Sustainable Sites 5). Indoor air quality is also improved through earthbag construction as humidity levels are controlled (Indoor Environmental Quality 3) by the use of natural materials. Ventilation and air distribution (Indoor Environmental Quality 4, 6) are facilitated by natural material use, as well as by vent placement. Housing occupants are protected from contaminants and radon gas (Indoor Environmental Quality 8, 9) through the use of natural ventilation techniques and minimization of traditional heating, ventilation, and air conditioning systems (Energy and Atmosphere 3, 5, 6, 10, 11). Protection from vehicle emissions (Indoor Environmental Quality 10) is assured through the presence of a detached, rather than attached, garage.

The Hart home is a one-bedroom structure (Materials and Resources 1). Materials used throughout the home eliminate the use of traditional wood framing materials by 95% (Materials and Resources 2) and are naturally occurring, local materials (Materials and Resources 3, 5). The use of these natural materials, in conjunction with the home’s durability, greatly reduces the amount of waste generated by the home (Materials and
Resources 6). Durability of the home is ensured as earthbag structures have been tested against rain, wind, and seismic activity (Materials and Resources 4). Insulation of the

<table>
<thead>
<tr>
<th>Credit#</th>
<th>Credit Name</th>
<th>Credit Intent</th>
<th>Fulfilled by</th>
</tr>
</thead>
<tbody>
<tr>
<td>LL 1</td>
<td>LEED-ND Neighborhood</td>
<td>Promote responsible land development</td>
<td>Design decisions</td>
</tr>
<tr>
<td>LL 2</td>
<td>Site Selection</td>
<td>Avoid environmentally sensitive sites</td>
<td>Design decisions</td>
</tr>
<tr>
<td>LL 4</td>
<td>Community Resources</td>
<td>Encourage alternative means of transportation</td>
<td>Design decisions</td>
</tr>
</tbody>
</table>

**LEED Home Category: Sustainable Sites (SS)**

<table>
<thead>
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<th>Credit Name</th>
<th>Credit Intent</th>
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</tr>
</thead>
<tbody>
<tr>
<td>SS 1</td>
<td>Site Stewardship</td>
<td>Minimize impact on building lot</td>
<td>Design decisions</td>
</tr>
<tr>
<td>SS 2</td>
<td>Landscaping</td>
<td>Landscape minimizes water and chemical use</td>
<td>Design decisions</td>
</tr>
<tr>
<td>SS 3</td>
<td>Shading of Hardscapes</td>
<td>Reduce local heat effects</td>
<td>Design decisions</td>
</tr>
<tr>
<td>SS 4</td>
<td>Surface Water Management</td>
<td>Minimize erosion and run-off from site</td>
<td>Design decisions</td>
</tr>
<tr>
<td>SS 5</td>
<td>Non-Toxic Pest Control</td>
<td>Avoid use of chemical insect control</td>
<td>Design decisions</td>
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</table>

**LEED Home Category: Indoor Environmental Quality (IEQ)**

<table>
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<th>Credit Name</th>
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<tr>
<td>IEQ 3</td>
<td>Humidity Control</td>
<td>Provide comfortable thermal environment</td>
<td>Earthbag technique</td>
</tr>
<tr>
<td>IEQ 4</td>
<td>Outdoor Air Ventilation</td>
<td>Protect occupants from indoor pollutants</td>
<td>Earthbag technique</td>
</tr>
<tr>
<td>IEQ 6</td>
<td>Supply Air Distribution</td>
<td>Ensure supply air is distributed adequately</td>
<td>Design decisions</td>
</tr>
<tr>
<td>IEQ 8</td>
<td>Containment Control</td>
<td>Protect occupants from exposure to contaminants</td>
<td>Earthbag technique</td>
</tr>
<tr>
<td>IEQ 9</td>
<td>Radon Protection</td>
<td>Protect occupants from exposure to radon gas</td>
<td>Earthbag technique</td>
</tr>
<tr>
<td>IEQ 10</td>
<td>Vehicle Emissions Protection</td>
<td>Protect occupants from car emissions</td>
<td>Design decisions</td>
</tr>
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</table>

**LEED Home Category: Materials and Resources (MR)**

<table>
<thead>
<tr>
<th>Credit#</th>
<th>Credit Name</th>
<th>Credit Intent</th>
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</thead>
<tbody>
<tr>
<td>MR 1</td>
<td>Home Size</td>
<td>Promote construction of smaller homes</td>
<td>Design decisions</td>
</tr>
<tr>
<td>MR 2</td>
<td>Material Efficient Framing</td>
<td>Promote optimized use of framing materials</td>
<td>Earthbag technique</td>
</tr>
<tr>
<td>MR 3</td>
<td>Local Sources</td>
<td>Promote use of local materials</td>
<td>Earthbag technique</td>
</tr>
<tr>
<td>MR 4</td>
<td>Durability Plan</td>
<td>Promote increased service life of building</td>
<td>Earthbag technique</td>
</tr>
<tr>
<td>MR 5</td>
<td>Environmentally Preferable Products</td>
<td>Encourage use of environmental products</td>
<td>Earthbag technique</td>
</tr>
<tr>
<td>MR 6</td>
<td>Waste Management</td>
<td>Reduce waste generation</td>
<td>Earthbag technique</td>
</tr>
</tbody>
</table>

**LEED Home Category: Energy and Atmosphere (EA)**

<table>
<thead>
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<th>Credit#</th>
<th>Credit Name</th>
<th>Credit Intent</th>
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</tr>
</thead>
<tbody>
<tr>
<td>EA 2</td>
<td>Insulation</td>
<td>Minimize thermal bridging</td>
<td>Earthbag technique</td>
</tr>
<tr>
<td>EA 3</td>
<td>Air Infiltration</td>
<td>Minimize unnecessary energy consumption</td>
<td>Earthbag technique</td>
</tr>
<tr>
<td>EA 4</td>
<td>Windows</td>
<td>Optimize performance of windows</td>
<td>Earthbag technique</td>
</tr>
<tr>
<td>EA 5</td>
<td>Duct Tightness</td>
<td>Minimize unnecessary energy consumption</td>
<td>Earthbag technique</td>
</tr>
<tr>
<td>EA 6</td>
<td>Space Heating and Cooling</td>
<td>Optimize performance of HVAC</td>
<td>Earthbag technique</td>
</tr>
<tr>
<td>EA 7</td>
<td>Water Heating</td>
<td>Optimize performance of water heating system</td>
<td>Design decisions</td>
</tr>
<tr>
<td>EA 10</td>
<td>Renewable Energy</td>
<td>Reduce demand for non-renewable energy source</td>
<td>Earthbag technique</td>
</tr>
<tr>
<td>EA 11</td>
<td>Refrigerant Management</td>
<td>Select environmentally friendly cooling</td>
<td>Earthbag technique</td>
</tr>
</tbody>
</table>

**LEED Home Category: Innovation and Design Process (ID)**

<table>
<thead>
<tr>
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<th>Credit Name</th>
<th>Credit Intent</th>
<th>Fulfilled by</th>
</tr>
</thead>
<tbody>
<tr>
<td>ID1</td>
<td>Innovative Design</td>
<td>Incorporate green design and construction</td>
<td>Earthbag technique and design decisions</td>
</tr>
</tbody>
</table>

Table 1. U.S. Green Building Council’s (USGBC) Leadership in Energy and Environmental Design (LEED) Home Requirements Fulfilled by the Kelly Hart Home
structure is achieved through material use (Energy and Atmosphere 2). Windows allow for solar heating of the space (Energy and Atmosphere 4), while water heating is achieved through the use of solar panels on the home’s roof (Energy and Atmosphere 7, 10). Finally, the home incorporates both green design and construction through the use of a natural construction technique, material choices, and natural heating and cooling techniques (Innovation and Design Process 1).

While the Hart home met many of the requirements set forth by the LEED-H certification and rating system, not all compliances were attributable to the earthbag construction technique. Rather, some compliances were attributable to designer choices. Compliance with guidelines in the following categories may be attributed directly to the earthbag building system: Indoor Environmental Quality, Materials and Resources, Energy and Atmosphere, and Innovation and Design Process. Detailed information concerning the LEED-H requirements fulfilled by the earthbag building system is listed in Table 1. Similarly, compliance in the following categories may be attributed to decisions made by the homeowner/builder: Location and Linkages, Sustainable Sites, Water Efficiency, and Materials and Resources. Detailed information concerning the LEED-H requirements fulfilled by designer decisions is listed in Table 1. The earthbag building system’s sustainable characteristics and properties can be enhanced by the designer’s decisions. Also, members of the home building industry can use the LEED-H program to make design decisions to ensure and increase the sustainability of earthbag homes.

**SUMMARY**

Although the earthbag system was found to possess inherent sustainable properties, designer decisions regarding construction and design greatly impacted the sustainability of the Hart earthbag home. Further research might be conducted to study opinions of and openness to the earthbag building system to determine its viability within the interior design industry. Such a study might consider both industry and homeowner viewpoints. Also, similar studies could be conducted regarding other natural building techniques, such as strawbale or adobe. Sustainable design is relatively new and growing and will be achieved
through careful and thoughtful consideration of design decisions. Guidelines or tools that assist in decision making for sustainable design would encourage practice of the design. LEED-H is one such tool that could be used by the home building industry to enhance the sustainability of homes. Further development and implementation of the LEED-H program throughout the home building industry could result in an increase in the sustainability of newly built homes. As the LEED-H program is still in its pilot stage, additional studies could be conducted to refine the LEED-H certification criteria.

REFERENCES

“No Unimportant Folk:” Lessons from the Social Justice Agenda of Martha Van Rensselaer

Mary Anne Beecher

Abstract

PURPOSE

There are significant historical models of mergers between design research and human rights-based programs that advance the causes of social justice including some ground-breaking approaches taken by early educators. The purpose of this paper is to define the usefulness such a model may provide as a framework for guiding activist research and design practice today. The case study examined here is the pioneering design reform efforts of Martha Van Rensselaer (1864-1932), who worked to modernize and improve the interiors of rural dwellings throughout New York State in the early twentieth century.

METHODOLOGY

This research uses methods that are interpretive and qualitative, and is based on a content analysis of literature documenting the life of Martha Van Rensselaer and the history of the home demonstration activities she pioneered. A range of primary archival documents have been closely examined, including the collected personal papers of Martha Van Rensselaer and internal documents recording the history of Cornell University. Her program’s prescriptive published bulletins have been compared to the actions described in the letters of program participants and to photographs that document improvements made to the remodeled spaces in order to determine the extent to which the design reforms advocated by Van Rensselaer and her colleagues succeeded.

SUMMARY

In 1900, the dean of Cornell University’s College of Agriculture hired Martha Van Rensselaer to develop a reading-course for farm women to address the need to improve the meager living conditions found throughout the rural areas of New York State. (Percival, 1957, p. 6). This effort included developing teaching materials to circulate to program participants, establishing demonstration-based programming to be integrated into their study, and sustaining a direct dialogue with farm women. Between 1900 and 1913, bulletins on topics such as conserving the homemaker’s energy and strength through design reform circulated at a rate of approximately five per year. Each bulletin included a set of questions that participants answered and returned to Van Rensselaer, who read and responded to each one personally. Representative of the incredible volume of interest in the improvement of their interior environments, Van Rensselaer received hundreds of letters each month. By 1917, the program had swollen to more than 75,000 program participants state-wide and more than 300 study clubs had formed. (Van Rensselaer, 1913, p. 128-130).
The educational programming established by Martha Van Rensselaer successfully forged a means to share research on the improvement of rural interior environments with the general population using interactive, demonstrative and community-building strategies. This research shows that from 1900 to the 1930s, Van Rensselaer and her colleagues empowered their programs’ participants and imparted in them a sense of agency necessary to improve their own living circumstances.

The implications of this work for contemporary activist practice include demonstrating the necessity of respecting the individuality of participants and the importance of teaching people to help themselves. Employing demonstration as a teaching technique reveals the importance of using action to create change. Lastly, although these historical works are framed within the context of war and economic depression, they illustrate the potential of a philosophy that values spending as little as possible to achieve positive goals.

REFERENCES


“No Unimportant Folk:” Lessons from the Social Justice Agenda of Martha Van Rensselaer

PURPOSE

Due to the recent visibility of interior designers’ public passion for supporting causes such as research of the AIDS virus and providing affordable shelters for victims of numerous recent natural catastrophes, it is tempting to see the proactive support of human rights and equality as a new facet of the professions’ identity. There are, however, significant historical examples of mergers between design research and human rights-based programs advancing the causes of social justice including some ground-breaking approaches taken by early educators. The stories of these extraordinary individuals offer models and methods for social justice activism that encourage a multi-layered tactical approach to making improvements to the built environment.

This paper analyzes a case study that provides a successful historical model for social justice advocacy. Its purpose is to define the usefulness such a model may provide as a framework for guiding activist research and design practice in today’s social climate. The case study examined here is the pioneering design reform efforts of Martha Van Rensselaer (1864-1932), who worked, along with her associates, in a variety of ways to modernize and improve the interiors of rural dwellings throughout New York State in the early twentieth century.

FRAMEWORK

This paper articulates the scope of Martha Van Rensselaer’s activities on behalf of Cornell University’s College of Agriculture between 1900 and the 1930s. It evaluates the usefulness of this programming by interpreting the written feedback provided by its participants and by analyzing collected images of the houses in which reform activities took place.

This analysis is significant and relevant to interior design education because these forward-looking and practical approaches to design reform establish a context in which to understand a century of scholarship and action. Although the work of individuals such as Van Rensselaer have received limited critical consideration from historians of design or
design practitioners, in many ways, its analysis may provide a philosophical foundation for challenges that are part of the dialogue of today’s new generation of designer activists.

**REVIEW OF LITERATURE**

This research is based on a content analysis of literature documenting the life of Martha Van Rensselaer and the history of the home demonstration activities she pioneered. A range of primary archival documents have been closely examined, including the collected personal papers of Martha Van Rensselaer and documents recording the history of Cornell University’s College of Human Ecology, all held in the Rare Book and Manuscript Collection of Kroch Library, Cornell University. Bulletins circulated as part of the “Cornell Reading-Course for Farmers’ Wives” that Van Rensselaer directed have been interpreted. Documents published by the U.S. Department of Agriculture, including numerous research bulletins produced by the extension service of Cornell University and other land-grant institutions have been analyzed to reveal content supportive of the social justice programming of design educators in the early twentieth century. Photographic evidence and written descriptions of rural living spaces found in the correspondence of program participants have also been studied to determine the level of accomplishment achieved by the programs Van Rensselaer directed.

**METHODOLOGY**

This research relies upon methods that are interpretive and qualitative. Prescriptive literature in the form of bulletins and circulars has been compared to the actions described in the letters of program participants and in photographs that document improvements made to the remodeled spaces in order to determine the extent to which the design reforms advocated by Van Rensselaer and her colleagues succeeded. Likewise, the historical acts illustrated by such documents have been interpreted to identify their potential to influence contemporary strategies for employing design research and practice as a mechanism for social justice advocacy.
FINDINGS

In 1900, Liberty Hyde Bailey, Cornell University’s Dean of Agriculture, hired Martha Van Rensselaer to develop a reading-course for farm women that paralleled the college’s existing programs for the farmers of New York State. This effort included developing teaching materials, circulating them to program participants, and sustaining a dialogue with farm women. At the time of her hiring, Martha Van Rensselaer had no formal training in home economics, nor did she possess a bachelor’s degree. (Percival, 1957, p.6).

Despite what might be perceived as an educational deficit, Van Rensselaer studied the latest research on homemaking processes, health and nutrition, and developed bulletins that communicated highly technical and scientific information using practical language. Between 1900 and 1913, these bulletins circulated at a rate of approximately five per year. Van Rensselaer determined the topics to be studied by observing the challenges of rural homemaking and by addressing requests for particular types of information from the program’s participants. Saving Steps, the program’s first circular, debuted in 1901, followed by lessons on conserving the homemaker’s strength, and successfully furnishing the rural household. (Van Rensselaer, 1913, p. 128-130).

Each bulletin included illustrations to demonstrate its essential points. Each ultimately included a set of questions that the reading-course participants answered and returned to Cornell, where Van Rensselaer read and responded to each one personally.

Van Rensselaer’s promotion of processes that supported housing reform also appeared in popular literature. She published articles in magazines such as The Farmer’s Wife, Ladies’ Home Journal and Good Housekeeping during the 1900s and 1910s. She served as the home economics editor for The Delineator magazine between 1921 and 1926, contributing advice and discussions of housing problems that concerned rural and city-dwelling women alike. (Percival, 1957, p. 19).

In addition to face-to-face interactions that took place between Van Rensselaer and the women who read her publications, the primary mode of contact occurred through the exchange of a large volume of personal correspondence between the “teacher” and her “students.” As representation of New York farm women’s incredible volume of interest in the improvement of the interior environment, Van Rensselaer received hundreds of letters each month. In 1901, Van Rensselaer mailed 2,000 bulletins out to rural housewives. By 1917, the program had swelled to more than 75,000 program participants state-wide.
As interest in the reading-course grew, its participants formed study clubs to encourage group discussion of the issues raised in the bulletins. Initially, as supervisor of the course, Van Rensselaer traveled around the state to visit clubs meeting in grange halls, farmers’ institutes, and farm houses. In 1907, the College added a faculty member to help to make demonstrations to groups. These demonstration meetings formally emerged in the 1920s as “kitchen conferences.” (Van Rensselaer, 1923, p. 66). Working collectively, each unique group proposed improvements to kitchens that could be made at little or no cost to residents, often using existing furnishings and reclaimed materials such as those shown in Figure 1. The process also included a follow-up gathering of the same participants to evaluate the effectiveness of the alterations made to the interior. Once remodeled, these houses often became part of extension-sponsored “kitchen tours” that frequently occurred throughout New York State during the 1930s. By this time, hundreds of conferences occurred in rural counties with several thousand visitors ultimately participating in conferences and tours.

![Figure 1](image)

Figure 1. This improved kitchen demonstrates resourcefulness by making use of converted furniture for additional cabinetry, subdividing shelves to accommodate smaller stored goods inside the cabinets, and small wood blocks to elevate work surfaces to a comfortable height.

**CONCLUSIONS**

The educational programming established by Martha Van Rensselaer successfully forged a means to share research on the improvement of rural interior environments with
the general population using interactive, demonstrative and community-building strategies. These included the development of a correspondence course and the cultivation of a club-based network of instruction that culminated in an elaborate system of cooperative teaching through home demonstration. During the first three decades of the twentieth century, Van Rensselaer with other program faculty, empowered their programs’ participants and imparted in them a sense of agency necessary to improve their own living circumstances. This program became a model for extension work across the nation.

The implications of this work for contemporary activist practice include establishing that it is necessary to respect the individuality of the members of the communities with which one interacts. Persons orchestrating the reading-course lessons ensured that participants knew that an expert was listening respectfully to them via the exchange of correspondence and the review and return of quizzes and worksheets. Also, data on rural interior environments collected through the exchange of quizzes was sometimes integrated into later lessons.

Secondly, lessons in the reading course were structured to teach people to help themselves. The effectiveness of the study group structure can be determined, in part, by the sense of empowerment communicated by the farm women who wrote to tell Van Rensselaer about their satisfaction with their improvements.

Thirdly, by employing demonstration as a teaching technique, program participants stressed the importance of action to create change. Kitchen conferences incorporated active critical reviews of existing spaces and encouraged participants to brainstorm about potential ways to improve them. The resourcefulness demonstrated in the photographs of finished kitchen modifications illustrates the participation of groups to make improvements.

Lastly, although these historical works are framed within the context of war and economic depression, they illustrate the invocation of a philosophy that valued spending as little as possible to achieve positive goals. Van Rensselaer and her colleagues advocated for no-cost or affordable solutions to design problems whenever possible. Although the notion of thrift is rarely seen as a driving force behind most contemporary interior design practice, this case study demonstrates the value of minimal remodeling and the creative reuse of furnishings and materials.
REFERENCES


Post-Graduate Design Education: A Feasibility Study of the Related Design Disciplines

Diane M. Bender and Janetta M. McCoy

Abstract

PURPOSE

A feasibility study was conducted to elicit responses from practicing designers regarding their preferences, if any, for post-graduate education. A web-based survey method was employed with professional design organizations across North America representing architecture, landscape architecture, planning, interior design, industrial design, and graphic design. Findings suggest that many professionals see the need for advanced education to enhance their business and leadership skills.

PROCESS

While schools of design may prepare their students adequately for practicing design, students often leave the university feeling inadequately prepared in management, business, and other people-oriented skills required for dealing with people outside the design professions (Boyer & Mitgang, 1996). After close examination of more than 50 schools of architecture and hundreds of interviews with architecture educators and practitioners, Boyer and Mitgang (1996) proposed a substantial reframing of design education that would more closely connect education and practice. Building on Boyer and Mitgang’s recommendations, Guerin and Thompson (2004) convincingly argue that the key to resolving this dilemma lies in “educational transformation” and call for the masters of interior design to be the first professional degree. Their premise is that educators with advanced curricula focusing on a greater breadth and depth of knowledge, an evidence-based design process, and a greater appreciation of research in design will provide leadership for transformation.

Following a thorough review of current programs in design education and a focus group of local design professionals, a survey was distributed to practicing design professionals through the main professional organizations in order to determine: a) the interest level in topics, format, length of study, and instructional personnel desired for delivery of continuing education; b) the amount and type of support provided to practicing professionals for their continuing education by their employer; and c) the feasibility of a graduate degree in design leadership.
SUMMARY OF RESULTS

Frequencies were used to summarize data from the 101 useable surveys. Correlation analyses and independent t-tests were used to determine relationships between variables. Preliminary findings of respondents who wish to continue their education are interested in: (1) classes taught by experts and well-known leaders in both their field and related design fields; (2) certificates or degrees; (3) local classes with some travel; and (4) enhancing their leadership and management abilities. Findings also suggest major obstacles to pursuing any form of continuing education include time and money.

Although most post-graduate programs are aimed at those seeking academic careers, our findings suggest practicing design professionals may be interested in advanced education as a means of developing greater, more powerful leadership within the disciplines. Specifically, this presentation will directly address the respondents’ desire for a deeper understanding of their own and other design disciplines; management and business skills; and leadership.

REFERENCES


Post-Graduate Design Education: A Feasibility Study of the Related Design Disciplines

PURPOSE

A feasibility study was conducted to elicit responses from practicing designers regarding their preferences, if any, for post-graduate education. The purpose of this study was to identify content, format, and program type of most interest and benefit to the careers of practicing design professionals. Specifically, the study questions if an interdisciplinary, executive approach to graduate design education would have perceived value to practitioners. A web-based survey method was employed with professional design organizations across North America representing architecture, landscape architecture, planning, interior design, industrial design, and graphic design. Findings suggest that many professionals see the need for advanced education to enhance their business and leadership skills.

CONTEXT

While graduates of even the best design schools may find notable success within their own professions, leadership at the cutting edge of interdisciplinary decision-making is often frustratingly beyond reach. Indeed, the design disciplines and professions are often trivialized or perceived as a cost, rather than a benefit to building and construction. This study questions if this trivialization is due to a gap in design education. If, as Boyer and Mitgang (1996, p.3) argue, the time has come “to demystify architecture, to elevate its place in the consciousness of the public and in the daily lives of communities”, what role does education play in the development of design leaders? This study surveyed design practitioners regarding how post graduate education could enhance their leadership and business skills, thus adding credence and validation to the professions of design.

REVIEW OF LITERATURE

While schools of design may prepare students adequately for practicing design, students often leave the university feeling inadequately prepared in management, business, and other people-oriented skills required outside the design professions (Boyer & Mitgang,
1996). After close examination of more than 50 schools of architecture and hundreds of interviews with architecture educators and practitioners, Boyer and Mitgang (1996) proposed a substantial reframing of design education that would more closely connect education and practice with the goal of more meaningful community service. The Boyer Commission on Educating Undergraduates in the Research University (1998) emphasizes a research-based, interdisciplinary education for both undergraduate and graduate students.

Building on these recommendations, Guerin and Thompson (2004) call for the masters of interior design to be the first professional degree. Their premise is that educators with advanced curricula focusing on a greater breadth and depth of knowledge, an evidence-based design process, and a greater appreciation of research will provide leadership for transformation. Geddes and Spring (1981) noted that after four to six years of practice, designers begin to desire a change and look for some form of continuing education. Further, the Boyer Commission (1998) identifies the increasing need for universities to adapt to the growing population of non-traditional students who may be older, fully employed, and with responsibilities quite different from the typical 18 to 22 year old residential undergraduate. This concentration of non-traditional students with some experience in practice may result in a greater focus of continuing education on technology-based delivery systems and non-campus settings. The more advanced, mature student may also demand more courses in management, organizational development, and business reflecting a more advanced stage of career.

**METHODOLOGY**

The following research questions guided the study:

1. What is the perceived value of continuing education?
2. What are the obstacles prohibiting participation in continuing education?
3. What study topics are of interest?
4. What are the desired format, length, and location for this education?
5. Who is preferred to deliver advanced, higher education?

A 20-question survey instrument was created and divided into the following categories: demographic data, current education, future education, and educational support. Demographic data included age, sex, zip code, number of adults and children in household, profession, and number of employees in firm. Questions related to the respondents’ current
education included highest level of education, whether participant is currently engaged in continuing education, if not, what obstacles are present, and interest level in continuing education. Based on prior research, ten topics were presented as possible areas for graduate study. Eight more topics were selected for career development. The desirable length, format, educator, and location of educational programs were also explored. Lastly, information was requested about the respondent’s current educational support, including firm support, compensation for time off, and percentage of financial support.

Respondents’ participation was voluntary and anonymous. Questions regarding demographics and firm support were forced-choice; all other items were on a four-point Likert scale (No Interest as 1 to Very Interested as 4). Responses to age and zip code were entered as numerical data. The survey was created following principles of web-based survey design established by Dillman (2000) and distributed via the Internet. All analyses were done in SPSS computational software.

The target sample was practicing professionals in architecture, graphic design, industrial design, interior design, landscape architecture, and urban planning. The professional organizations of these disciplines were recruited for their constituents’ participation (see Table 1). Upon agreeing to participate, the organization either placed the survey link in an e-newsletter or a mass email to their membership. Data collection took three months.

<table>
<thead>
<tr>
<th>Table 1: Participant Organizations</th>
</tr>
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<tbody>
<tr>
<td>Abbreviation</td>
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<tr>
<td>----------------</td>
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<tr>
<td>AIA</td>
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<tr>
<td>APA</td>
</tr>
<tr>
<td>ASID</td>
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<tr>
<td>ASLA</td>
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<tr>
<td>IDSA</td>
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<tr>
<td>IIDA</td>
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<td>SEGD</td>
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</table>

RESULTS

A total of 101 usable surveys were returned. Respondents with missing data were excluded from analyses involving those missing data. Reliabilities for most variables are
acceptable, ranging from .596 to .882 (see Table 2). A 0.05 level of significance was used for all analyses.

<table>
<thead>
<tr>
<th>Table 2: Response Rate</th>
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</thead>
<tbody>
<tr>
<td><strong>Variable</strong></td>
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<tr>
<td>Topics of Interest</td>
</tr>
<tr>
<td>Career Development</td>
</tr>
<tr>
<td>Length of Program</td>
</tr>
<tr>
<td>Format of Program</td>
</tr>
<tr>
<td>Meeting Location</td>
</tr>
<tr>
<td>Desired Educator</td>
</tr>
<tr>
<td>Financial Support</td>
</tr>
</tbody>
</table>

Respondent ages ranged from 22 to 69 years old. The typical respondent was 39 years of age, was female (61.4%), had a bachelor's degree (69.0%), was the sole proprietor of her firm (37.0%), and lived in a household with two adults (77.2%) and no children (70.0%). More than half (64.4%) indicated they were not currently pursuing any education, citing limited personal time (39.0%). An overwhelming percentage of respondents did indicate they were somewhat (40.2%) or very interested (40.2%) in continuing their education.

From the list of topics presented, technology was the number one topic (X̄ = 3.24), followed closely by global issues (X̄ = 3.00) (see Table 3). For career development, respondents were most interested in communication skills (X̄ = 3.39) and networking opportunities (X̄ = 3.33) (see Table 4).

Respondents were most interested in programs that are one weekend or less (X̄ = 3.29; sd = 0.963), offered as a single lecture or workshop (X̄ = 3.29; sd = 0.753), always at a local facility (X̄ = 3.39; sd = 0.780), and delivered by qualified faculty with expertise in a specialty area (X̄ = 3.64; sd = 0.656). When asked what type of educational support their firm typically provides, respondents receive support for a single CEU course (77.5%) and a single lecture or workshop (67.5%). Firms provide flex time (60.9%) with little support in the form of time off, a reduced workweek, or a sabbatical. Financial support ranged from no support (38.1%) to total support (38.1%).
### Table 3: Topics of Interest

<table>
<thead>
<tr>
<th>Rank</th>
<th>Topic</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Technology</td>
<td>92</td>
<td>3.24</td>
<td>0.817</td>
</tr>
<tr>
<td>2</td>
<td>Global Issues</td>
<td>87</td>
<td>3.00</td>
<td>0.889</td>
</tr>
<tr>
<td>3</td>
<td>Ergonomics</td>
<td>88</td>
<td>2.95</td>
<td>1.005</td>
</tr>
<tr>
<td>4</td>
<td>Environmental Assessment</td>
<td>89</td>
<td>2.94</td>
<td>0.813</td>
</tr>
<tr>
<td>5</td>
<td>Marketing</td>
<td>92</td>
<td>2.93</td>
<td>0.992</td>
</tr>
<tr>
<td>6</td>
<td>Organizational Behavior</td>
<td>88</td>
<td>2.83</td>
<td>0.985</td>
</tr>
<tr>
<td>7</td>
<td>Diversity</td>
<td>86</td>
<td>2.55</td>
<td>0.890</td>
</tr>
<tr>
<td>8</td>
<td>Programming</td>
<td>89</td>
<td>2.53</td>
<td>1.001</td>
</tr>
<tr>
<td>9</td>
<td>Real Estate</td>
<td>90</td>
<td>2.49</td>
<td>1.104</td>
</tr>
<tr>
<td>10</td>
<td>Human Resources</td>
<td>89</td>
<td>2.38</td>
<td>0.959</td>
</tr>
</tbody>
</table>

### Table 4: Career Development Needs

<table>
<thead>
<tr>
<th>Rank</th>
<th>Topic</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Communication Skills</td>
<td>92</td>
<td>3.39</td>
<td>0.825</td>
</tr>
<tr>
<td>2</td>
<td>Networking Opportunities</td>
<td>89</td>
<td>3.33</td>
<td>0.823</td>
</tr>
<tr>
<td>3</td>
<td>Project Management</td>
<td>90</td>
<td>3.33</td>
<td>0.734</td>
</tr>
<tr>
<td>4</td>
<td>Time Management</td>
<td>92</td>
<td>3.27</td>
<td>0.903</td>
</tr>
<tr>
<td>5</td>
<td>Leadership Skills</td>
<td>89</td>
<td>3.21</td>
<td>0.804</td>
</tr>
<tr>
<td>6</td>
<td>Interdisciplinary Collaborations</td>
<td>89</td>
<td>3.20</td>
<td>0.894</td>
</tr>
<tr>
<td>7</td>
<td>Team Building</td>
<td>90</td>
<td>3.19</td>
<td>0.792</td>
</tr>
<tr>
<td>8</td>
<td>Executive Management</td>
<td>91</td>
<td>2.89</td>
<td>0.924</td>
</tr>
</tbody>
</table>
CONCLUSIONS

There is a desire for practicing design professionals to continue their education, as 80.4% are interested in continuing their education. This may be partly due to the salience of the topic for these voluntary respondents, yet it speaks volumes as to the desire of these practitioners to acquire a deeper and broader understanding of their profession.

Similar to other research findings (Baird & Monson, 1992), these adult learners are prohibited from pursuing further education by time and money. Family and career responsibilities limit their access to higher education and make alternative instructional models more appealing than traditional ones.

The findings of this study highlight technology as a topic for discussion, as evidenced in past research (Hasell & Scott, 1996). Global issues are also of concern, as designers need to compete and collaborate in a global market. Respondents were busy practicing professionals who desire a single lecture or workshop. To be succinct, the desired length for continuing education is short. The number one obstacle prohibiting these practicing professionals from continuing their education was time. Design practitioners desire local meetings to increase their networking opportunities, while meeting their need of balancing work and family with their educational goals. Though this group was not adverse to some travel, they were most interested in local meetings with some form of online component, reflecting a national trend in increased e-learning opportunities (NCES, 2003).

Findings indicate a desire to be instructed by qualified faculty with specific areas of expertise, partnered with leaders in the various disciplines. The growing complexity of the design industries has increased the need for graduating students to have a “clearer understanding of the collaborative environment in which they will work” (IIDA Report, 1998, p. 54). There are advantages of multidisciplinary collaboration and interaction in any form of education.

In conclusion, the implications of this study are that experienced, practicing professionals want and would likely participate in a continuing education program that provided them with advanced business and leadership skills; that did not require them to leave their jobs or families; and, that was achievable in an accelerated time frame. In so doing, a new generation of design professionals would be better prepared to shape and position their professions from places of influence and leadership.
REFERENCES


Recognizing, Understanding, and Implementing Crime Prevention and Design Strategies within Retail Settings

Candy Carmel-Gilfilen

Abstract

PURPOSE

In Security Planning and Design, architect Stuart Knoop recognizes, “at the most fundamental level we shape our built environment to provide shelter from natural phenomena such as precipitation, temperature extremes, and sun. Beyond these basic needs, building design also encompasses the two distinct- yet closely related- issues of safety and security” (Demkin, 2004; p. 1). Design of a building is often an interdisciplinary process that involves a conceptual framework coupled with specific functional criteria. One functional consideration required of almost all building types is security. A specific area of design that would benefit from increased security techniques is the retail environment. Retail crime consists of shoplifting, employee theft, fraud, robbery and violence to staff and impact the retail owner and equally if not more important are damaging to the staff and ultimately the consumer.

Responses to theft have varied widely and include procedures such as customer service and employee training, protection techniques including electronic article surveillance and cameras, increased security measures such as in store detectives, and stringent apprehension policies (Moussatche, Hayes, Schneider, McLeod, Abbott, Kohen, 2004). Although these efforts may minimally help reduce shoplifting; to be effective the holistic technique of environmental design is the only process that begins with the store itself. This investigation is unique in that it aims at understanding and communicating the necessary overlap between retail design and loss prevention by highlighting specific environmental design techniques, including natural access, natural surveillance, and natural territorial reinforcement, currently utilized by leading companies.

METHODOLOGY

The investigation focused on a literature review of 25 journal listings in criminology, design, and retailing to determine strategies employed. Observations of 20 nationally recognized retail companies were recorded through a written survey and phone interview that aimed at understanding perceptions of crime prevention and design techniques. Follow up case studies also document and illustrate techniques via drawings, photographs, and diagrams.
SUMMARY OF RESULTS

The study found that the sample collectively felt that all crime prevention techniques influence design and loss prevention efforts, with techniques fostered from crime prevention through environmental design providing significant influence. Respondents also indicated design techniques were equally influential. The divide between strategies indicates the need for further expansion within the theoretical framework to include design specific information to increase overall loss prevention efforts.

Additional research gathered will be illustrated via: qualitative interviews that capture overall perceptions, diagrams of critical zones within floor plans and design drawings, photographs of security and design strategies utilized, and student studio projects with an emphasis on issues of security within a retail space. This helps to educate and visually understand the overall impact and effectiveness of specific security and design techniques.

REFERENCES


Recognizing, Understanding, and Implementing Crime Prevention and Design Strategies within Retail Settings

STATEMENT OF PURPOSE

In Security Planning and Design, architect Stuart Knoop recognizes, “at the most fundamental level we shape our built environment to provide shelter from natural phenomena such as precipitation, temperature extremes, and sun. Beyond these basic needs, building design also encompasses the two distinct-yet closely related-issues of safety and security” (Demkin, 2004; p. 1). Pena and Parshall further establish that within design projects is not a question of security, rather the level of control, maximum, medium, or minimum, that is used to protect property and guide personnel movement (Pena & Parshall, 2001). Design of a building is often an interdisciplinary process that involves a conceptual framework coupled with specific functional criteria. One functional consideration required of almost all building types is security. This need poses multiple design challenges predominantly focused on understanding, preventing, and employing security fundamentals, technologies, and policies.

Design itself covers a wide range of disciplines, activities, and typologies. One specific area of design that would benefit from increased security techniques is the retail environment. Accounting for over 23 million jobs annually, the retail industry is the second largest employer in the United States (Hollinger & Langton, 2005). Retail crime consists of shoplifting, employee theft, fraud, robbery and violence to staff and impact the retail owner and equally if not more important are damaging to the staff and ultimately the consumer. Costs include loss of profitability, low staff morale, loss of work due to physical and psychological damage, even loss of life (Geason & Wilson, 1993). To combat these issues a 2004 review of literature, Moussatche, Hayes, Schneider, McLeod, Abbott, and Kohen found that trends in retail design hold promise, “Innovative store design can increase convenience and excitement for the customer while simultaneously allowing for more staff efficiency and better product protection . . . effective retail design can both enhance sales and safeguard against skrinking” (Moussatche, Hayes, Schneider, McLeod, Abbott, Kohen, 2004; pg. 5).
Retailers suffer theft and loss with shoplifting accounting nearly 40% of the total loss figure (Hollinger & Davis, 2002). In 2001 Hollinger & Davis estimated that the average retail company lost 1.7% of its gross sales revenues to inventory shrinkage - losses attributed to shoplifting, employee theft, vendor fraud, and administrative error. With the retail industry generating 1.7 trillion in revenues each year shoplifting alone equals around $10 million dollars of loss (Danbey, Hollinger, Dugan, 2004). Responses to theft have varied widely and include procedures such as customer service and employee training, protection techniques including electronic article surveillance and cameras, increased security measures such as in store detectives, and stringent apprehension policies (Moussatache et al., 2004). Although these efforts may minimally help reduce shoplifting; to be effective the holistic technique of environmental design is the only process that begins with the store itself.

Although crime prevention has been considered in some areas of design (Amandus, Hunter, James, Hendricks, 1995; Carroll & Weaver, 1986; Casteel, 2000; Hendricks, Landsittel, Amandus, Malcan, Bell 1999; Hunter, 1999), there has been little if any integration between issues of security and interior design. Although the opportunity exists retail store designers, visual merchandisers, and clients are typically focused on issues of increasing the number of customers and sales rather than decreasing crime (Press, 2001). This investigation is unique in that it aims at understanding and communicating the necessary overlap between retail design and loss prevention by highlighting specific environmental design techniques, including natural access, natural surveillance, and natural territorial reinforcement, currently utilized by leading companies.

**REVIEW OF LITERATURE**

Crime prevention has been minimally measured in some areas of design including, crime-based literature (Clarke, 1995; Crowe, 1991; Felson, 1996; Felson & Clarke, 1998; Hayes, 1993), occupational health and safety literature (Mair & Mair, 2003; Minnery & Lim, 2005), and convenience store and robbery cases (Amandus et al., 1995; Casteel, 2000; Hendricks et al, 1999; Hunter, 1999). Further inspecting this introduction of crime reduction may provide valuable knowledge that benefits the design professions including interior design (Erol, Press, Cooper, Thomas, 2002).
Within Criminology scholars draw upon a range of theories. One prominent theoretical framework that guides much work centers on situational factors that portray criminals as rational decision makers who base their decision on analysis of the risks involved (Geason & Wilson, 1993; Clarke, 1997). Understanding situational factors by examining the crime from the viewpoint of the offender is commonly referred to as the rational choice theory. This method provides a lens for understanding shoplifting within the physical environment.

Crime prevention through environmental design (CPTED) builds upon this concept by applying behavioral psychology, sociology of human behavior, and design to create safer environments. This conceptual framework is an environmental-behavior theory and methodology that offers a comprehensive basis for approaching and developing security solutions (Demkin, 2004). At its core crime prevention through environmental design includes three fundamental principles that often overlap and are interrelated: natural access control, natural surveillance, and natural territorial reinforcement.

- Natural Access Control includes built and natural obstacles that limit access to a building or a defined space. Deterrent measures depend on the risks associated with the facility (Demkin, 2004). Examples include locks, cables, glass cases, and guards.

- Natural Surveillance enhances the ability of the occupant and observers (employees, police) in a facility to see what is happening around them to increase detection efforts. Placement of security equipment and personnel enable effective surveillance of the area (Demkin, 2004). Examples include employees, closed-circuit television, electronic article surveillance, and cameras.

- Natural territorial reinforcement refers to developing a territory within a store environment that people will pay more attention to if they have a sense of ownership. This quality can increase vigilance of users, sending the message trespassers will be identified (Demkin, 2004). Examples include countertops, material designations including flooring or ceiling, and lighting.

A review of crime prevention through environmental design strategies indicated, “To be more effective, CPTED should be applied both to external and internal environments, or to the environment of the place and the offender, respectively” (Robinson, 1999, 429; Cardone, 2006). Previous studies have evaluated the effectiveness in specific situations including convenience store and urban planning (Crow & Bull, 1975; Casteel, 2000; Hunter,
1988; Jeffery, Hunter, Griswold, 1987), residential neighborhoods (Minnery & Lim, 2005),
and the metro subway system (LaVigne, 1997). Crime prevention research focusing solely
on the interior environment is minimal with studies centering on issues of robbery,
convenience stores, and liquor stores (Casteel, 2004; Swanson, 1986).

Although theories in criminology have been linked to the physical environment, few
resources exist linking issues of security to retail design. Previous research primarily centers
on shoplifter perceptions (Bulter, 1994; Tonglet, 2001), process-tracing studies of offenders
(Carroll & Weaver, 1986), and security-related products (Hayes, 1993; Hayes and Blackwood,
2006; Welsh and Farrington, 2001). A significant body of research does focus on the retail
environment (Baker, Levy, Grewal, 1992; Gilboa and Rafeli, 2003; Moore and Lochhead,
1998) but the majority of these studies focus on issues of branding, merchandising, and
selling rather than issues of shoplifting and crime prevention.

FRAMEWORK

This paper addresses perceptions of security and design-based crime techniques by
loss prevention associates and store planning/designers from leading national retailers and
proposes methods to incorporate these strategies into a holistic design process. Exploring
the considerable role security can have in retail interior environments this study examines the
following research questions:

- What is the range of design based crime prevention techniques found within
  20 leading national retailers?

- What are the relationships between design based crime prevention and
  natural access control, natural surveillance, and natural territorial
  reinforcement?

METHODOLOGY

This research is a pilot study, part of a larger on-going investigation, aimed at
understanding the overlap between interior design and criminology theories, processes, and
practices with a retail environment. This phase of the investigation focused on a literature
review of 25 journal listings in criminology, design, and retailing to determine strategies
employed. Observations were also recorded through a written survey and phone interview
that aimed at understanding perceptions of crime prevention techniques (Appendix A). To date the sample includes 20 retail companies, all Fortune 500 companies (Money Magazine, 2006), recognized as leaders in the field of loss prevention (LPRC, 2006). Contacts were initiated at the national level and included vice presidents/directors of loss prevention or store design. Respondents evaluated the importance of crime prevention through environmental design techniques (security techniques) including natural access control, natural surveillance, and natural territorial reinforcement, as well as philosophies of design commonly measured in interior design (design techniques) to determine the influence, process, and application apparent within retail environments. Follow up case studies also document and illustrate techniques via drawings, photographs, and diagrams.

SUMMARY OF RESULTS

The study found that the sample collectively felt that all crime prevention techniques influence design and loss prevention efforts, with techniques fostered from crime prevention through environmental design providing significant influence. Within security focused strategies respondents rated customer convenience, maintenance, positioning, natural surveillance, and access control as the most influential factors within a store environment. Respondents also indicated design techniques were equally influential including consumer behavior, security efforts, and aesthetic design. The divide between strategies indicates the need for further expansion within the theoretical framework to include design specific information to increase overall loss prevention efforts.

Additional research gathered will be illustrated via: qualitative interviews that capture overall perceptions, diagrams of critical zones within floor plans and design drawings, photographs of security and design strategies utilized, and student studio projects with an emphasis on issues of security within a retail space. This helps to educate and visually illustrate the overall impact and effectiveness of specific security and design techniques.

Research aimed specifically at bridging the gap between crime prevention and interior design is long overdue. Looking carefully at this intersection will inform both groups of effective techniques which aim to boost sales and reduce loss within retail environments which ultimately benefit the owner, employee, and consumer. Future research
efforts will aim to understand additional points of view including offenders, store personnel, retailers, and consumers to provide the entire picture within a retail environment.

REFERENCES


Policing and Reducing Crime Unit Research, Development and Statistics Directorate.


Appendix A

Background Information

1.) What is your primary store type:
   a.) Club/Warehouse (1)
   b.) Department Store (2)
   c.) Drug Store (3)
   d.) Home Improvement (4)
   e.) Food (5)
   f.) Mass Merchant (6)
   g.) Specialty Store/other (7)

2.) Are your stores dispersed:
   a.) Regionally (1)
   b.) Nationally (2)
   c.) International (3)

3.) How many stores are you currently operating: _____

4.) What is your primary job area:
   a.) Loss Prevention Executive (1)
   b.) Product Buyer (2)
   c.) Store Design Executive (3)
   d.) Store Operations Manager/Executive (4)

5.) What is your primary source of loss prevention knowledge:
   a.) College education (1)
   b.) Professional Experience (2)
   c.) Examination/Certification(s) (3)

Resources

Please rate the following on a scale where 5=Extremely Important, 4=Very Important, 3= Important, 2=Not Very Important, 1=Not Important.

1.) Estimate the importance of the following resources at guiding your practical loss prevention knowledge and action:
   a.) Books 1 2 3 4 5
   b.) Conferences 1 2 3 4 5
   c.) Journals 1 2 3 4 5
   d.) Peers 1 2 3 4 5
   e.) Research Studies 1 2 3 4 5
   f.) Trade Magazines 1 2 3 4 5
   g.) Workshops 1 2 3 4 5
Loss Prevention Focus/Philosophy

Please rate the following on a scale where 5=Extremely Important, 4=Very Important, 3=Important, 2=Not Very Important, 1=Not Important.

1.) Estimate the amount of influence the following factors have on loss prevention:

<table>
<thead>
<tr>
<th>Factor</th>
<th>Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>a.) Access Control</td>
<td>4</td>
</tr>
<tr>
<td>(Restricting offender exit access and impeding getaways)</td>
<td></td>
</tr>
<tr>
<td>b.) Adjacencies of Products</td>
<td>3</td>
</tr>
<tr>
<td>c.) Aesthetic Design</td>
<td>4</td>
</tr>
<tr>
<td>d.) Branding, Identity, Image</td>
<td>4</td>
</tr>
<tr>
<td>e.) Circulation Paths</td>
<td>4</td>
</tr>
<tr>
<td>f.) Concealing Targets</td>
<td>4</td>
</tr>
<tr>
<td>(Using tickets to direct consumers to relocated area in checkout area)</td>
<td></td>
</tr>
<tr>
<td>g.) Consumer Behavior</td>
<td>3</td>
</tr>
<tr>
<td>i.) Customer Convenience</td>
<td>4</td>
</tr>
<tr>
<td>(Ease of shopping; layouts that facilitate fast checkout; employees positioned at multiple locations to assist with customer queries)</td>
<td></td>
</tr>
<tr>
<td>j.) Exciting Consumers</td>
<td>4</td>
</tr>
<tr>
<td>k.) Exit Screening</td>
<td>4</td>
</tr>
<tr>
<td>(Monitoring activity at point of exit via screeners; clear line of sight; well-defined spatial boundaries)</td>
<td></td>
</tr>
<tr>
<td>l.) Formal Surveillance</td>
<td>4</td>
</tr>
<tr>
<td>(Uniformed security officers and undercover store detectives)</td>
<td></td>
</tr>
<tr>
<td>m.) Maintenance</td>
<td>4</td>
</tr>
<tr>
<td>(Clean, well-lit, well-maintained store)</td>
<td></td>
</tr>
<tr>
<td>n.) Natural Surveillance</td>
<td>4</td>
</tr>
<tr>
<td>(Strategies such as lowered shelf and fixture heights; wide, clear aisles; placing CRAVED(Concealable, Removable, Available, Valuable, Enjoyable and Disposable) products in very visible areas; installation of mirrors; ample lighting; line of sight)</td>
<td></td>
</tr>
<tr>
<td>o.) Positioning</td>
<td>4</td>
</tr>
<tr>
<td>(of employees/clerks &amp; CRAVED(Concealable, Removable, Available, Valuable, Enjoyable and Disposable) products)</td>
<td></td>
</tr>
<tr>
<td>p.) Sales (Merchandising &amp; Marketing)</td>
<td>4</td>
</tr>
<tr>
<td>q.) Security Efforts (CCTV, EAS)</td>
<td>4</td>
</tr>
<tr>
<td>r.) Signage</td>
<td>4</td>
</tr>
<tr>
<td>(Strategies for consumer way finding and deterring offenders)</td>
<td></td>
</tr>
<tr>
<td>s.) Target Hardening</td>
<td>4</td>
</tr>
<tr>
<td>(Obstructing an offenders immediate access to CRAVED (Concealable, Removable, Available, Valuable, Enjoyable and Disposable) merchandise via locks, safes, cords, cables, or reinforced materials)</td>
<td></td>
</tr>
</tbody>
</table>
Measure of Performance

Please rate the following on a scale where 5=Extremely Important, 4=Very Important, 3=Important, 2=Not Very Important, 1=Not Important.

1.) Rate the intensity and priority of your company’s current store loss prevention efforts:
   a.) Decreasing shoplifting with loss prevention techniques
       1 2 3 4 5
   b.) Increasing sales via customer experiencing design features
       1 2 3 4 5
   c.) Decreasing accidents via design features
       1 2 3 4 5

2.) Rate the effectiveness of the following at measuring the performance of design efforts:
   a.) Amount of Shrink
       1 2 3 4 5
   b.) Sales

Coordination

Please rate the following on a scale where 5=Extremely Important, 4=Very Important, 3=Important, 2=Not Very Important, 1=Not Important.

1.) Estimate the importance of your coordination with the following parties:
   a.) Store operations
       1 2 3 4 5
   b.) Product buyers
       1 2 3 4 5
   c.) Interior Designers
       1 2 3 4 5
   d.) Store construction
       1 2 3 4 5
   e.) Visual merchandisers
       1 2 3 4 5
   f.) Other individuals within design
       1 2 3 4 5
       (architect, interior designer)
   g.) Outside merchandise suppliers
       1 2 3 4 5
       (e.g. P&G, Levi’s, Dell, Wyeth)

2.) Estimate the importance of coordination during the following design processes:
   a.) Schematic design
       1 2 3 4 5
   b.) Design development
       1 2 3 4 5
   c.) Construction documentation
       1 2 3 4 5
   d.) Construction
       1 2 3 4 5
   e.) Post occupancy
       1 2 3 4 5

Open-ended Questions

1.) What current design strategies does your organization currently utilize?

2.) Can you provide electronic photos of these strategies? Store layout?

3.) What high-risk department and product do you target?

4.) Can you provide a store layout of your chosen high-risk in-store department? Electronic photos?
Infusing *Third Place* Theory into a Studio Environment: A Qualitative Inquiry

Stephanie Clemons, Lisa Waxman, Nicole Conis, David McKelfresh, and James Banning

**PURPOSE**

The purpose of this qualitative study was to expose students to third place theory (Oldenburg, 2001) and assess their evaluation of their favorite third place in the community based on established design guidelines. The third place is that location that is neither home nor work, but a place important to meeting an individual's social needs and feelings of community (Oldenburg, 1989). The goal of the study was to infuse third place theory into a design studio setting that would expose students to the importance and application of theory in a part of their world.

**PROCESS**

Spring 2006, two sophomore level interior design studio groups were convened. Convenience and purposeful sampling techniques were used to acquire participants for the study. Following an explanation of third place theory, students were given an assignment to 1) visit and evaluate their favorite third place, 2) fill out a field note observation sheet using established guidelines (Waxman, 2006), 3) explain why it was a third place for them, 4) take digital photographs of design elements that make it a third place, and 5) develop a “third place” booklet illustrating analysis of their third place using InDesign software.

Field notes were analyzed using a combination of topical and inductive coding. This analytic strategy resulted in a descriptive picture of the students’ third places, and provided data that revealed a number of emergent themes.

**SUMMARY**

Of the 45 students, 43 allowed their assignments to be used for this qualitative study. Seventy-six percent of the students selected third places off campus with coffee shops and restaurants being their favorite third place establishments. Analysis of the data indicated that the four major functions served by their third place were 1) relaxation or to “get away,” 2) socialization, 3) a place to do homework or 4) a place for refreshment. The most important factor that led to the popularity of their third place was the opportunity to have an atmosphere conducive to socialization that was also convenient in location. The socialization reported by students was primarily with friends (seeing old and finding new), but they also noted there were many individuals they encountered who were familiar even though they did not know their names (“familiar stranger phenomenon”). While many of the thematic aspects of Oldenburg’s work suggested the importance of community, students in the study appeared to be choosing a third place for socializing and “getting away.” Many of the
“getting away” comments suggested a need for relaxation, and the opportunity for “people watching,” “cocooning,” and a place to look outside for “restorative effects.” These themes were more focused on self than on community functions.

Along with the typical design theories, students should also be exposed to social science theories such as third place to enable them to design more meaningful spaces for end users. Based on analysis of the data, and themes that emerged from this study, a follow-up studio assignment in 2007 will be developed to highlight “need for nature” theories.

REFERENCES

Infusing *Third Place* Theory into a Studio Environment: A Qualitative Inquiry

**PURPOSE**

Theory is an ambiguous concept for many interior design students to grasp and apply; yet it is a critical component of an accredited interior design curriculum. The Council for Interior Design Accreditation (CIDA) professional standards concerning “design fundamentals” (Standard 3) and “interior design” (Standard 4) indicate that interior design curriculum should help students develop “a foundation in …theories of design, green design, and human behavior…” and then “apply the …theories of interior design” in their design solutions (CIDA Professional Standards, 2006).

The importance of teaching theory is succinctly outlined by Eidson 1986, when she professed that “design theory provides the language and the connections necessary to link knowledge and ideas about design concepts with the practice of designing” (p.19). Furthermore, Salmon and Gritzer (1992) advocate that the knowledge and application of social science theory impacts the quality of professional competence.

“There are many theoretical approaches [and theories] from related fields that have application to the field of interior design” (Loustau, 1988, p. 3) such as Gestalt and color theory. However, teaching theory to interior design students lacks relativity unless they are engaged in the learning process or unless they have a point of reference from which to understand the importance of the theoretical application. Very few interior design educators have reported the teaching and application of theory in an interior design studio setting (Brunner, 2004).

What are the best methods to engage students in learning about related theories that can impact their design solutions? How could students be encouraged to better appreciate the importance of theories? How could educators personalize an assignment concerning theory to encourage design students to understand the impact on their lives and therefore the lives of the future clients?

This paper discusses a qualitative study conducted with two, sophomore level, interior design studio groups (n = 45) to encourage student understanding and analysis of “third place” theory in interior environments. To capture their experiences for coding and analysis, students completed field notes and developed an illustrated booklet of their favorite
“third place” in the community. Student-captured images and their “stories” will be shared along with the coding and analysis of the collected data.

Third Place Theory

Third place is a place that is neither home nor work, but a place important to meeting an individual’s social needs and feeling a sense of community. Oldenburg (2001) gives the following introduction to the third place concept: “... third place is a setting beyond home and work (“first” and “second” place respectively) in which people relax in good company and do so on a regular basis” (p. 2).

Oldenburg (1989) does not give specific recommendations on how to create third places, but he does offer specific examples found across America, including coffeehouses, garden shops, bookstores, cafes, and gyms. Ideally, third place locations should be 1) convenient, 2) human scale, 3) functionally designed to support human interaction, and should 4) offer a pleasing aesthetic design – a place where one finds comfort and pleasure, 5) serve food and drink and at a reasonable price, 6) communicate diversity and accessibility, and 7) provide internet accessibility (Oldenburg, 2001).

Third place theory is applicable to the design of interior spaces that serve, intentionally or unintentionally, as gathering places (Waxman, 2006). From Oldenburg’s third place perspective, and as a result of her study, Waxman developed guidelines for assessing coffee shop interiors as third place spaces. These design guidelines included: layout, flooring, seating, outside seating, service bar, tables, lighting, aroma, acoustics, view, visual appeal, art, and bulletin boards.

PROCESS: QUALITATIVE STUDY AND STUDENT ASSIGNMENT

The purpose of this qualitative study was to expose students to third place theory (Oldenburg, 2001) and assess their evaluation of their favorite third place in the community based on established design guidelines. The goal of the study was to infuse third place theory into a design studio setting that would expose students to the importance and application of theory in a part of their personal world. Convenience and purposeful sampling techniques were used to acquire participants for the study.

Spring 2006, two sophomore level interior design studios (n = 45 students) were convened. (Note: these students had previously been exposed to Gestalt and color theory in
a lecture class and in an art studio). Following an explanation of third place theory, students were given an assignment to: 1) visit and evaluate their favorite third place, 2) complete a field note observation sheet using Waxman’s (2006) guidelines, 3) explain why it is a third place for them, 4) take digital photographs of design elements that make it a third place, and 5) develop a “Third Place” booklet illustrating analysis of their third place using InDesign software.

Field notes were analyzed using a combination of topical and inductive coding. This analytic strategy resulted in a descriptive picture of the student third places, and provided data that revealed a number of emergent themes.

**FINDINGS AND DISCUSSION**

Of the 45 students, 43 allowed their assignments to be used for this study. Findings indicated seventy-six percent of the students selected third places off campus, with coffee shops and restaurants being favorite third place establishments (see Table 1 and Figures 1-3). Analysis of the data indicated that four major functions were served by third place: 1) relaxation or to “get away,” 2) socialization, 3) provided a place to do homework, and 4) refreshments. Factors that lead to the popularity of the third place included location, habit, atmosphere, internet connection, and opportunities for socialization. A list of preferred activities can be found in Table 2. The students’ relationship to others at the third places included 1) the presence of familiar strangers (n = 25), 2) mutual knowing (n = 17), 3) going with friends (n = 5), 4) seeing friends (n = 4), 5) meeting new friends (n = 5), and 6) feelings of anonymity (n = 5).

Students’ choice of third places served several similar functions to Oldenburg’s work (2001) including sorting, union of friends and fun/entertainment. There were some common themes reflected in the stories of the students. For example, a third place was selected due to it being a “place of consensus,” in that other friends wanted to go to the same place. Proximity of the establishment to home was important, as well as the ability to “look outside” for restorative effects of nature. Students identified that third places seem to have a certain rhythm or what they described as a “rhythm of place.” They also indicated that third places were chosen because they were prime locations for “people watching” and provided an opportunity for “cocooning” as well as a place where students could meet friends and/or
enjoy the company of “familiar strangers.” These themes were more focused on self than on community functions.

In addition to these behavioral functions and preferences associated with the student’s choices of third place, design features were also identified. Wood flooring was preferred, comfort of chairs and flexibility of arrangement of furnishings was important, light levels appropriate to the activity taking place was mentioned, antiseptic smells were undesirable, views to the outside were critical, and a warm, visual appeal was ideal.

Collected student comments indicated that their understanding of the need and value of theory to inform design solutions had been impacted by this assignment. No longer did theory seem to be a foreign, abstract word in their vocabulary, rather is became personal and concrete.

Conclusion

Upon graduation, interior design students may design and specify third place establishments, whether they are identified as such or not. Ideally, their experiences with this project will raise their awareness of the value of third places. Although the third places they design may be restaurants, libraries, bookstores, and fitness centers, other options may emerge as demographics change. For example, third places may even be located within healthcare facilities where family members gravitate to process stress and anxiety resulting from long term care for a family member. This study supports the belief that students should be exposed to more social science theories such as third place to enable them to design more meaningful spaces for end users.

It is important to weave the use of theory throughout interior design curriculum rather than in isolated course. Awareness and knowledge of theories can be offered in lecture courses. However, more opportunities for application of theories need to be available. Therefore, as a follow up in the same studio, another assignment is planned that is based on “need for nature” theories (Stewart-Pollack & Menconi, 2005), which supports students’ fascination with restorative effects of nature in third places. A future study might be to gather student perceptions as they complete a four year interior design curriculum to assess understanding of theories and their ability to inform design solutions.
REFERENCES


Tables 1 & 2 were inserted as a “print screen”
Figure 1. Third place – Mexican Restaurant.
Figure 2. Third place - Clubhouse/Restaurant

Figure 3. Third place – Coffee shop/soda shop
Examining Cooking Patterns by People in Wheelchairs

Holly Cline and Julia O. Beamish

Abstract

PURPOSE

The kitchen is a critical place in the home. Being able to utilize the kitchen and prepare meals independently encourages independence (Null & Cherry, 1996). The purpose of the study was to investigate the cooking patterns of people who cook while in a wheelchair. Specific objectives examined how the GE Real Life Design Kitchen is used by people in wheelchairs as they prepare a meal in the space.

METHODOLOGY

Nine participants, with various disabilities, who use a wheelchair on a daily basis were selected for the study. The sample consisted of 5 male and 4 female participants with ages ranging from 28-58 years old. Each participant had varying levels of grip, strength, and memory as a result of their disability. Data for this study were collected through a variety of observation and interviewing methods.

The study was separated into two different activities; the cooking activity, and the post-cooking interview. Each participant was given a set menu and asked to prepare a meal in the GE Real Life Design Kitchen. The cooking activity incorporated four different assessment instruments: diagram for kitchen set up, cooking activity menu, menu task matrix, and the behavioral map of cooking patterns. These instruments were needed to assist with the documentation of how a person in a wheelchair prepares meals in the GE Real Life Design Kitchen. Once the cooking activity was completed, the researcher utilized the Behavioral Map of Cooking Patterns to record the actions of the cooking activity.

After the cooking activity, an additional assessment instrument was used in conducting the post-cooking interview. The post-cooking interview consisted of questions utilizing laddering and in-depth interviewing techniques. To ensure uninterrupted flow of discussion and accurate recording of information obtained, the researcher video taped the post-cooking session in addition to taking quick notes during the interview process.

SUMMARY

The results of this study determined that people who use a wheelchair while cooking are very efficient and do not require much counter space in order to prepare a meal. Appliances with easy to read and use controls are preferred and should be located within
good visual range of a person in a wheelchair to be effective. The results concurred with existing recommendations concerning floor clearances and open knee spaces at the sink and cooktop areas. It was also discovered that clear floor and open knee space is useful under a countertop microwave because it allows the wheelchair user to get their body closer to the task.

Results from this study cannot be generalized to a national population of wheelchair users because of the limitations of the sample. Results, however, are significant in terms of providing consumers, cabinet and appliance manufacturers, policy makers, and designers with valuable insight and information concerning the cooking patterns and kitchen needs for a person in a wheelchair.

REFERENCES

Examining Cooking Patterns by People in Wheelchairs

PURPOSE

The kitchen is a critical place in the home. Being able to utilize the kitchen and prepare meals independently encourages independence (Null & Cherry, 1996). In 1994, the National Kitchen and Bath Association (NKBA) began re-evaluating their kitchen planning guidelines and included several universal design concepts that should be incorporated into kitchen planning. The guidelines were then adopted and published in 1996. The GE Real Life Design Kitchen was developed in 1994 and debuted at the National Association of Home Builders 1995 Convention to demonstrate and promote universal design features to builders and consumers. Kitchen designers face many difficulties when trying to incorporate universal design practices into kitchen design. The needs of a person who cooks while standing are very different than the needs of someone who cooks while sitting. It is often not clear if universal design or accessibility features would be useful to people in wheelchairs. In fact, there have been many attempts to add universal design features into people’s homes, but little research has been conducted to see if these features are beneficial and are utilized by users, let alone users in wheelchairs. In addition, there have been very few studies that have examined cooking patterns by people in wheelchairs within a universally design kitchen.

The purpose of the study was to investigate the cooking patterns of people who cook while in a wheelchair. Specific objectives examined how the GE Real Life Design Kitchen is used by people in wheelchairs as they prepare a meal in the space.

THEORETICAL FRAMEWORK

The theoretical frameworks utilized for this study investigated models and theories that are all inter-related to Lewin’s person-environment interaction model. Lewin’s framework explored the idea that one’s behavior is the result of the interaction between the person and
his or her perceived environment (Lewin, 1951). As a result of his work, many person-behavior-environment models have emerged (Steinfeld & Danford, 1999).

Three different person-behavior-environment models were employed in this research. Lawton and Nahemow’s model of Competence Press (1973) proposed that for people with lessened abilities, the impact of the environmental factors \( \text{environmental press} \) is greater. Because people in wheelchairs often must compensate for their limitations, the environmental demands must be specifically synchronized with the abilities of the individual to obtain an optimal fit between the person and the environment. Steidl and Bratton (1968) studied the workplace within the home. Their model, the concept of Work, Worker, and Workplace determined conditions that accelerated the activities that required the most effort and strain on the worker, lessening the amount of time needed for those tasks and in turn, lessening the amount of strain on the individual. Faletti’s model of Human Factors or Person-Environment Transaction (1984) took into account the relationship of the person to the environment while attempting to accomplish daily activities. While each framework brings different components to the conceptual model of this study, all three of these frameworks are similar in that they recognize that the environment is a contributing factor to how a person performs a specific task, works more efficiently, and functions independently.

**REVIEW OF LITERATURE**

In the past, various agricultural research centers and housing specialists conducted research investigating kitchen efficiency. In 1956, the “Take-It-Easy Kitchen” was designed for the cook to take fewer steps and to sit down during meal preparation, eliminating one-third of the required standing time (Howard & Tayloe, 1956). The Beltsville Energy Saving Kitchen of 1959 was planned to “… reduce walking, lifting, and reaching and to eliminate some motions necessary when conventional designs and arrangements were used” (U.S. Department of Agriculture, 1959, P.2). Some of the design ideas suggested in these studies are reminiscent of universal design features utilized today. Both of the above mentioned kitchens recommend removing the base cabinet in front of the sink to provide knee room and to allow for work at the sink to be completed while in the sitting position. These kitchen efficiency studies produced many useful ideas that were modified and that continue to be utilized today for designing kitchens for people in wheelchairs.
One of the first research experiments to address the space and design requirements for a kitchen designed for a person in a wheelchair was conducted by McCullough and Farnham in 1960. A series of tests and measurements were made of the following: the participants in their wheelchairs; space requirements for maneuvering the wheelchair; vertical and horizontal reach measurements; comfortable working heights for wheelchair users; and the necessary clearance of work areas while in a wheelchair. After obtaining the above measurements, McCullough and Farnham had the participants test various kitchen and laundry appliances for accessibility and ease of use. Based upon their previous findings, the researchers had the participants test three different kitchen arrangements (L-shaped, U-shaped, and Galley). Despite the wide range of individual measurements of the participants, the research showed “that there are certain general dimensions and planning guides which can provide comfortable, safe work areas for many wheelchair homemakers” (McCullough & Farnham, 1960, p.36). These recommendations concluded that the work counter height should be 30 to 31 inches above finished floor (AFF) and should include the sink and the cooktop at the work counter height. In addition, they found the work counter needed a space at least 24 inches wide under these areas. The document recommended a five foot clearance for ease of movement throughout, which is consistent with standard turn around clearances today.

In 1968, the Institute of Rehabilitation Medicine conducted a study on the meal preparation problems of the handicapped and elderly. Only a small portion of the study was devoted strictly to people in wheelchairs. This portion of the study primarily utilized one person, a young quadriplegic, as a basis for observations for testing of a wheelchair user. However, some useful suggestions for accessories in the kitchen and on the wheelchair were made as a result of this study. A device called a “narrower” was recommended for decreasing the width of a folding wheelchair by 3 inches. Lapboards to assist with carrying pots and food items and Velcro carryalls for holding utensils were some of the suggestions highlighted in the study (Institute of Rehabilitation Medicine, 1970).

Model kitchens became the footprint for designing an accessible kitchen in the early 1970s. During this time, most of the research and design in accessibility was developed in Sweden and Europe. Sven-Olof Brattgard researched the activities of daily living among the severely disabled and developed a prototype kitchen known as the Fokus kitchen (Raschko, 1991). The purpose of the Fokus kitchen was to provide access and flexibility to all users.
The kitchen was extremely adjustable since cabinets and counters were placed on an adjustable wall track and console system.

Although many design recommendations for accessible kitchens have been published in books and brochures, very few studies have been conducted recently that pertain directly to how persons in wheelchairs prepare meals.

**METHODOLOGY**

Nine participants, with various disabilities, who use a wheelchair on a daily basis were selected for the study. The sample consisted of 5 male and 4 female participants with ages ranging from 28-58 years old. Each participant had varying levels of grip, strength, and memory as a result of their disability. Data for this study were collected through a variety of observation and interviewing methods.

The study was separated into two different activities; the cooking activity, and the post-cooking interview. Each participant was given a set menu and asked to prepare a meal in the GE Real Life Design Kitchen. The cooking activity incorporated four different assessment instruments: diagram for kitchen set up, cooking activity menu, menu task matrix, and the behavioral map of cooking patterns. These instruments were needed to assist with the documentation of how a person in a wheelchair prepares meals in the GE Real Life Design Kitchen. Once the cooking activity was completed, the researcher utilized the Behavioral Map of Cooking Patterns to record the actions of the cooking activity.

After the cooking activity, an additional assessment instrument was used in conducting the post-cooking interview. The post-cooking interview consisted of questions utilizing laddering and in-depth interviewing techniques. To ensure uninterrupted flow of discussion and accurate recording of information obtained, the researcher video taped the post-cooking session in addition to taking quick notes during the interview process.

**SUMMARY**

The results of this study determined that people who use a wheelchair while cooking are very efficient and do not require much counter space in order to prepare a meal.
Appliances with easy to read and use controls are preferred and should be located within good visual range of a person in a wheelchair to be effective. The results concurred with existing recommendations concerning floor clearances and open knee spaces at the sink and cooktop areas. It was also discovered that clear floor and open knee space is useful under a countertop microwave because it allows the wheelchair user to get their body closer to the task.

Results from this study cannot be generalized to a national population of wheelchair users because of the limitations of the sample. Results, however, are significant in terms of providing consumers, cabinet and appliance manufacturers, policy makers, and designers with valuable insight and information concerning the cooking patterns and kitchen needs for a person in a wheelchair.

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Technology vs Domesticity in the Farnsworth and Johnson Glass Houses

M. Jean Edwards

Abstract

PURPOSE

The purpose of this paper is to examine the two American glass houses, Mies van der Rohe’s Farnsworth House and Philip Johnson’s Glass House in the context of their adaptation of industrial technology, as conceived by European Modernism, to American domestic architecture. These houses were thought to be highly unusual when they were built, particularly in the context of conventional ideas of American domestic environments. There are, however, significant disparities between these two houses that point to fundamentally different architectural conceptions. This paper will compare and contrast the two houses with respect to their precedents, the relationship of architect to client, and their formal aspects to reveal how each architect interprets the Modernist technological imperative in relation to a domestic program.

CONTEXT

As acknowledged masterworks of Modernism, these houses represent key monuments in postwar construction and Modernist responses to the domestic program. Described as “transcending any traditional domestic function or program…” the claim to importance of the Farnsworth House is said to lie “…in the absolute purity and consistency of its architectural idea” (National Trust for Historic Preservation). Similarly, Paul Heyer identifies Johnson’s Glass House as “one of the world’s most beautiful yet least functional houses... it was a building really expressing many concerns of classic design” (p. 12). Based on the available historical documentation, the words of the architects themselves, and on a formal analysis of the architecture, this paper will examine how, despite their similarities, these two houses actually represent different architectural responses to domesticity. The most striking difference is perhaps the clarity of vision, unrelated to issues of domestic necessity, that characterizes the Farnsworth House in contrast to the more ambiguous proposition that the Johnson House embodies as it attempts to negotiate the Modern and the domestic.

SUMMARY

The analysis of the Farnsworth House and the Johnson Glass House reveals that these two Modern “masterworks” diverge with respect to their projection of postwar industrial technology and their image of American domesticity. Implications of these
divergences are proposed. The study of these two houses together offers insight into the challenge faced by Modernism in the context of American domestic projects.
Technology vs Domesticity in the Farnsworth and Johnson Glass Houses

PURPOSE

The purpose of this paper is to examine the two American glass houses, Mies van der Rohe’s Farnsworth House and Philip Johnson’s Glass House in the context of their adaptation of industrial technology, as conceived by European Modernism, to American domestic architecture. These houses were thought to be highly unusual when they were built, particularly in the context of conventional ideas of American domestic environments. The steel frame and glass construction employed by both signaled adherence to the Modernist industrial ideal, while the accompanying lack of decorative detailing and room divisions within their interiors further challenged conventional domestic traditions.

There are, however, significant disparities between these two houses that point to fundamentally different architectural conceptions. This paper will compare and contrast the two houses with respect to their precedents, the relationship of architect to client, and their formal aspects to reveal how each architect interprets the Modernist technological imperative in relation to a domestic program.

CONTEXT

Considered significant architectural icons of the Modern era, both of these houses are listed as National Trust Historic Sites. Acknowledged as masterworks and key monuments of postwar construction, they help to illuminate the impact of industrial technology on twentieth century domestic architecture. They also highlight the gap between European Modernist ideals and American conventions of domesticity. The design of the Farnsworth House simply bypasses consideration of the domestic agenda. The design of Johnson’s House, on the other hand, attempts to resolve the domestic demands in the context of a Modernist architectural statement.
REVIEW OF LITERATURE

The two glass houses under review are among the most extensively illustrated and critiqued of 20th century houses (Friedman, p. 127). The critical attention paid to these houses has focused primarily on their aesthetic and formal qualities (see Frampton, 1992; Heyer, 1993; Jenkins and Mohney, 2001; Schulze, 1985; and Zukowsky, 1986). Some of the recent scholarship has begun also to explore these and other Modern houses from a social point of view within the framework of feminist criticism (see Friedman, 1998; and Ockman in Agrest, Conway and Weisman, eds., 1996). These essays have explored the relationship between postwar Modernism and American domesticity.

For a contemporaneous view of this relationship, Elizabeth Gordon, writing in House Beautiful in 1953, denounces the “Cult of Austerity”, in particular the domestic architecture of Mies van der Rohe and Le Corbusier which she claims derive from the paintings of Mondrian (1953, p. 129). According to Gordon “they are promoting unlivability, stripped-down emptiness, lack of storage space and therefore lack of possessions” (1953, p.126). She distinguishes between “bad” International Style design (European Modernism as exemplified by the Tugendhat House by Mies and the Villa Savoye by le Corbusier) and “good” modern design that “…offers comfort and performance and beauty” (1953, p. 129). What Gordon understands as American rationalism and functionalism is clearly at odds with the cold and intellectualized “functional” design philosophy of the Bauhaus and its proponents. Though the content and style of her argument are clearly overwrought, the article serves to highlight the conflict between the reductionist vision of European Modernism, where the search for form overcame a narrow definition of function, and its application in the context of American domesticity.

PROCESS

Reviewing sources contemporaneous with the construction of these two houses along with more recent critical examinations, contrasting the words of the architect’s themselves, and studying the series of Johnson’s schemes that preceded the construction of his house (see Figs. 1 and 2), it is possible to draw clear distinctions between the architectural propositions of the two architects. Upon examination the similarities between the two
houses begin to seem quite superficial. The most striking difference is perhaps the clarity of vision, unrelated to issues of domestic necessity, that characterizes the Farnsworth House in contrast to the more ambiguous proposition that the Johnson House embodies as it attempts to negotiate the Modern and the domestic.

DISCUSSION

Philip Johnson has clearly acknowledged Mies as one of the major inspirations for his own Glass House. Speaking at a symposium at Columbia University’s School of Architecture in 1961, Philip Johnson “…pointed out to him (Mies) that it (a glass house) was impossible because you had to have rooms, and that meant solid walls up against the glass, which ruined the whole point. Mies said, ‘I think it can be done.’” (http://www.farnsworthhouse.org/) This statement reveals not only Johnson’s debt to Mies for the original conception of a glass house, but also Johnson’s predisposition to think of rooms as a necessity in a domestic context. Johnson also acknowledges a number of other influences that he shares with Mies: the Neo-Classical architecture of the 19th century Prussian architect Karl Schinkel, the Suprematism of Kasimir Malevich, and painting by the DeStijl theorist Theo von Doesburg (Cohen, 2005, p. 2 and Frampton, 1992, p. 235). All of these sources are frankly European and are consistent with identified sources of Mies’ work.

Both architects intentionally use these house projects to create “an architecture of ideas” (Cohen, p. 1). Mies, preoccupied with the construction of a single story, unobstructed clear-span volume – in Frampton’s view an inherently public form (1992, p. 235) - creates a weekend retreat for a single woman in a remote location. On its face this project presents little in the way of program for the architect, and therefore offers an ideal opportunity for him to realize his vision. In the Farnsworth House he brings single-minded attention to the realization of perfect beauty in the context of a technologically modern structure. Mies states, “Wherever technology reaches its real fulfillment, it transcends into architecture. It is true that architecture depends on facts, but its real field of activity is in the realm of significance” (Conrads, p. 154). Mies’ rigor applied to this domestic structure results in an elegant, temple-like space that floats as an island surrounded by nature. “Principles of design and form, rather than programmatic or even typological concerns, always came first” (Friedman, p. 135). 

159
Johnson, as a principal advocate for the Modern movement and in particular for Mies van der Rohe, is committed also to the primacy of design (Jenkins and Mohnley, p. 57). Nevertheless, serving as his own client, Johnson remains aware of domestic imperatives. Looking at the range of preliminary schemes Johnson produced for his house over the course of three years, it is clear that the architect struggled to resolve his desire for an architectural statement with the domestic requirements that he, as client, imposed. His inclusion of a brick Guest House that serves in its solid opacity as the antithesis to the Glass House belies Johnson’s understanding of the need for privacy in the context of a living arrangement. “By pairing the Glass House with the virtually windowless Guest House . . . Johnson acknowledged not only his own need for privacy but also the impossibility of the Glass House’s serving as a family home” (Friedman, 1998, p. 154). It is revealing that few of the published critiques of the Glass House include discussion of the Guest House. Even more rare are photographs showing the two structures in relationship to each other (see Fig. 3). The design for and the construction of the Guest House were completed before the Glass House. Curiously, the Guest House is absent from the final design schemes that Johnson developed prior to finalizing the design for the Glass House. Perhaps, this reveals his own ambivalence regarding the appropriateness of Modernism to meet the needs of a domestic program.

While remaining Modern in concept, Johnson’s design for the Glass House moves away from the structural emphasis that dominates the Farnsworth House, and adapts “the Miesian syntax to decorative ends” (Frampton, 1992, p. 240). Johnson places the steel columns on the interior of the glazing wall, thus emphasizing the skin of the building rather than the structure. The house is built on grade resting on a low brick podium, firmly anchored to the ground rather than floating above the earth. Johnson’s use of brick, a traditional material associated with conventional building techniques, reinforces the domestic context of his structure. The brick continues into the interior as flooring, laid in a herringbone pattern (a dynamic diagonal element in an otherwise orthogonal composition), and on the cylindrical fireplace/service core wall, the dominant architectural figure within the otherwise open interior. The fireplace core itself recalls the domestic designs of Frank Lloyd Wright for whom the hearth was the literal and metaphoric center of the home. According to Friedman, “the cylindrical brick chimney at the core of the Glass House makes an obvious and clearly ironic reference to the architecture of the traditional family home and
to the sentimentalized view of domesticity that had gained widespread currency since the late nineteenth century” (1998, p. 152)

CONCLUSION

The Farnsworth House, as an example of Mies’ technology-based, reductionist Modernism, did not fit its American domestic context. While it is highly admired as a work of architecture, it has major shortcomings when viewed in the context of domesticity. Johnson’s House, insofar as it reveals and acknowledges the inadequacy of strict Modernism to address a domestic program, is itself a compromised work of Modernist architecture. One might say that Johnson’s deviation from Mies begins with his Glass House, rather than later as is often projected. Johnson’s defection from the Miesian model of Modernism may signal also an inherent functional pragmatism that is identified with American architectural philosophy (Heyer, 1993, p. 12).

REFERENCES


Scheme IV: Plan, first version (top) and Plan, second version (bottom)
Both plans show solid walls and multiple structures
Scheme IX: Plan dated March 1946. Shows the emergence of glass walls and detailed interior furnishings.
Figure 3

View showing both the Guest House and the Glass House in relation to each other. (from Jenkins, S. and Mohney, D., 2001, p. 89).
Homes as Sacred Places – Difficulties Endured by Minnesota’s Hmong and Somali Refugees

Tasoulla Hadjiyanni

Abstract

PURPOSE

For the housing of displaced groups to foster social justice, designs must support various ways of living. Interviews with Minnesota’s Hmong and Somali refugees provide insights into how mainstream residential environments can suppress religious practices. Culturally sensitive designs, developed in Interior Design studio classes, can be solutions to problems identified.

METHODOLOGY

The study draws from home interviews of Hmong and Somali refugees living in Minnesota’s Twin Cities metropolitan area. Both cultural groups found themselves in the US after escaping devastating wars in their homelands (Pfaff, 1995, Gundel, 2002). The Twin Cities currently have the largest concentration of both Hmong and Somalis in the country—in terms of refugees, the area has three times the national average.

Religion forms the base on which both groups’ cultural and collective identities are based. The Hmong are Shamanists and believe in spirits and ancestor worship. As spirits live in the family’s house, houses attain holy dimensions and many religious ceremonies or celebrations take place there (Cooper, 1998). Somalis on the other hand, are mostly Muslim and Islam defines many of their daily life practices, from what they eat to how they dress and pray (Abdullahi, 2001).

Data Collection

The interviews were collected as part of architecture studio classes at the University of Minnesota during Fall 2002 & Fall 2003. Questions ranged from demographics to descriptions of their past and aspired housing characteristics as well as the traditions they value and wish to pass down to their children. Both closed and open-ended questions were used allowing for both a quantitative and a qualitative analysis (Zeisel, 1991). Interviewees ranged in ages, backgrounds, marital status, socio-economic levels, and years in the US.

SUMMARY

The findings point to homes suppressing religious practices and those cultural expressions tied to religion, like community connections and dress, threatening in the
process the groups’ cultural identity definition and creating stress in their lives. Hmong interviewees experienced difficulties like: calling the spirits because altars could not be placed in a location that spirits can easily find; hosting celebrations with large numbers of people as spaces were too tight; and nourishing the spirits with natural views due to lack of windows with access to greenery.

Similarly, Somali women had difficulties washing their feet prior to praying, a ritual called *wudu*, in typical bathroom sinks. Dressing according to their religious dictums, wearing the *xijaab* to cover themselves in the presence of men, was also difficult. Veiled women had to cook while covered in the open kitchens prevalent in new American residential design, which is neither comfortable nor safe.

In summary, the experiences of Hmong and Somali refugees highlight the difficulties that arise when housing does not support diverse ways of life. Interior Design students proposed culturally sensitive design solutions like kitchens that can close-off; windows that connect to nature; and walk-in type shower stalls to support *wudu*. In recognition that all cultural groups have specific needs, further studies should focus on identifying the particular cultural housing needs of other new immigrant and minority groups.

**REFERENCES**


Homes as Sacred Places – Difficulties Endured by Minnesota’s Hmong and Somali Refugees

PURPOSE

Fleeing political or ethnic persecution, refugees arrive in countries like the US hoping for a better life. Instead, they often find themselves amidst another kind of war, one which they are unprepared to fight due to lack of language, education, and employment skills. Further hindering their adjustment process are refugee re-housing programs that prioritize getting a roof over one’s head instead of providing housing that supports diverse ways of life, i.e. culturally sensitive housing (Hadjyanni, 2002). It is not surprising then that mental, emotional, and physical health problems, even death abound among displaced groups who lose their cultural connections (Adler, 1995; Papadopoulos, Lees, Lay & Gebrehiwot, 2004).

As a way to work toward designs that foster social justice, designers must better understand how displaced groups use the homes they find themselves living in. Through the experiences of Minnesota’s Hmong and Somali refugees, this study has both theoretical and practical contributions. On the theoretical level, it provides insights into the role of the built environment in the (de)construction of cultural identity, particularly as it relates to religion. On the practical level, the study proposes design guidelines by which to integrate the needs of Hmong and Somalis in typical American housing. These are developed through innovative studio pedagogies that illustrate how design education and research can be bridged.

THEORY

With cultural identities being living organisms that evolve and adapt to different situations, some form of change is bound to ensue when displaced people find themselves in new circumstances (Camino & Krulfeld, 1994). Discourses on cultural change have long identified its selective and appropriative nature (Pilkington, Omel’chenko, Flynn, Bliudina, & Starkova, 2002). According to this work, members of cultural groups, actively choose which elements of their culture to change and how to change them. Cultural expressions like
language, food, and music are more likely to be appropriated and adapted to a group’s own ideals than cultural values like religion (Karam, 2000).

Nevertheless, few studies have examined the impact that the built environment might have in the adjustment process of displaced groups or in their struggle for a new identity definition. Questions still abound: How are spaces appropriated in displacement? Which traditions will survive the adjustment process and how will they change as a result of it? How are religious practices impacted? And, what are the implications of this balancing act for women, who are often the culture’s safekeepers and the ones who spend more time in the house? Designers who are sensitive to cultural differences in housing needs can design houses that ease the adjustment process, houses that can be turned into homes that foster a sense of belonging.

REVIEW OF LITERATURE

Hmong and Somali refugees found themselves in the US after escaping devastating wars in their homelands (Pfaff, 1995, Gundel, 2002). The Hmong arrived to Minnesota in the 1980s whereas the Somalis in the 1990s. The Twin Cities currently have the largest concentration of both Hmong and Somalis in the country—in terms of refugees, the area has three times the national average.

Religion forms the base on which both groups’ cultural and collective identities are based. The Hmong are Shamanists and believe that objects contain spirits which are the guardians of a family’s welfare. As spirits live in the family’s house, houses attain holy dimensions and many religious ceremonies or celebrations take place there (Cooper, 1998). The shaman visits the home and performs a ‘spirit calling’ around the altar—a small, rectangular piece of wood with feathers and a shelf where incense is lit. This is followed by an elaborate feast for 30-200 guests as the Hmong believe the stronger the community support, the easier it is for the shaman to reach ancestral spirits.

Somalis on the other hand, are mostly Muslim and abide by the five pillars of Islam: to believe in one god, to pray daily, to give to the needy, to fast, and to take the once in a lifetime pilgrimage to Mekkah if they are able (Chebel, 2000). Islam defines
Many of Somali’s daily life practices, gender relations, community connections, and behaviors like dress and food (Abdullahi, 2001).

**METHODOLOGY**

The study draws from home interviews of Hmong and Somali refugees living in Minnesota’s Twin Cities metropolitan area. The data were collected as part of architecture studio classes at the University of Minnesota during Fall 2002 & Fall 2003 (Hadiyanni, 2006). Even though in-home interviews made the identification of subjects more difficult, because of privacy concerns, visiting the home enriched our understanding of how residential environments relate to cultural identity construction. In addition to talking with at least one adult, home visits allowed for the documentation of house plans; furniture types and placement; observations by the researchers, as well as a collection of photographs of the houses.

Verbal information collected included demographics and descriptions of past and current housing characteristics and preferences, traditions they value and wish to pass down to their children, as well as solutions to the problems identified. Both closed and open-ended questions were used allowing for both a quantitative and a qualitative analysis (Zeisel, 1991).

**FINDINGS**

In spite of the diversity among the interviewees in terms of ethnicity, history, background, age, gender, marital status, educational and socio-economic level, the message was the same – that it was very important to both groups to keep their traditions and way of life while in the US. The findings point to homes suppressing religious practices and those cultural expressions tied to religion, like community connections and dress, threatening in the process the groups’ cultural identity definition and creating stress in their lives.

Hmong interviewees experienced difficulties calling the spirits as altars often could not be placed on the wall facing the front door so that the spirits can easily find their way
into the house. One family, living in a split-level house, had to put strings on the ceiling to help the spirits find the altar. Hosting celebrations with large numbers of people was also difficult because of space restrictions. Families often refrained from inviting all those dictated by their cultural norms, putting relationships in peril.

Nourishing the spirits with natural views was another concern as access to greenery and yards were not possible for families living in apartments and units off the ground. In Laos, yards were larger than the house itself as according to an interviewee: “If the land is too small, we get sick and poor.” Families resorted to painting their walls a dark green color and using posters with tropical scenes and waterfalls to nourish the spirits (Figure 1).

Difficulties were also experienced by Somali women. As Muslims, they must pray daily to connect to God and to one another. Taking place five times a day, prayers can only be performed when physical and spiritual safety are assured and are most effective when

Figure 1. Posters with tropical scenes nourish the Hmong spirits and the occupants
done in groups (Chebel, 2000). As few gender-segregated mosques exist in Minneapolis, women mostly pray in their homes. Our interviewees noted that as long as they had a clean place to pray, facing East, they could fulfill this religious dictum, and that could be anywhere from the bedroom to the living area. Framed excerpts from the Koran hanging on walls further connected women to their religion (Figure 2). Washing prior to praying however, a ritual called *wudu*, was difficult, particularly when it came to washing their feet in bathroom sinks. This could not be easily done by children and elderly women, leading to water splashing and moisture problems. Washing the hands, face, ears, and mouth was further hindered by limited bathrooms that forced elderly women to climb stairs throughout the day.

Women also had difficulties dressing according to their religious dictums. As devoted Muslims, many Somali women wear the *caftan* to cover themselves when men other than their father, brothers, and father-in-law are present. During visits by men, women had

Figure 2. Framed excerpts from the Koran connect Somali women to Islam
to restrain themselves in their bedrooms so as not to be seen without the veil, often socializing and eating on their beds. Veiled women also had to cook while covered in the open kitchens prevalent in new American residential design, which is neither comfortable nor safe.

CONCLUSIONS

In summary, the experiences of Minnesota’s Hmong and Somali refugees highlight the difficulties that arise when living in housing that does not support one’s way of life. The ability to continue to practice their religious traditions can be among the biggest stressors faced by displaced groups. Designers who are sensitive to cultural differences in housing needs must account for these practices in their programmatic requirements. Culturally sensitive design solutions proposed by Interior Design students include kitchens that can close-off; separated social areas; screened outdoor spaces for social gatherings; windows that connect to nature; and walk-in type shower stalls to support *wudu* (Figure 3).

In recognition that all cultural groups have specific needs that must be accommodated, further studies should focus on identifying the housing needs of other new immigrant and minority groups. The challenge that remains is educating policy makers and affordable housing providers about the opportunities tied to culturally sensitive housing.

![Figure 3. Culturally sensitive house for Hmong refugees](image)

(by Sarah Morissette and Rachel Miller)
REFERENCES


Flooring in Patient Units: Testing Carpet Tile Seam Integrity for the Impediment of Microbial Contamination and Moisture to the Backing and Subfloor

Debra Harris

Abstract

PURPOSE

While design professionals endeavor to provide patient care environments that support the psychological, physiological and behavioral connections and their impact on healing and health, there is an increased need to balance the aesthetic and comfort with the identification of environmental elements that compromise healthcare environments (Harris, 2000). Samet & Spengler (2003) make a case for a greater emphasis on prevention in regard to how the indoor environment impacts occupants, suggesting that a holistic approach to design and maintenance of the indoor environment may provide health benefits as opposed to merely sustaining the status of the health of the environment and its occupants.

Determining appropriate flooring materials in patient environments is a topic of interest for designers and hospital administrators. Carpet tiles are a viable solution for healthcare environments since the Center for Disease Control and Prevention states that “in the event of contamination with blood or other organic substances, the tiles can be removed, discarded and replaced (Schulster et al., 2003)” This study tested the viability of carpet tile in a medical patient unit corridor by measuring the level of microbial and moisture penetration at the seams.

METHODOLOGY

A nylon type 6,6 square modular carpet tile with a non-permeable backing was tested at the seam to measure the potential for moisture and microbial contamination to travel to the back of the tile on a patient unit corridor in an Midwestern hospital. Environmental measures were collected to document the context of the physical environment. Surface samples were collected for a double blind study from the carpet tiles and control flooring materials including sheet vinyl, carpet tiles off the unit and rolled carpet from a similar unit within the same hospital.

SUMMARY

The study found that the physical environment complied with industry standards for temperature, relative humidity, surface and substrate temperatures and moisture levels; though spores were observed on all surfaces tested, fungal colonization was not observed.
Since fungal conditions were not promoted under the conditions measured, testing the viability of the seam to prevent moisture and contamination from traveling from the surface to the back of the tile was not completely proven. However, comparing the moisture level of the subfloor between visits 4 and 5 when a scheduled hot water extraction method cleaning occurred found that the moisture levels of the subfloor did not change, suggesting that the carpet tile seam does provide a barrier for moisture from surface to backing. Because of the limited number of samples and test sites, this study should be considered a pilot study, where caution must be taken in generalizing the findings.

REFERENCES


Flooring in Patient Units: Testing Carpet Tile Seam Integrity for the Impediment of Microbial Contamination and Moisture to the Backing and Subfloor

STATEMENT OF PURPOSE

The purpose of this study was to test the viability of carpet tile in an acute healthcare setting by measuring the level of microbial penetration at the seams. The Center for Disease Control and Prevention (Schulster et al., 2003) states that healthcare facilities “electing to use carpeting for high-activity patient-care areas may choose carpet tiles in areas at high risk for spills. In the event of contamination with blood or other organic substances, carpet tiles can be removed, discarded, and replaced.” Carpet tiles offer a solution to flooring choices in healthcare facilities that may have positive impacts on life cycle costs, maintenance and repair, and indoor environmental quality.

The risk of moisture penetration and microbial contamination to the backside of any flooring finish material and the sub-floor increases the demand for material choices with high performance in the constructed product, including the profile (seam) and the impermeable backing. The assumption is that if carpet tiles do not have heat-welded seams, like rolled carpet, then there is an opportunity for the carpet tile seam to allow moisture and contaminants through to the back of the tile. The hypothesis for this study is that carpet tile seams have the integrity to prevent moisture and contaminants from traveling from the surface of the tile to the back of the tile. The objective of this study is to evaluate the integrity of the carpet tile seam by measuring the levels of selected contaminants of the surface, profile and backing of the carpet tile in a patient unit corridor located in an acute care facility.

CONTEXT

Well-being and productivity are affected by the quality of the indoor environment (Samet & Spengler, 2003). The relationship between environment and health is of growing interest by healthcare providers and design professionals. While design professionals
endeavor to provide patient care environments that support the psychological, physiological and behavioral connections and their impact on healing and health, there is an increased need to balance the aesthetic and comfort with the identification of environmental elements that compromise healthcare environments (Harris, 2000). Samet & Spengler (2003) make a case for a greater emphasis on prevention in regard to how the indoor environment impacts occupants, suggesting that a holistic approach to design and maintenance of the indoor environment may provide health benefits as opposed to merely sustaining the status of the health of the environment and its occupants.

This study contributes to the knowledge of interior design, specifically within the specialty of healthcare design and the potential impact on users – patients, families, and healthcare staff. Interior designers benefit from this and other related research by using the evidence in making decisions about flooring material specifications in patient environments, generally a topic of interest to practitioners within this specialty design area.

Review of Literature

ASHRAE 55-2004 states that the operative temperature for occupied spaces is 68 °F-75 °F (20-23.9°C) based on the acceptable relative humidity of 65% or less for thermal comfort. There are no established lower humidity limits for thermal comfort, though non-thermal comfort factors, such as dry skin, irritation of mucus membranes, dryness of the eyes, and static electricity generation may place limits on the acceptability of very low humidity environments (ASRAE, 2004). Thermal comfort relies on the concept of thermal neutrality for the human body. The allowable range of floor temperature is 66.2 °F-84.2 °F (19-29°C), though this is based on floor surface, not material of the floor covering, and based on people wearing lightweight indoor shoes (ASRAE, 2004).

The indoor environment is a host to a wide range of microorganisms, including bacteria, mucobacteria, and molds, as well as endotoxins and mycotoxins produced by existing microorganisms (Kuhn & Ghannoum, 2003). Valid concerns exist regarding human disease and indoor air, mold exposure and mycotoxins, particularly human associations with ergotism (Claviceps species), alimentary toxic aleukia (Fusarium), and liver disease (Aspergillus) (Kuhn & Ghannoum, 2003). Indoor mold and other microbial growth are variable; just because it is discovered in a building does not mean the occupants have been exposed (Chapman, Terr, Jacobs, Charlesworth &Bardana, 2003). Furthermore, hospital patients that are most severely immunocompromised need to be concerned about the potential for
opportunistic fungal infection, and the only recommendation is to avoid recognizable fungal reservoirs including, but not limited to, indoor environments were there is uncontrolled mold growth (ACOEM, 2003).

**METHODOLOGY**

The product chosen for this study was tufted textured loop nylon type 6,6 square modular tiles (19.69 in) with a non-permeable backing consisting of thermoplastic vinyl composite material reinforced with fiberglass and treated with a soil and stain protection, a proprietary antimicrobial preservative permanently incorporated into the backing with a post-industrial recycled content of 39%.

*Sample collection*

The study was conducted in a community hospital in the Midwest on a medical patient unit corridor over a 5-month period. Randomized samples were collected every 4 weeks from January 2006 through May 2006 (See Figure 1). Forty-eight hours prior to the final sample collection period, the corridor floor was cleaned using the hot water extraction method.

The environmental conditions sampled consisted of ambient air temperature and relative humidity, surface temperatures of flooring and subfloor, and a reference for moisture content for flooring and subfloor.

Surface samples were collected using the tape lift method (Khan & Wilson, 2003). Three samples were procured from each of the 6 sample sites (surface, profile and backing) for both participating laboratories. In addition, samples were collected from the control locations including 2 from the nursing station sheet vinyl, 2 from carpet tiles installed in front of the elevator, and 2 samples from existing rolled carpet on a similar patient unit floor.

*Data analysis*

Descriptive statistics showed the environmental measures for the duration of the study and compared to industry standards for hospital patient environments.

The microscopy analysis of surface samples required a non-cultured analysis to screen for active fungi colonization within the setting. Lactophenol Cotton Blue Stain (Fisher Scientific, Hampton, NH, USA) was used to enhance visual examination of fungal structures and enumeration of spores. Using standard light microscopy, the sample area was
scanned at 100X for suspect structures and 400X for fungi identification based on morphology.
Figure 1. Map of the locations on medical unit floor sampled over the January-May 2006 period.

RESULTS

Environmental Context

The mean ambient air temperature at the sample sites was 73.4 °F; the mean relative humidity was 26.5%; and the mean floor finish material surface temperature was 72.7 °F while the sub-floor had similar results. The mean surface temperature of the sub-floor was 72.7 °F. The floor finish material consistently had a lower (drier) reference number for moisture level than the sub-floor. The mean floor finish material moisture level was 13.1 while the sub-floor reference for moisture level was 19.9.

Microbial Contamination

The difference in spore counts in adjacent locations within a single visit can be assessed by comparing results from samples 1.4 and 1.5, 2.3 and 2.6, 4.1 and 4.4, and 5.1 and 5.2, each pair located in adjacent 4-tile blocks, as shown in Figure 1. In no case do the results show that any one location on the adjacent pairs of 4-tiled sampling regions is more or less populated by spores than the other. Also, no trends in specific genera in a specific location were observed.

A comparison of counts from sampling locations 1.1 and 3.3 and 4.1 and 5.3 may provide an indication of the impacts of time, as these sampling sites overlap (Figure 1). Both laboratories reported an increase in the spore counts in the surface and profile with time. Regardless of the visit number, no major difference in scores between the samples removed from the carpet tile floors and those removed from the controls were observed.

Discussion

The mean ambient air temperature was within the range for thermal comfort based on acceptable relative humidity of 65% or less according to ASHRAE 55-2004. Since there are no established lower relative humidity limits for thermal comfort, the mean of 26.5% RH meets the criteria for thermal comfort as defined by ASHRAE 55-2004. However, low relative humidity levels of less than 30% may impact comfort for the occupant, not in terms of thermal neutrality, but cause dryness of skin, eyes, and nasal passages. The ambient air
temperature and relative humidity in this patient unit did not contribute to an environment conducive to the growth of fungi and other biological contaminants.

No colonization of any of the “most relevant” pathogenic fungi was detected, and, even with the genera observed, no considerable vegetative growth was evident. While *Aspergillus/Penicillium, Cladosporium, Alternaria, Stachybotrys, Fusarium*, and *Curvularia* species were reported to be present in the selected samples from all visits delivered to laboratory 2, only *Aspergillus/Penicillium, Aspergillus, Penicillium*, and *Chaetomium* species were reported by laboratory 1 in the visit 1, 3, and 4 samples.

Interestingly, laboratory 2 reported the largest diversity of genera in a single sample in visit 2’s control taken from the resilient flooring location in the nurse’s station (Figure 1, control circle C1). Two unidentified fungi and one readily identified species in the *Fusarium* genus were observed in this control sample. Other single samples in which multiple genera were observed included two other control samples, visit 1’s resilient floor control (with species of *Curvularia and Fusarium*) and visit 2’s non-tiled carpet location (with two species of *Cladosporium*).

In comparison to the non-tiled carpet and resilient flooring control samples, the carpet tiles showed no elevated numbers of spore contaminants or fungal colonization and, in this study, performed comparably to the alternative flooring materials. While no fungal colonization was observed in the carpet tile samples, it was also not observed in the controls.

In summary, the hospital’s operating environment was ideal for patient safety but not so for biological studies. The results suggest that the integrity of the carpet seam is intact, preventing moisture from traveling to the back side of the tile and subfloor, and, while not proving the hypothesis, did not conclude that microbial contaminants travel from the surface to back of carpet tile. It is recommended that future studies consider mimicking conditions conducive for fungal colonization in order to better assess carpet tile seam integrity.

REFERENCES


An Analysis of Resident Room Design in the Changing Culture of Long-term Care: Examining the Design of Spaces that Promote Resident Autonomy

Migette Kaup

Abstract

ISSUE

Over the past decade there has been a growing movement of support for rethinking the ways that we deliver long-term care (Culture Change Now, 2002, Pioneer Movement, 2002, & Eden Alternative, 2002). One of the efforts to change the environmental, and organizational, culture of long-term care is to return control to residents (Lustbader, 2000). The focus of much attention has been the goal of achieving residential experiences within a setting that delivers medical care. Over the past ten years, many researchers have worked to define the essence of what a long-term care environment should provide in order to include basic aspects associated with ‘home’ (Regnier, 2002). Within the environmental context, the importance of enhancing privacy and autonomy through resident spaces has been well documented as important design concepts for other levels of housing for older adults including independent living and assisted living (Brummett, 1997, Howell, 1980), but this approach has not always been applied as universally to design thinking about environments which provide the highest levels of care.

METHODOLOGY

This presentation highlights the analysis of fifty-eight skilled care room designs from fourteen facilities, in a mid-western state, indicating potential trends in skilled care room design that are supportive of resident independence and autonomy. Thirty-five single bed rooms and twenty-three 2-bedded room designs and detailed dimensional layouts were obtained from state regulatory agency that reviews plans for new construction and renovation for licensed facilities. As a benchmark, plans were coded as either built before or after 1990 (when ADAAG standards were applicable to skilled care facilities as a required design criteria).

RESULTS

Analysis of the spaces revealed that both single-occupancy and double occupancy resident rooms showed an increase space if they were designed and built after 1990. For 1-bedded rooms, there was an increase in overall square footage of almost 20% from pre- to post-designs. General useable square footage increased almost 22%. Toilet room square
footage was the most dramatic change in the 1-bedded room space standards with an increase of 75%. Increases were also evident in the overall square footage of 2-bedded rooms but only at approximately 11%. General useable area increased almost 20%. Built-in storage increased by approximately 3%. Toilets for 2-bedded rooms also had the most significant increase overall at just over 46%. This presentation will demonstrate the methodology for analysis of the spatial layout as well as opportunities and potential limitations of the most common types of skilled care room designs identified in this sample. Indicated shifts in resident room design will also be highlighted.

REFERENCES


An Analysis of Resident Room Design in the Changing Culture of Long-term Care: Examining the Design of Spaces that Promote Resident Autonomy

ISSUE

The design of the interior environment of skilled-care facilities plays a significant role in the life of elders who reside in these institutions. Spaces that surround them either allow them to establish a sense of control over their territory, or create a setting that is difficult define as their own or negotiate independently. One of the efforts to change the environmental and organizational culture of long-term care is to return control to residents (Lustbader, 2000). The question could be posed, however, have there been significant changes in these settings for elders who require more care? One measure of this change can be gauged by the amount of space that is designed specifically for the residents’ belongings and where they would expect to have primary control, their room. This pilot study of fifty-eight skilled-care room designs from fourteen facilities, in a mid-western state, was initiated to explore what trends may be indicated through types of configurations of resident rooms that are being designed and built.

FRAMEWORK

Over the past decade there has been a growing movement of support for rethinking the ways that we deliver long-term care (Culture Change Now, 2002, Pioneer Movement, 2002, & Eden Alternative, 2006). The focus of much attention has been the goal of achieving residential experiences within a setting that delivers medical services. Over the past ten years, many researchers have worked to define the essence of what a long-term care environment should provide in order to include basic aspects associated with ‘home’ (Regnier, 2002). Within the environmental context, the importance of enhancing privacy and autonomy through resident spaces has been well documented as important design concepts
for other levels of housing for older adults (Brummett, 1997, Howell, 1980), but this approach has not been applied as universally to design thinking for the skilled-care facilities.

**REVIEW OF LITERATURE**

Literature in the area of long-term care design has focused on the restrictions in designing skilled care settings that feel residential due to the nature of prescriptive regulations and medical standards of care (Schwartz, 1996 and Hiatt, 1991). Likewise, nursing home architecture in the last 50 years has historically been focused on meeting regulatory standards and providing the appropriate support for staff to deliver care within a limited definition of applicable solutions to achieve required outcomes (AIA, 1996-97; Aranyi & Goldman, 1980; and Koncelik, 1976). These standards outline minimum square footages required in most rooms of a facility including the minimum space requirements for private and shared resident sleeping areas. Newer concepts for design have suggested ways to better respect privacy and support autonomy through more single-occupied room and space options (Cohen & Weisman, 1991, Thomas, 1995), but little evidence is available that significant changes in space standards are being adopted.

**METHODOLOGY**

To determine the types of room designs, layouts and configurations that were being built for skilled care facilities in the state, thirty-five 1-bedded rooms and twenty-three 2-bedded room designs and detailed dimensional layouts were obtained from the state regulatory agency. Plans reviewed included any facility that had remodeled, created an addition or constructed a new facility between the years 1997 and 2002. Regardless of the type of change that was being proposed in the submittal, only resident room designs were collected from the scaled plans and initially coded as either a 1-bedded or 2-bedded room. The date that facilities were originally constructed was not a factor in the review therefore; many facilities had multiple room design options and each room configuration that was present in the facility were documented and analyzed.
Classification of Room Designs

Design standards for regulatory compliance can be dated back to regulatory guidelines from the 1970's (KDoA, 1999). The only significant change in space standards for resident rooms in the past 15 years has been a result of the passage of the American's with Disabilities Act (ADA) and the implementation of the American’s with Disabilities Act Accessibility Guidelines (ADAAG) requirements into current building standards (ADA, 1991). For resident rooms in skilled care facilities, this has resulted in toilet rooms that must allow for a 5'-0” diameter turning radius. Since many facilities had multiple room layouts and designs, this design criterion became the benchmark for classifying a plan as either pre-ADAAG or post-ADAAG since it was the clearest means of determining if a room in a facility had been designed and constructed before or after the 1990 regulatory standards were enforced. Some facilities that were reviewed had both, pre and post-ADAAG room designs.

Analysis of Square Footage

Resident room designs were analyzed both in terms of quantity of space as well as the quality of the spatial arrangement in providing opportunities for resident autonomy. Square footage was analyzed first by the total overall area designated to the room. The analysis was focused on not just the quantity of the space, but also the quality and a resident’s ability to place personal possessions within the space. General usable area was calculated by subtracting the overall total area needed for door-swings, entry hallways, or parts of the room not usable for a piece of furniture. Built-in storage and floor area of the toilet room were also calculated. Figure 1 provides an example of the analysis of a resident room square footage by area.

Analysis of Room Configuration for Use

The next step involved assessing the usability of the space in supporting resident privacy and autonomy. Criteria were identified that would support both privacy and resident autonomy relative to the general useable floor area, built in storage and access and function of the toilet room. The basis for these criteria was derived from literature on design for supportive environments for skilled care settings including those settings specifically
designed to support cognitive impairments. (Aranyi & Goldman, 1980; Cohen & Weisman 1991; Hiatt, 1991, Koncelik, c1976; Noell, 1995-96; and Schwartz, B. 1996, et. al.). Figure 2 and Table 1 provide an example of the functional analysis of a resident room.

RESULTS

Fourteen, 1-bedded rooms and eleven, 2-bedded rooms were categorized as pre-ADAAG designs, and twenty-one, 1-bedded rooms and twelve, 2-bedded rooms were categorized as post-ADAAG designs. For 1-bedded rooms, there was an increase in overall square footage of almost 20% from pre- to post- designs. General useable square footage increased almost 22%. Built-in storage decreased 21%, but outliers may have skewed these results. Toilet room square footage was the most dramatic change in the 1-bedded room space standards with an increase of 75%.

Increases were also evident in the overall square footage of 2-bedded rooms but only at approximately 11%. General useable area increases were comparable to 1-bedded rooms, however, with an increase of almost 20%. Built-in storage increased by approximately 3%. Toilets for 2-bedded rooms also had the most significant increase overall at just over 46%. Tables 2 and 3 provide a summary analysis of square footage for pre and post-ADA configurations. The difference between overall space designated to the room and the useable space for residents was an important distinction. Some rooms with a high overall area were inefficient. In some cases only about 60% of the area was truly usable.

As plans were assessed, common features were consistent in pre- and post-ADAAG layouts. Lack of accessibility in the pre-ADA toilet rooms was a common limitation of both 1 and 2-bedded rooms as were entry doors that could be difficult to manage. Another common feature of both types of rooms was the space available for personal items or preferences for bed locations in the room. In 2-bedded rooms, equal access to the features of the room such as windows, the toilet room or storage spaces were typically noted.

Post-ADAAG toilet rooms had more space for maneuvering a wheelchair or other type of ambulatory device. Some toilet room designs permitted a two-person (staff) assisted lift. Both 1 and 2-bedded rooms were generally providing more space for personal
belongings such as seating or other case goods. This additional space also provided more opportunities for residents to locate their beds in different positions in relationship to the window or other room features. In 2-bedded rooms, many of the layouts were using architectural elements to define resident spaces. This contributed significantly to positive outcomes like having equal access to windows, storage, and the toilet room, as well as contributing significantly to privacy from the hallway.

CONCLUSIONS

The results of this pilot study indicate a potential trend in skilled care room design that is supportive of resident independence and autonomy. Clearly more space within the rooms themselves provides opportunities for residents to surround themselves with items that are meaningful. Most significantly, however, more room designs that provide better opportunities for privacy, especially in 2-bedded rooms indicate a growing consumer demand for private space even within a shared configuration. The layouts and space constraints of many of these plans speaks significantly to how generations of architects, designers, long-term care administrators and regulators have planned and designed for elders. Further exploration with a broader sample of resident room designs would provide opportunity for additional analysis and identification on successful configurations. If we are truly going to change the culture of environments designed to care for frail elders, then we must challenge our assumptions of minimums and create environments that better support users’ needs.
Figure 1. Example of Analysis of Resident Room Square Footage
Scale 1/8" = 1'-0"
Total Floor Area of Living Unit: 336 S.F.

Figure 2. Example of Functional Analysis of Resident Room Configuration
### Positive Attributes and Opportunities

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<tbody>
<tr>
<td>1</td>
<td>Door to the room is accessible on both the pull and push sides for independent management</td>
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<td>2</td>
<td>Placement of the door to the room still provides privacy to the bed</td>
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<td>3</td>
<td>Room layout allows for more than one configuration to suit individual preferences for bed</td>
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<td>4</td>
<td>Size of the room allows for resident to bring multiple personal items into the space</td>
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<td>5</td>
<td>A clear definition of resident space. Visitors do not invade privacy of other resident(s) in the</td>
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<td>6</td>
<td>Privacy is defined by more than a curtain, architectural features help separate and define space.</td>
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<td>7</td>
<td>Residents sharing a room have equal access to toilet.</td>
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<tr>
<td>8</td>
<td>Each resident in the room has direct access to a window.</td>
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<td>9</td>
<td>More than one form of built-in storage provides options for residents</td>
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<td>10</td>
<td>Storage for each resident in the room can be clearly defined and adjacent to individual spaces.</td>
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<td>11</td>
<td>Toilet room is accessible for a resident using a wheelchair and/ or for a two-person (staff)</td>
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<td>12</td>
<td>Grab bars located on both sides of the toilet increase resident’s ability to rise independently.</td>
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<tr>
<td>13</td>
<td>Toilet angled in the space allowing room for two-person (staff) lift.</td>
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<td>14</td>
<td>Door to toilet room visible from the bed for those who could use additional cueing for</td>
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<td>15</td>
<td>No door to the toilet room, open for residents who need cueing or curtain can be pulled for</td>
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<tr>
<td>16</td>
<td>Storage in the toilet room provides place for personal items and/or staff support items.</td>
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<tr>
<td>17</td>
<td>Toilet room also has private bathing facilities.</td>
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### Limitations and Challenges

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<tr>
<td>A</td>
<td>Door to room may be difficult to manage due to limited space for reach on pull and push sides.</td>
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<tr>
<td>B</td>
<td>View from the hallway looks directly into the toilet room and/ or bedside area</td>
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<tr>
<td>C</td>
<td>Layout of the room allows for only limited configurations of furniture or preference for bed</td>
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<tr>
<td>D</td>
<td>Size of the room does not allow for resident to bring multiple personal items into the space</td>
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<tr>
<td>E</td>
<td>No clear definition of resident space. Visitors invade privacy of other resident(s) in the room.</td>
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<tr>
<td>F</td>
<td>Privacy between residents is limited to a curtain</td>
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<tr>
<td>G</td>
<td>Residents sharing this room do not have equal access to toilet</td>
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<tr>
<td>H</td>
<td>Residents sharing this room do not have equal access to a window</td>
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<td>J</td>
<td>Limited (or absence of) built-in storage requires that resident(s) provide their own furniture for</td>
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<tr>
<td>K</td>
<td>Storage for each resident in the room is not clearly defined and/ or not adjacent to individual</td>
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<td>L</td>
<td>Toilet room is not accessible for a resident using a wheelchair and/ or for a 2-person (staff)</td>
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<tr>
<td>M</td>
<td>Grab bar placement is limited to 1 side of the toilet decreasing residents’ ability to rise</td>
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<td>N</td>
<td>Door to toilet room is not visible from bed for those residents requiring additional cueing.</td>
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<td>P</td>
<td>Placement of the door to the toilet room may be difficult to manage.</td>
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<td>R</td>
<td>No storage in the toilet room for personal items and/ or staff support items.</td>
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Table 1. Key to Functional Analysis of Resident Room Configuration
<table>
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<tr>
<th>Plan #</th>
<th>Overall Feet</th>
<th>Square Feet</th>
<th>General Area</th>
<th>Usable Area</th>
<th>Built-in Area</th>
<th>Storage</th>
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<th>Usable Area</th>
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Table 2. Summary Analysis of Square Footage for Single Bedded Resident Rooms
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**Averages**

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<th>General Storage Area per Resident</th>
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**% change**

| % change | 11.26% | 19.14% | 3.18% | 46.11% |

Table 3. Summary Analysis of Square Footage for 2-Bedded Resident Rooms
REFERENCES


Rethinking Nursing Home Architecture: Why Skilled Care Environments Don’t Really Feel like Home (and What We can do About It)

Migette Kaup

Abstract

ISSUE

Efforts to improve nursing homes by creating a more “residential” environment are not new. References to “home” appear in literature associated with promoting facilities as well as being a criterion for evaluating “quality of life” (Cohen & Weisman, 1991; Hiatt, 1991; Schwartz, 1996). Designers have helped facilities to add social spaces and apply features that are reminiscent of residential settings. Research, however, has indicated that while there have been significant improvements related to amenity levels, the underlying assumptions about design remain unchallenged (Brown-Wilson & Baldwin, 1995-96; Hiatt, 1992; Lustbader, 2000; Noell, 1995-96; Pynoos & Liebig, 1995). This poses a distinct dilemma that cannot be ignored. The premise of this paper is that the lack of meaningful and successful interpretation of home in skilled nursing environments can be partially attributed to the arrangement of spaces and the behaviors that result from these arrangements. The focal point of the argument is that the built environment plays a role in defining situations and thus in helping people to behave appropriately. As past research has indicated, without such help behavior becomes much more difficult and demanding (Rapoport, 1982).

CONTEXT

Literature on the theoretical perspectives on the meanings of home includes both those phenomenological (archetypal) and ideological (socio-economic) factors associated with human experience and the built form (Dovey, 1993; Lawrence, 1987; Norberg-Schulz, 1985). Each of these premises, however, acknowledges the presence and distinctions between public and private domains and the transitions and divisions between these domains that influence behaviors (or access to and) within the spaces. The importance of respecting these domains has been well documented as an important design concept for other levels of housing for older adults (Brummett, 1997; Howell, 1980), but this approach has not been applied as universally to design thinking about environments which provide the highest levels of care. This paper presentation will apply this contextual framework to a traditional
health care facility to compare changes in spatial hierarchy before and after the facility was remodeled to create a more “home-like” environment.

SUMMARY

An analysis of the plans identifies the domains of privacy and demonstrates architectural features that influence access to spaces (e.g. presence of doors) and the identifiable paths of circulation that are directed by their order. Based on the plan analysis, the changes in spatial hierarchy are identified and implications of the impacts of the re-arrangement of the spaces highlighted. This information provides some initial insights into ways in which the current assumptions about nursing home architecture can be challenged and poses questions for further inquiry into these issues. The fundamental premise is that if nursing homes are going to “feel” like a residential environment then they must be “formed” like a residential environment. This can be done by rethinking the arrangement of spaces that allows for homelike patterns of activities to take place in a familiar way that speaks to the intuitive side of how we react to spatial parameters. In this way, we can start to reshape how our care environments for the most frail respond to needs and influence our perceptions of social ‘norms’ associated with how we function within a new cultural context of nursing home care.

REFERENCES


Rethinking Nursing Home Architecture:
Why Skilled Care Environments Don’t Really Feel like Home (and What We can do About It)

ISSUE

Efforts to improve nursing homes by creating a more “residential” environment are not new. References to “home” appear in literature associated with promoting facilities as well as being a criterion for evaluating “quality of life” (Hiatt, 1991; Schwartz, 1996; Cohen & Weisman, 1991). Designers have helped facilities to add social spaces and apply features that are reminiscent of residential settings. Research, however, has indicated that while there have been significant improvement related to amenity levels, the underlying assumptions about design remain unchallenged (Brown-Wilson & Baldwin, 1995-96; Hiatt, 1992; Lustbader, 2000; Noell, 1995-96; Pynoos & Liebig, 1995). This poses a distinct dilemma that cannot be ignored. The premise of this paper is that the lack of meaningful and successful interpretation of home in skilled nursing environments can be partially attributed to the arrangement of spaces and the behaviors that result from these arrangements. The focal point of the argument is that the built environment plays a role in defining situations and thus in helping people to behave appropriately. As past research has indicated, without such help behavior becomes much more difficult and demanding (Rapoport, 1982).

Contextual Issues of Home – Public and Private Domains

The discussion of “home” should begin describing its limits and context in this framework. Literature on the theoretical perspectives on the meanings of home includes both those phenomenological (archetypal) and ideological (socio-economic) factors associated with human experience and the built form (Dovey, 1993; Lawrence, 1987; Norberg-Schulz, 1985). Each of these premises, however, acknowledges the presence and distinctions between public and private domains and the transitions and divisions that influence behaviors (or access to and) within the spaces. The importance of respecting these domains has been well documented as an important design concept for other levels of housing for older adults (Brummett, 1997; Howell, 1980).
Residential Settings, Influences and Contrasts in Shaping Nursing Home Architecture

Design standards for nursing homes have suggested ways to better respect privacy through more single-occupied room and space options (Cohen & Weisman, 1991; Thomas, 1995), Ombudsman programs have developed standards for residents’ rights in regard to privacy, and regulatory statues apply a system of “rules” for maintaining privacy (Administration on Aging, 2001). Formal structures that prescribe privacy, however, may result in an artificial experience and not compensate for the predetermined access established by the arrangement of spaces (Schwarz, 1996). In nursing home architecture, there continues to be a missing link to creating an environment that truly begins to embody the essence of home. This gap requires us to investigate more deeply the fundamental associations about the environments that shape our perceptions of what we call “home,” to understand how the spaces of nursing homes are formed and arranged to support more homelike attitudes and behaviors.

Privacy within the Home

Homes are territories that embody the functions of privacy, and they allow occupants to control access based on the design of a physical structure. Privacy, therefore, may be viewed as a system of both interactions and withdrawals, occurring at varying degrees and linked to spatial order and physical separations (Altman, 1977). The degree of privacy (or access) is also often highly associated with the activities and the types of spaces where these activities are most appropriate. Within the built environment, this can be categorized into four basic levels: private, semi-private, semi-public and public; which can also be associated with activities and rooms (See Table 1). Individual families establish slightly different patterns that are articulated as appropriate (Larranaga, 1993), but traditions in the spatial order of residential architecture represent a vital set of cultural principles that hold an order to characteristics and features that in turn create a sense of residential identity. We see the evidence of these traditions in the multitude of homes that place rooms for social activities (public domains) closer to entrances and rooms for private activities away or separated from guest areas (private domains).

Residential Public and Private Domains and a Skilled Care Setting
By their nature, institutions are larger than our homes, bringing more people together than we would experience in our daily situations within our residential settings. The ability to “control access” to the individual and group, therefore, may be difficult as the access to the collective whole overrides the needs of the individual. Using the context of privacy as it relates to the control of access, however, can focus on the importance of creating the appropriate levels of personal relationships within a care setting. One approach to address this problem has been to reduce the size of the residential group creating smaller “households,” increasing individuals’ ability to control their overall relationships in a way that enhances both privacy and autonomy (Cohen & Weisman, 1991). The approach should not stop at scale, however, as Lawrence (1987) notes that human relations are not merely expressed or communicated but are embodied in the spatial configuration of the built environment; particularly the interface between public and private domains. In our home environments, we do pass by guests visiting at our house in our bathing attire on our way to the shower, but in nursing home environments the arrangement of spaces often places private bathing rooms adjacent to public areas where visitors to the building come and go freely. Regulations may “mandate” standards for basic human dignity, but if the environments don’t respect the experiential nature of residential privacy then an essential feature of home is lost.

**PROCESS**

This framework can be applied to analyze floor plans of traditional nursing homes. By examining original plans, a pattern of discord between residential public and private domains can be clearly identified (see Figure No. 1). This example demonstrates a spatial order common for health care facilities. Most public spaces organize corridors where all persons at the facility (including visitors) circulate freely, in direct relationship to those spaces that should be the most private in a residential setting, residents’ personal sleeping spaces and bathing areas. The transitional features between these polar ends of the hierarchy are limited to individual doors to buffer the sights and sounds of public activity. Based on the large groups and variety of people who come together to access the rooms associated with eating meals or watching TV, these domains take on a semi-public pattern of behavior leaving a gap in the residential hierarchy.
Two key design concepts can be used to create a different response to the need for residential behaviors supported by spatial order (See Figure No. 2). First the larger environment is divided into distinctly identifiable households. This reduction of scale supports residents’ ability to identify with a family unit. The second key feature is the manner in which access to each of the households is provided. As shown in Figure No. 3, each household can be provided a unique residential front door that is used to request entrance to the semi-public social space within the household. The built features of the environment become the visible vehicles for the manifestation of the order of the dwelling, and the resulting behaviors become affected through these built forms (Larranaga, 1993).

Architectural features can then provide the full continuum of public to private spaces starting with a transitional space created at the front porch and then continuing past the front door. Bedrooms and bathing areas are beyond the living room, down a transitional corridor that reflects a similar arrangement to a vernacular dwelling. The size of the opening to the hallway is slightly reduced signaling a transition to more quiet semi-private and private spaces beyond. Spaces residents and their “invited” guests use are along this transitional space. Residents can go to bathing rooms or other private and semi-private spaces without having to cross over semi-public or public domains, thus increasing privacy in a way that more closely models traditional residential patterns.

**SUMMARY**

The approach here is not to suggest that reorganizing spaces that the environment will have a deterministic effect on behavior, but rather that the ability of the environment to influence and support the traditional privacy hierarchy of home and its patterns of behavior can be a powerful piece within the organizational and social constructs of a planned care setting. There are, still many questions to be asked and answered. Nursing home architecture in the last fifty years has historically been focused on meeting regulatory standards and providing the appropriate support for staff to deliver care within a limited
definition of applicable solutions to achieve required outcomes (American Institute of Architects Academy of Architecture for Health with Assistance for the U.S. Department of Health and Human Services, 1996-97; Aranyi & Goldman, 1980; Koncelik, 1976). It is forecast that the number of nursing home beds needed by 2020 will increase by 47% (Commission on Affordable Housing and Health Facility Needs for Seniors in the 21st Century, 2002). With a shift in approach to better replicate the home environment, new environments should be carefully planned, and the outcomes on resident behavior and their perceptions of quality of life examined. Additional ways to explore the ability support appropriate public to private continuum and other home-like patterns is certainly a research agenda that should not be ignored. The fundamental premise is that if nursing homes are going to “feel” like a residential environment then they must be “formed” like a residential environment. This can be done by rethinking the arrangement of spaces that allows for homelike patterns of activities to take place in a familiar way that speaks to the intuitive side of how we react to spatial parameters. In this way, we can start to reshape how our care environments for the most frail respond to needs and influence our perceptions of social ‘norms’ associated with the how we function within a new cultural context of nursing home care.
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<th>Examples of Spaces from Homes</th>
<th>Behaviors Expected/ Accepted</th>
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<td><strong>Public</strong></td>
<td>Front Door</td>
<td>Public domains include those actions and spaces that connect us to the broader community (Belgum, 1993), such as picking up our mail, sitting on the front porch. The only real space on the inside of the house that might be considered “public” is the foyer, but the boundary must be clearly articulated from the other social areas.</td>
</tr>
<tr>
<td></td>
<td>Front Porch</td>
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<tr>
<td></td>
<td>Foyer - if separated from other social family spaces</td>
<td></td>
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<tr>
<td><strong>Semi-public</strong></td>
<td>Living Room</td>
<td>Semi-public spaces are linked to activities including entertaining, cooking, eating, and general forms of recreation such as watching TV or working on hobbies. This is where we eagerly invite our guests to make themselves comfortable.</td>
</tr>
<tr>
<td></td>
<td>Dining Room</td>
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<tr>
<td></td>
<td>Kitchen</td>
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<td></td>
<td>TV Room</td>
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<tr>
<td></td>
<td>Sun Porch</td>
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</tr>
<tr>
<td><strong>Semi-private</strong></td>
<td>Bedroom Hallways</td>
<td>Semi-private spaces are associated with areas where we interact with members of the family in loosely structured ways. These spaces or rooms where “receiving guests” are not a formal activity. The nature of the space and its relationship to other spaces allow users to not feel “on-stage.” These areas provide space for work that doesn’t invite guests, such as a laundry room or a home office.</td>
</tr>
<tr>
<td></td>
<td>Laundry Room</td>
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<td></td>
<td>Den</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Home Office</td>
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<tr>
<td><strong>Private</strong></td>
<td>Bedrooms</td>
<td>The most private activities of the home are usually associated with sleeping, bathing, grooming, and toileting. We do not typically expose these activities to guests and many times limit access even if we are not available.</td>
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<tr>
<td></td>
<td>Bathing Rooms</td>
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Table No. 1. Domains of Privacy: Rooms and Spaces with Associated Patterns of Behavior

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<th></th>
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Figure No. 1 – Health Care Plan before Remodel
REFERENCES


Environmental Stimuli: Enhancing Perception and Cognition Among Infants and Toddlers

DAK Kopec and Damon La Capra

Abstract

PURPOSE

The purpose of the paper is to review existing literature relative to the development of physical and cognitive interpretations of environmental stimuli in an effort to develop theoretical designs that will enhance the perception and cognition of infants and toddlers. To this end, literature relating to the cognitive development of both humans and animals was analyzed in order to identify specific developmental capacities related to the perception and detection of environmental stimuli. From this base of knowledge, we then developed theoretical designs from which further investigation can be built upon.

PROCESS

In this section of the paper we reviewed literature related to evolutionary theories of human development along with the biological and neurological development of sensory perception related to the detection of stimuli from one or more of the five senses (sight, sound, touch, smell, and taste). Included in this review were case studies of children raised in relative isolation such as Kaspar Hauser who was raised until the age of seventeen in a dungeon (Kitinen, 2001) and “Genie” who, discovered in 1970 at the age of thirteen, had been locked in a room either tied to a potty chair or restrained in an oversized crib for over ten years (Rymer, 1994). From these sources, we were able to analyze the data for correlations and then cross reference these correlations to other existing research in order to form suppositions regarding optimal design initiatives that would facilitate greater cognitive abilities along with more refined perceptual awareness.

SUMMARY

When designing environments to enhance the perceptual and cognitive abilities for infants and toddlers interior designers must be consulted from the on-set of conception. Through proactive incorporation of interior designers in the site selection, building placement and orientation, specific beneficial design features can be integrated and maximized into the overall design; rather than used to compensate for unintended consequences such as noise levels, lighting conditions, or visual access. As such, the role of interior design has profound effects on sensory development either through exposure, diminishment, or enhancement of sensation. For an infant or toddler, finding and adjusting to the right balance of sensory stimuli throughout growth is quintessential to optimal development.
Environmental Stimuli: Enhancing Perception and Cognition Among Infants and Toddlers

PURPOSE

The purpose of this paper is to review existing literature relative to the development of physical and cognitive interpretations of environmental stimuli in an effort to develop theoretical designs that enhance the perception and cognition of infants and toddlers. To this end, literature relating to the cognitive development of both humans and animals was analyzed in order to identify specific developmental capacities related to the perception and detection of environmental stimuli. From this base of knowledge, we developed theoretical designs from which further investigation can be built upon.

THEORY

Through an understanding of the joint nature between design, science, and the human experience, interior designers will be better able to design environments that enhance sensory perception and cognition. As such, design education must provide a holistic curriculum that incorporates design skills in conjunction with biological, neurological and psychological sciences. As this paper will demonstrate, such a holistic approach will result in better design practices.

REVIEW OF LITERATURE

Unlike most mammals that have nearly fully functional senses within hours of birth, the human infant is born with only the basic elements to detect sensation. In fact, the only senses that are fully functional at the time of birth are taste, smell (Goldstein, 2002), and touch, and not until after the first year of life will an infant be able to detect basic sights and sounds (Feldman, 2007). Optimal acuity of human visual and auditory systems will not be reached until about age eight (Goldstein, 2002). With rudimentary senses, an infant will possess limited capacities to learn about his or her surroundings, but only through interactive
relationships with the environment (Wachs, 1989; Kyttä, 2003). For children, the
environment is a rich source stimulation, much of which will develop into responses based
on associations (Gifford, 2001). Likewise, as children encounter different stimuli, at some
level (conscious or unconscious), he or she will begin to cognitively classify and categorized
that information. In order for a child to accurately categorize information and develop
associations, he or she must be exposed to a variety of stimuli within an assortment of
contexts.

Animal research conducted throughout the years has shown that animals raised in
environments rich in sensory stimuli develop brains that are larger, more complex, and
possess greater flexibility (Meaney et al., 1988; Diamond and Hopson, 1998). Similar
research by Altman and Das (1964) and Bennett et al., (1964) demonstrated that with
significant levels of stimulation, an animal’s cortex will be 30% more dense with synaptic
activity. Likewise, Spitz, (1945) who studied children raised in orphanages and foster
homes was able to show that children placed in attentive and nurturing foster homes
yielded superior emotional, intellectual, and physical development.

In 1973 Dennis published a book examining the orphanages in Lebanon. In essence,
what he concludes is that children raised in institutional environments devoid of individual
attention, cognitive stimulation, emotional affection or other forms of physical stimuli
showed an IQ score of 50 by age sixteen. A score of 50 roughly translates to the cognitive
ability of an eight year old. Conversely, children adopted by age two showed an average IQ
score of 100 by age sixteen, and children adopted between the ages of two and six showed
an average IQ of 80 (Dennis, 1973). More recent studies in Romanian orphanages showed
that children adopted prior to six months of age had greater intellectual, emotional, and
physical improvements after four years than did children who were adopted between the
ages six months and two years (Rutter et al., 1998 and 1999).

Unfortunately, throughout time there have been numerous stories of children who
have been denied sensory stimulation and thus suffered from a condition referred to as
psychosocial dwarfism (Money, 1977). One such example is Kaspar Hauser who was
discovered in 1828. Hauser was allegedly abandoned and raised until the age of seventeen in
a dungeon. His experiences in the dungeon were of relative sensory deprivation. As a result,
Hauser’s emotional, behavioral and cognitive abilities were grossly underdeveloped (Kitchen,
2001). A more recent example is the story of young girl referred to as “Genie” who was
discovered in 1970 at the age of thirteen. “Genie” had been locked in a room either tied to a potty chair or restrained in an oversized crib for over ten years (Rymer, 1994). As a result of this confinement, many of her left-brain functions (such as speech) were severely underdeveloped.

What animal studies, and research derived from orphanages and children like Kasper Hauser and “Genie” show us is that human infants and toddlers need sensory stimuli in order to thrive. Likewise children exposed to a multitude of stimuli develop greater cognitive functions. In most instances children, and humans in general, require stimulation of two or more senses in order to develop an accurate perception or understanding of a given phenomena. Some believe that it’s the joint nature of stimulation (color, shape, scent, sound and texture) of an object or substance that enable us to retrieve information from the brain (Goldstein, 2002). In short, this means that humans require multiple sensations in order to develop complex behavioral patterns.

**PROCESS**

The process of this study centered on a review of the literature related to evolutionary theories of human development, biological and neurological development of sensory perception related to the detection of stimuli from one or more of the five senses, and an analysis of past case studies. From these sources, we were able to analyze the data for correlations and then cross reference those correlations to other existing research in order to form suppositions and develop theoretical designs that would facilitate greater cognitive abilities along with more refined perceptual awareness.

**RESULTS**

Infants are unable to understand or comprehend the movement of an object until about two weeks of age (Goldstein, 2002). Likewise, they are unable track an object in motion until about two to three months, at which time the object must move slowly (Aslin 1981). Therefore, we propose to incorporate a mobile composed of several small and varying shapes of photosensitive reflective Plexiglas. As the sun moves throughout the day,
the small pieces of the mobile slowly drift about and change color. This mobile will be placed in such a position as to interact with streams of natural or artificial light to produce a kaleidoscope of colors and shadows.

Because a newborn infant will only have about 2 percent of his or her eye’s fovea covered with cones as opposed to the 68% of coverage for an adult (Banks and Patrick, 1978) an infant has a difficult time absorbing light. This means that an infant’s vision will be limited to distances of about 8-10 inches. To compensate, we have placed the mobile on a retractable cord that can be raised and lowered with the touch of a button, thereby reducing interference with an adult interacting with the infant or toddler.

At approximately two months, infants will begin to possess the ability to detect color across the full color spectrum (Teller, 1998). However, clear delineation between similar adjacent colors may not be detected. Also, at this age, infants show a preference for patterns (Siegler, Deloache, and Eisenberg, 2006). To accommodate this limitation and preference, we propose not to use colors within the same family, adjacent to each other, and we suggest incorporating a celestial mural with exaggerated colors representing celestial bodies on the ceiling.

Many newborns are considered hard of hearing (Trehub and Schellenberg, 1995), and have difficulty recognizing some parts of the sound spectrum (Fernald, 2001). This limitation will be corrected within the first few months (Tharpe and Ashmead, 2001); however, infants will show a greater preference for consonant tones (Trainor and Heinmiller, 1998; Zentner, and Kagan, 1996), and sounds that lack complexity. In the infant or toddler’s room, we have included ceiling mounted speakers from which different genres of music, such as tribal and classical music, can be played. This early exposure to a variety of sounds will help the child to distinguish subtle differences between multitudes of sounds. We also suggest the inclusion of different flooring materials, which will produce different sounds and provide different textures.

It’s important to recognize that during the first few months of an infant’s life he or she will explore the world predominantly through touch receptors located in the mouth and lips (Ruff, 1989; Siegler, Deloache, and Eisenberg, 2006). Likewise, many cognitive theorists believe that babies use their sense of taste as a way for them to understand the world around them (Bee and Boyd, 2003). Also, from about four months of age an infant will gain better control over his or her arms and hands, and the infant will explore their world by rubbing.
their hands and fingers against textured objects, sticking their fingers into the various orifices that they encounter, and banging an assortment of objects (Siegler, Deloache, and Eisenberg, 2006). As such, we suggest the use of a variety of non-toxic items that cannot be dissembled. We also provided a variety of wall and floor surfaces that allow for different textures and sensations (i.e. low and high pile carpeting, and carpeting on the walls), but made sure to avoid material that might flake or peel.

SUMMARY

Studies with animals and humans have shown that cognitive development is strongly dependent on the people and physical spaces that immediately surround both the infant and toddler. Interior designers should therefore understand the joint nature between design, science, and the human experience. With this comprehensive understanding, an interior designer can incorporate creative methods that address a variety of sights, sounds, smells, and textures into the environment in ways that promote discovery and exploration.

REFERENCES

Employee Satisfaction, Perceived Organizational Support, and Organizational Commitment in Alternative Officing

Seunghae Lee

Abstract

ISSUE

This paper presents the results of a study on employee satisfaction in an alternative office environment. Alternative office is a term used to describe a non-traditional office environment, which frees up employees from the traditional office environment, allowing them to have more flexibility in terms of where to work. Technological advances and economic and social changes make this new office setting possible. Accompanying these changes, there has been an argument that the new office setting is enabling settings to be conducive to increasing both workers’ productivity and their job satisfaction (Van Horn and Storen, 2000).

This study examined how employees perceive the physical aspects of their alternative offices and how this perception relates with their job satisfaction and organizational support. This study will provide interior designers with information on employees’ needs and wants in alternative office, which has been implemented increasingly for the last several decades, so interior designers can design a work environment that satisfies users’ needs.

METHODS

Sample
The population of this study consisted of employees who work one day or more per week in alternative offices. Alternative offices are non-traditional offices such as home offices, hoteling, satellite offices, telework centers, free-address offices, and shared offices. Self-employed workers are not considered as part of the population group in this study, since the goal is to examine employees’ behavior and attitude in an organizational context.

Employees were invited to participate in an Internet survey. 170 employees participated in the survey, and 135 completed responses were used in the data analyses.

Data Analyses
The following statistical analyses were undertaken to study the survey data. All analyses were conducted using SPSS 14 for Windows.

1. First, zero-order correlation analyses were employed to determine the bivariate relationships between the independent and dependent variables.
2. After the correlations were explored, multiple regression analyses were used to examine (1) the contributions of the sets of predictor variables in explaining the
variance in the criterion variables, and (2) the significance level of specific beta coefficients within the models (Pedhazur, 1982).

SUMMARY OF RESULTS

The results showed that employees’ job satisfaction and organizational commitment were affected positively by perceived organizational support in alternative offices. It is assumed that the reason is because they have an option to work in alternative offices, but not necessarily because physical aspects of their alternative offices were satisfying for them. It is concluded that employees feel more satisfied and committed to organizations by having flexibility to work other than the traditional office environment. However, too many alternative office locations affected employees negatively. Interior designers and organizations need to improve physical aspects of alternative offices to affect the employees positively, and the information from this study will help them in the programming stage to plan an effective office environment.

REFERENCES

Employee Satisfaction, Perceived Organizational Support, and Organizational Commitment in Alternative Officing

STATEMENT OF PURPOSE

This paper presents the results of a study on employee satisfaction, perceptions, and commitment to the organization in an alternative offing environment. Alternative offing is a term to describe a non-traditional office environment which frees up employees from traditional office environment allowing them to have more flexibility in terms of where to work. Technological advances and economic and social changes made this new offing strategy possible. Accompanying these changes, there has been an argument that the new offing strategy is enabling settings to be conducive to increasing both workers’ productivity and their job satisfaction (Van Horn and Storen, 2000). The interesting thing to note, however, is that although the past decade has witnessed the wide-spread acceptance of alternative offing for corporate America, the majority of evidence supporting this belief is anecdotal. Little empirical evidence exists to support this general belief (Hill, Miller, Weiner, and Colihan, 1998).

The purpose of this research is to empirically examine the relationship between employees’ perceptions with various physical environmental aspects in alternative offing, perceived organizational support, organizational commitment, and their job satisfaction in an effort to test the anecdotal assumption that such a relationship exists. Facility space planners and interior designers consider alternative offing as one of the office design options, and the information from this research results will help them plan this new offing strategy more effectively.

CONCEPTUAL FRAMEWORK

The conceptual framework for this study rests upon the premise that alternative offing affects employees’ organizational commitment and job satisfaction. Perceived organizational support and perceived physical environment in alternative offing were the two main antecedents of the study (see Figure 1).
Understanding antecedents of organizational commitment and job satisfaction has been an important topic in studies on employees’ organizational behavior. This study’s conceptual framework is grounded in Herzberg’s job satisfaction theory (Herzberg, Mausner, and Snyderman, 1959). The theory has been modified and extended by Herzberg and other researchers (Ewen, 1964; Herzberg, 1966, 1987; Linsay, Marks, and Gorlow, 1967). Lindsay, et al. (1967) advanced and tested a bipolar model of modified job satisfaction theory based on the original Herzberg theory. The modified theory explains that job satisfaction is more parsimoniously conceptualized as a bipolar variable. It conceptualized job satisfaction as being a function of human related factors (individual and intrinsic), environment-related factors (extrinsic), and the joint contribution of these two factors, and/or errors of measurement. This study extended this theory and included organizational commitment to find out the impact of the same antecedents to organizational commitment.

**REVIEW OF LITERATURE**

*Alternative Officing*

In general, alternative offencing is defined as a strategy that allows a substitution for the traditional office environment. Most literature regarding alternative offencing does not define alternative offencing, but rather explains it by suggesting that alternatives fall within two general types—offencing situations inside and outside of the corporate facility (Robertson, 1999). When developing an alternative offencing strategy, companies consider specific alternative offencing choices within the two general types (Frogatt, 1998). For the offices on-
site or within the building or campus, come such alternatives or settings as hoteling, shared offices, free address spaces, which refers to an alterantive office strategy that enables multiple employees to share a single workplace (Kane, 2001). Off-site alternative officeing situations include such alternatives as home offices, satellite offices, or telework centers.

**Perceived Organizational Support**

Eisenberger, Huntington, Hutchson, and Sowa (1986) extended the interpretation of organizational commitment with a social exchange approach that integrates employees’ perceived organizational support. They defined perceived organizational support as employees’ global beliefs about the extent to which the organization values their contributions and cares about their well-being. Employees personify the organization and expect care for their well-being from the organization when they commit themselves to the organization.

**Organizational Commitment and Job Satisfaction**

Organizational commitment has been studied for the last several decades mainly because it is considered to have an impact on employees’ intention to leave and turnover (Colbert and Kwon, 2000; Ko, Price, and Mueller, 1997). Along with organizational commitment, job satisfaction is one of the most frequently explored employee attitudes. Studies regarding job satisfaction have been conducted over a long period of time in fields such as industrial psychology and organizational psychology (Mathieu, 1991). One of the most frequently studied topics in job satisfaction is its relationship to office environment (Zalesney and Farace, 1988). It is assumed that dimensions and characteristics of alternative officing would affect job satisfaction because they would benefit employees in many ways, including providing a balance between work and life situations as well as flexibility.

**METHODOLOGY**

**Sample**

The population of this study consisted of employees who work one day or more per week in alternative offices. Self-employed workers are not considered as part of the population group in this study, since the goal is to examine employees’ behavior and attitude in an organizational context.

Employees were invited to participate in an Internet survey. 170 employees participated in the survey, and 135 completed responses were used in the data analyses.
Data Collection

An on-line form of the questionnaire was generated using an on-line survey software program provided by an on-line survey company. U.S. General Services Administration telework coordinator, IFMA U.S. regional chapters, ITAC, CTA, and several telework consultant companies’ websites were identified to be popular to employees and managers in alternative officing. After the websites were selected, each website administrator was contacted through email or phone to ask to distribute the survey website information to employees or to link the survey website to their websites.

Data Analyses

The following statistical analyses were undertaken to study the survey data. All analyses were conducted using SPSS 14 for Windows.

3. First, descriptive analyses for each variable were conducted to examine variables’ distributions. Factor analysis was also conducted for organizational commitment to examine previous studies that claimed that it was composed of two types of commitment: affective and continuance commitment.

4. Zero-order correlation analyses were employed to determine the bivariate relationships between the independent and dependent variables.

5. After the correlations were explored, multiple regression analyses were used (see Figure 2) to examine (1) the relationships between job satisfaction and independent variables, (2) the relationships between organizational commitment and independent variables, and (3) the relationship between predictor variables and organizational commitment through job satisfaction. Path analyses were used to determine whether job satisfaction has a mediating effect between independent variables and organizational commitment.

RESULTS

As the results of regression analyses show in Figure 3 and Figure 4, perceived organizational support affected organizational commitment positively and directly or through job satisfaction. This indicates that when employees who work in alternative officing perceive that their organizations are supportive for them, they feel more satisfied with their job. This result is consistent with the previous studies that showed employee satisfaction under alternative officing. Moreover, the results showed that the perceived
organizational support led to organizational commitment. It is important to note because previous studies presented that a high level of organizational commitment improves employee retention. Interior designers and facility space planners need to understand that

![Figure 2. The hypothesized research model.](image)

when they plan office environment, alternative officing can be considered as an option to free up employees from traditional office environment. There was another interesting result from this study. It is that the physical aspect of alternative office such as temperature, lighting, storage, and the space size did not show any relation to job satisfaction or organizational commitment. Moreover, the range of ratings for perceived physical environment in alternative officing was relatively low, mostly around 2-3 out of 5. This indicates that current alternative offices’ physical aspects do not really satisfy employees’ needs and can be improved to influence employees more positively.
Figure 3. The Regression Model on Affective Organizational Commitment
(showing only significant relationships)

Figure 4. The Regression Model on Continuance Organizational Commitment
(with job satisfaction in the model)
When employees had two or more different alternative offices, it affected their organizational commitment negatively. This indicates that even though employees feel supported when they have alternative officeing as an option to work in, it does not help them feel committed with the organization when they have too many alternative office locations. Interior designers and facility space planners can incorporate this information in the programming stage with corporate clients to guide them to the right direction of alternative office planning.

Conclusions

The results showed that employees’ job satisfaction and organizational commitment were affected positively by perceived organizational support in alternative officeing. It is assumed that the reason is because they have an option to work in alternative offices, but not necessarily because physical aspects of their alternative offices were satisfying for them. It is concluded that employees feel more satisfied and committed to organizations by having flexibility to work other than the traditional office environment. However, too many alternative office locations affected employees negatively. Interior designers and organizations need to improve physical aspects of alternative offices to affect the employees positively, and the information from this study will help them in the programming stage to plan an effective office environment.

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Zalesny, M. D. & Farrace, R. V. (1988). Job function, sex, and environment as correlates of
Design of Assisted Living Based on Perceptions of Older Adults and Family Members

John Marsden

Abstract

PURPOSE

Many older Americans would like to age in their own homes. When this is not feasible, frail older adults must consider alternatives. Moving in with family is not a desirable option for more than two-thirds of older Americans (AARP, 1996). Relocating to a nursing home is not only an unwelcome choice but also a dreaded one. Assisted living, a relatively new industry, is promoted as a favorable alternative to traditional long-term care, largely due to its resident-centered philosophy and residential environment. However, it is unclear whether assisted living buildings are perceived favorably by older adults and family members. In addition, there are few assisted living design guides that take consumer input into account. The purpose of this paper is to present design implications for building exteriors and public spaces including entries, living rooms, and dining rooms based on a series of small studies that were conducted with over 500 older adults and family members.

METHODOLOGY

The design implications that will be presented are derived from a series of small studies that employed a method, called the picture preference procedure, for obtaining consumer input (Kaplan and Kaplan, 1989). All of the studies included color photographs of existing exteriors or interior spaces of assisted living buildings. During a face-to-face interview, participants were asked to imagine they were helping a close friend or relative to select a housing arrangement and were instructed to evaluate the photographs according to a rating scale that was provided. Participants were also asked to explain, in an open-ended format, why they rated certain scenes favorably or unfavorably. More than 500 participants, consisting of older adults and family members, evaluated more than 60 different assisted living buildings in Alabama, Florida, Massachusetts, and Michigan.

SUMMARY

Several analytic approaches, using both the numeric ratings and the open-ended responses, were executed to discover underlying perceptions for both groups of participants. Design implications for building exteriors and interior entries, living rooms, and dining

226
rooms were then identified based on the findings. To enhance understanding, the design implications are discussed in relation to a conceptual framework that emerged from the research. The conceptual framework consists of six themes: familiar housing cues, protective enclosure, caring cues, human scale, usability, and naturalness.

REFERENCES

Design of Assisted Living Based on Perceptions of Older Adults and Family Members

PURPOSE

Many older Americans would like to age in their own homes. When this is not feasible, frail older adults must consider alternatives. Moving in with family is not a desirable option for more than two-thirds of older Americans (AARP, 1996). Relocating to a nursing home is not only an unwelcome choice but also a dreaded one. Assisted living, a relatively new industry, is promoted as a favorable alternative to traditional long-term care, largely due to its resident-centered philosophy and residential environment. However, it is unclear whether assisted living buildings are perceived favorably by older adults and family members. In addition, there are few assisted living design guides that take consumer input into account. The purpose of this paper is to present design implications for building exteriors and public spaces including entries, living rooms, and dining rooms based on a series of small studies that were conducted with over 500 older adults and family members.

REVIEW OF LITERATURE

Design guides translate relevant information about the domain of environment and aging into design implications that are useful for practitioners. Many design guides in the field specifically focus on the needs of people with dementia in the context of a wide range of settings, including nursing homes, special care units, assisted living, group homes, and day care centers (Calkins, 1988; Brawley, 1997; Briller, Proffitt, Perez, and Calkins, 2001; Briller, Proffitt, Perez, Calkins, and Marsden, 2001; Cohen and Weisman, 1999; Marsden, Briller, Calkins, and Proffitt, 2001; Perez, Proffitt, and Calkins, 2001; Zeisel, 1999). These books of design guidance mostly consist of hypotheses grounded in the literature or the professional and personal experiences of expert scholars. Hypotheses are normative propositions for how the environment may, rather than will, impact human well-being. As a result, empirical research is often needed to validate or modify hypotheses to prevent ineffective ones from becoming standard practice.
Unlike the design guides that focus on dementia care settings, the few that address assisted living, for the most part, are based on the systematic collection of data from projects identified by experts (Brummett, 1997, Regnier, 1994; 2002). For example, Brummett (1998) developed design considerations for homelike character based upon a literature review and information gathered at 16 sites though open-ended observations and interviews with 43 residents and 22 caregivers. Regnier’s (1994) first design guide is based on an initial review of 230 projects as well as site visits to 25 projects in the United States and 100 projects in Scandinavia and Holland. Each site visit entailed a 70-question interview, presumably with administrators, and a 144-item architectural checklist. The methodological basis for Regnier’s (2002) most recent design guide is less clear. He indicated that the ideas for his book are derived from consulting experiences, conference presentations, classroom seminars, discussions with colleagues and friends, site visits, interviews with several hundred people in five different countries, and post occupancy evaluations.

**METHODOLOGY**

The design implications that will be presented are derived from a series of small studies that employed a method, called the picture preference procedure, for obtaining consumer input (Kaplan and Kaplan, 1989). All of the studies used color photographs of existing exteriors or interior spaces of assisted living buildings. Exterior scenes typically focused on either main entries or an expanse of the building near the main entry. Photographs were taken from a main parking lot or street under sunny conditions with the vegetation in bloom. Interior scenes focused on entries or foyers, common living rooms, and common dining rooms and included the entire space from a major access point.

A face-to-face format was used for all of the studies. Directions were read aloud, and responses were recorded by the investigator. The actual interview procedure consisted of two distinct parts: a rating scale and open-ended questions. For the first portion, participants were told that they would be looking at photographs of retirement housing whose cost and location were the same. Participants were asked to imagine they were helping a close friend or relative to select a housing arrangement and were instructed to evaluate the scenes according to a rating scale that was provided. The second part of the interview asked participants to explain, in an open-ended format, why they rated certain
scenes favorably or unfavorably. More than 500 participants, consisting of older adults and family members, evaluated more than 60 different assisted living buildings in Alabama, Florida, Massachusetts, and Michigan.

Findings

Several analytic approaches, using both the numeric ratings and the open-ended responses, were executed to discover underlying perceptions for both groups of participants. Design implications for building exteriors and interior entries, living rooms, and dining rooms were then identified based on the findings. To enhance understanding, the design implications are discussed in relation to a conceptual framework that emerged from the research. The conceptual framework consists of six themes: familiar housing cues, protective enclosure, caring cues, human scale, usability, and naturalness. Several design implications, supported by findings, follow.

Familiar Housing Cues

Both older adults and family members reacted favorably to cues that reference the single-family house. Porches, porticos, sloped roofs, gables, window shutters, diverse window shapes and sizes, and fireplaces are examples. Unfamiliar housing cues such as the porte-cochere, flat roofs, metal front doors, uniform window sizes, and an information desk with a large built-in counter drew negative reactions from both groups of consumers.

Protective Enclosure

Older adults stressed the need for protective enclosure with sheltered exterior entries and interior spaces more than family members. Specifically, they desired some shelter along a walkway to the building entrance. They also favored interior entries that were well defined as separate rooms with little visual access to other spaces. Family members did not mind open interior entries that were visually and spatially connected to adjacent rooms or spaces on upper floors. In addition, older adults desired well defined dining rooms that did not include circulation routes through the space or adjacent hallways with views into the space. Older adults did not want to feel as if they were on display while eating.

Caring Cues

Attention to details such as quoins, lintels, and other ornamentation on the outside and inside of the building suggest that care is evident. Both groups of consumers were attracted to signs of human occupancy such as open windows and window treatments and outdoor seating. A small desk with a friendly greeter in the interior entry and doors with glazing are
also welcoming features. The need for physical attributes that communicate care was particularly evident in living rooms. Small seating arrangements that encourage social exchange as well as televisions, radios, pianos, bookshelves, and game tables that support activity choices were desirable to older adults and family members.

**Human Scale**

Both older adults and family members were drawn to decorative features and smaller parts of the building that help to minimize the scale of the building façade and interior spaces. Other features such as gables, a variety of rooflines, changes in materials, setbacks, and different window and balcony shapes help to reduce the perceived massiveness of the façade. Older adults stressed the need for a one story building height, one story exterior entries, and lower ceilings in interior entries and living rooms. Higher ceilings were acceptable in dining rooms if they accommodated clerestory windows or skylights that provided indirect natural light. In contrast, building and ceiling height as well as spatial volume were less important to family members.

**Usability**

Older adults viewed exterior entries and interior spaces in terms of how well they could use and access the rooms based on their age-related impairments. Within interior entries, they desired a clear path from the front door and enough room to navigate around central focal points, level floor material changes, and carpeting or flooring with matte finishes to reduce glare. Furniture with padded but firm seating in living rooms was important. Overstuffed furniture or furniture with loose pillows for back support was less desirable. In dining rooms, clerestory windows and skylights help to provide uniform natural light and reduce glare; sheer curtains and shades diffuse natural light from windows at eye level; and cove lighting provides indirect artificial lighting. Adequate spacing between table groupings facilitates accessibility and private conversations. In contrast, usability was much less salient in family members’ perceptions.

**Naturalness**

Both older adults and family members were drawn to buildings that reference nature. Direct connections to lush landscaping, interior plants and flowers, and natural light as well as indirect connections provided by window views and building materials such as wood and brick are desirable. When nature is used in an artificial way in interior spaces with fake
plants or materials such as green carpeting and wallpaper that simulates brick, perceptions were inconsistent with expectations for how a space should appear and function.

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Empirical Design Research: Interior Design Faculty Definitions, Perceptions, and Values

John Marsden, Joan Dickinson,
and Lori Anthony

Abstract

PURPOSE

Despite the fact that research should play an important role during the design process, few interior design practitioners understand the true definition of research or utilize research findings when generating design solutions (Dickson & White, 1993; 1995; Guerin, Carl, Dickson, Dohr, Eshelman & Hasell, 1995). Many design practitioners base design decisions on personal preference and/or past experience instead of following a scientific method of inquiry (Guerin & Thompson, 2004). The purpose of this study was to examine interior design faculty attitudes toward empirical research since they are the ones who mold our future design professionals. Specifically, faculty were surveyed to compare their (a) definitions of research versus programming (b) perceived value of research in interior design practice and education, (c) perceptions of who should conduct research, and (d) the degree to which they are engaging in research. This investigation builds upon a previous study that examined undergraduate student attitudes toward research that will be published in 2007 (authors, in press).

METHODOLOGY

Interior design educators were targeted to examine their attitudes toward research. All educators who are members of the Interior Design Educators Council (IDEC) were sent an online questionnaire through the IDEC electronic mailing list. The questionnaire consisted of three distinct parts. The first portion asked participants to define research and programming in an open-ended format. Participants were unable to return to this portion of the questionnaire to revise their answers. In the second part, participants were asked to complete 20 questions that addressed their attitudes toward research in interior design.
practice and education. Responses were structured through a Likert scale where 1 equaled strongly agree and 5 equaled strongly disagree. Participants were then asked to provide background information in a third section about their fields of study, professional and academic experience, research activities, classes that address research, and capstone and thesis requirements for students.

**SUMMARY**

The investigators are in the process of collecting data and anticipate data analysis will begin in November. In a previous study conducted with undergraduate students, the investigators found that the majority of students believed that research findings can provide useful information to practitioners and are used extensively in practice. However, additional findings revealed that students relied on soft sources versus scholarly journals and defined research pragmatically as the gathering of information rather than the generation of new knowledge. Students were unsure about who should be conducting research and expressed some reluctance towards taking an interior design course on how to evaluate the research findings of others.

Since faculty are shaping undergraduate students’ education, the investigators anticipate similar findings in this study. Faculty may also hold more pragmatic views of research and may be structuring studio courses so that students are merely gathering information from soft sources to solve a design problem. In order to encourage students – our future practitioners – to become consumers of research, research needs to be better incorporated into the undergraduate experience. This can not be done until we have a better understanding of faculty attitudes toward research.
REFERENCES


Empirical Research: Interior Design Faculty Definitions, Perceptions, and Values

PURPOSE

One focus within the interior design profession has been the emphasis given to research during the design process (Becker, 1999; Harmon-Vaughan & Wiens, 2001). In 1992, Guerin discussed the future trends for interior design and pointed out the need for research studies that justified the profession and documented the effectiveness of interior design. Fowles (1992) also suggested the necessity to develop a research and theoretical base for the profession in her article that addressed the upcoming challenges for interior design education. More recently, Guerin and Thompson (2004) proposed that future designers need to understand the value of research in order to implement “evidence-based” design solutions (p. 1).

Despite the fact that research should play an important role during the design process, few interior design practitioners understand the true definition of research or utilize research findings when generating design solutions (Dickson & White, 1993; Dickson & White, 1995; Guerin et al., 1995). Many design practitioners base design decisions on personal preference and/or past experience instead of following a scientific method of inquiry (Guerin & Thompson, 2004). As pointed out by Dickson and White (1993), one reason for a pragmatic view of research by practicing professionals may be due to the views held by the faculty who mold their education. “In the classroom setting, educators often use the term research when students are asked to investigate solutions or gather data from soft sources (e.g., trade magazines, product catalogs, the Internet) during the design process. Thus, the student- soon to be professional- comes to think of research in terms of these sources” (Dickson & White, 1993, p. 9).

The purpose of this study was to examine interior design faculty attitudes toward empirical research since they are the ones who impact our future design professionals. Specifically, faculty were surveyed to compare their (a) definitions of research versus programming (b) perceived value of research in interior design practice and education, (c) perceptions of who should conduct research, and (d) the degree to which they are engaging
in research. This investigation builds upon a previous study that examined undergraduate student attitudes toward research that will be published in 2007 (authors, in press).

**REVIEW OF LITERATURE**

“Scientists don’t make decisions without checking the research data. Physicians don’t prescribe penicillin because they like the color pink” (Becker, 1999, p. 57). Research is one of the major components in distinguishing a profession (e.g., law, medicine, and engineering) from a trade school vocation (Dickson & White, 1993; Dickson & White, 1995). Research or the generation of new knowledge is what develops and legitimizes a profession (Dickson & White, 1993). Why has interior design fallen into the trap of devaluing empirical research?

Dickson and White (1993; 1995) and White and Dickson (1994) offer several reasons based on research with interior design practitioners considered to be leaders in the field. They found that practicing interior designers have a much more pragmatic view of research and use research as a means to solve design problems. In other words, research is not defined as a scientific inquiry that leads to the generation of new knowledge. Rather, practitioners define research as gathering existing knowledge (Dickson & White, 1993; Dickson & White, 1995). Practicing interior designers also need information quickly. Research can take months or years to complete and scholarly journals which often publish research findings are difficult to locate and understand (Dickson & White, 1993). In addition, graduate education is not valued by the profession (Birdsong & Lawlor, 2001) as witnessed by the dearth of interior design graduate students. Moreover, graduate education is viewed by practicing professionals as a necessity only for university teaching, not professional practice (White & Dickson, 1994).

Perhaps the most disturbing trend is the lack of importance placed on graduate education. White and Dickson (1994) and Birdsong and Lawlor (2001) found that 25% to 37% of practitioners were not convinced that graduate education was important to the field of interior design. Yet in other professions, graduate education is viewed as a necessity. Although one advantage to graduate education is the opportunity to build upon an existing foundation thus allowing “specialization and exploration of design theory” (Harwood, 2004, p. 35), the majority of graduate programs in the United States that offer a master’s or Ph.D. degree in interior design graduate a mere one to five students per year (White & Dickson,
1994). If practicing professionals are not exposed to the research process during their undergraduate experience and if they do not value graduate education where the emphasis is on research methods, human behavior theory, and statistics (Guerin & Thompson, 2004), then how can we expect the profession to utilize empirical research findings to defend design solutions?

**METHODOLOGY**

**Participants**

Interior design educators were targeted to examine their attitudes toward research. All educators who are members of the Interior Design Educators Council (IDEC) were sent an online questionnaire through the IDEC electronic mailing list. The intention was to obtain a representative sample of educators from interior design programs located in a variety of colleges and schools (i.e., architecture, art and design, human sciences, education, arts and sciences) at institutions ranging in size, complexity, and research tradition.

**Instrument**

The principal investigators developed a survey instrument that consisted of three distinct parts. The first portion asked participants to define research and programming in an open-ended format. Participants were unable to return to this portion of the questionnaire to revise their answers. In the second part, participants were asked to complete 20 questions that addressed their attitudes toward research in interior design practice and education. Responses were structured through a Likert scale where 1 equaled strongly agree and 5 equaled strongly disagree. The questions in the second part of the questionnaire were adapted from the Chenoweth and Chidister (1983) scale that measured landscape architecture attitudes toward research (r = .92) and the Dickson and White (1993) scale administered to interior design practicing professionals. Participants were then asked to provide background information in a third section about their fields of study, professional and academic experience, research activities, classes that address research, and capstone and thesis requirements for students. A similar questionnaire was administered to undergraduate students in a previous study that examined undergraduate student attitudes toward research (authors, in press).
DISCUSSION

The investigators are in the process of collecting data and anticipate data analysis will begin in November. In a previous study conducted with undergraduate students, the investigators found that the majority of students believed that research findings can provide useful information to practitioners and are used extensively in practice. However, additional investigation revealed that students relied on soft sources versus scholarly journals and defined research pragmatically as the gathering of information rather than the generation of new knowledge. Students were unsure about who should be conducting research and expressed some reluctance towards taking an interior design course on how to evaluate the research findings of others.

Since faculty are shaping undergraduate students’ interior design education, the investigators anticipate similar findings. Faculty may also hold more pragmatic views of research and may be structuring studio courses so that students are merely gathering information from soft sources to solve a design problem. Design is viewed as expressive, free, and creative, and the introduction of research – often seen as dry and regimented – into the studio may be resisted by faculty and students alike. Faculty who are at teaching universities may not be expected to conduct research or may not have ever conducted research.

In order to encourage students and future practitioners to become consumers of research, research needs to be better incorporated into the undergraduate experience. We can not do this until we have a better understanding of faculty attitudes towards research. “Investigation and discovery are at the heart of the research university. When undergraduates participate in the generation of knowledge they join the university’s rich intellectual community and derive unique life long benefits” (Malkiel & Woods, 2003, p.1). If we want students to develop solutions that are imaginative, they have to understand interior design precedent and be critical of that precedent to move the field forward. If we want students to improve the human condition and to enrich lives, they have to understand the value research brings to the creative process through the discovery of new information that can better justify and rationalize design solutions for the users of the space. This then is the challenge for interior design education.
REFERENCES


Sexism, Femininity, and the Language of Interior Design

Carl Matthews and Caroline Hill

Abstract

PURPOSE

Researchers have posited that interior design is a marginalized and feminine “other” in relation to architecture (Havenhand, 2004). In American culture, this position of feminine “otherness” is also generally perceived to be “lesser” (Havenhand, 2004; Hultin & Szulkin, 1999; Sarup, 1993). Through the years, interior designers have embarked on various projects in an effort to legitimize the profession and escape from this marginal position. While these efforts are valuable to a point, a negative byproduct of this process seems to be a distancing of interior design professionals from the origin of the profession and by extension, the very reason many designers originally entered the profession.

Evidence of an effort to distance the profession from the position of feminine “other” can be found in the way language is used by those within the profession compared to the general public. The purpose of this paper is to present preliminary findings regarding the use of language as it relates to the interior design profession and generate public discourse on the topic for further theoretical development. Specifically, this paper addresses the concept of a “women’s language” (Lakeoff, 2004) and the apparent use of language by professional designers to distance themselves from the feminine and marginal position.

METHODOLOGY

In her seminal book, Language and Women’s Place (2004), Robin Lakeoff identifies nine distinct feminine linguistic forms including the use of “empty adjectives” (e.g. “darling,” “divine”). Through content analysis, twenty-one interior design periodicals (both mainstream magazines and academic journals) and eleven Home and Garden Television (HGTV) programs were coded for “empty adjectives” concepts as markers of feminine linguistic practices. The content analysis revealed that magazines targeting the general public used feminine linguistic forms almost eleven times more than the architectural magazines and academic journals while HGTV shows used feminine linguistic forms almost three times as much as the architectural and academic periodicals. These findings lend credence to the supposition of gender biased language variations among professionals/academics and the general public. In order to strengthen these preliminary findings, additional periodicals and HGTV shows will be coded. Also, concept coding will be expanded to include additional concepts that became relevant after the preliminary coding.
SUMMARY

The findings of this study suggest that threads of a unique interior design language exist but professional interior designers are reluctant to take ownership of them. Consciously or unconsciously, these threads of language tie the profession to its feminine origins. Many designers and educators seek to replace the threads with more masculine linguistic forms bolstering the original supposition that language is used as a tool to distance interior from its feminine and marginal position. And yet, as Havenhand (2004) and other researchers have suggested, interior design must embrace and develop its own unique language in order to develop an independent voice.

REFERENCES

Sexism, Femininity, and the Language of Interior Design

STATEMENT OF PURPOSE

A recent article on the status of the interior design profession states, “interior design is perceived as feminine, superficial, and mimetic as compared to a male, rational, and original architecture” (Havenhand, 2004, p. 33). In spite of the fact that women are increasingly represented among student bodies in architecture schools, architecture is still perceived as a male domain, while interior design is female. Havenhand posits that interior design is a marginalized and feminine “other” in relation to architecture, and that the “other” is also perceived to be “lesser.” Research addressing gender issues in the workplace (e.g. wage differences, social influence, gender stereotypes) substantiates the notion that “women’s” professions like interior design are still perceived as less valuable and prestigious than “men’s” professions (Hultin & Szulkin, 1999; Sarup, 1993).

In spite of the fact that this feminine and marginal position can be a position of great creativity and value (hooks, 2000), interior designers continue to embark on projects to legitimize the profession and distance themselves from the margin by replicating the architectural education process, generating a formal definition, implementing an Interior Design Experience Program (IDEP), and seeking legislative definition and protection (Havenhand, 2004). While each of these efforts is valuable to some degree, a negative byproduct of this desire to be seen as equal to architecture is that interior designers are distancing themselves from the authentic origins of the profession and negating what makes them unique, valuable, and brings them personal satisfaction.

Havenhand (2004) challenged interior designers to cease the indiscriminate emulation of architecture and instead find ways to embrace interior design’s origin, which includes the development and usage of language that accurately reflects the essence of the profession. The purpose of this study is to respond to this challenge and formally explore the use of language within and in reference to the interior design profession. Specifically, this project addressed how the language of professional designers/academics differs from
the language of the general public, as well as the nature of any discernable linguistic differences. Once these linguistic variances are understood, interior designers and educators can begin to reflect on the reasons behind them and rise to the challenge of embracing and developing a language for the profession.

FRAMEWORK

The theoretical framework for this study comes from the field of linguistics, particularly the work of Robin Lakeoff. Lakeoff (2004) explains, “language uses us as much as we use language . . . [and] the way we feel about things in the real world governs the way we express ourselves about these things” (p.39). In 1975, Lakeoff introduced the notion that there are linguistic differences in the way women use language and the way language is used in reference to women. Her theory regarding the existence of a unique “women’s language,” which she identifies as having nine distinct and specific linguistic attributes, has sparked discussion, research, and debate in the field of linguistics for a quarter of a century. The bulk of Lakeoff’s original theories regarding femininity and language remain valid and informative.

REVIEW OF LITERATURE

The literature review considered studies that addressed gender bias in linguistics as well as sexist communication patterns within specific disciplines. In terms of gender bias in linguistics, Sankis, Corbitt, and Widiger (1999) evaluated 1,710 lexical items to determine if they were perceived to be masculine or feminine. Their findings suggest that while language is not gender neutral and there are more feminine-valued traits than male-valued traits, bias could only be determined by assessing the context and application of these gendered lexical items. The works of Weatherall (1996) and Cralley and Ruscher (2005) also address linguistic sexism and its impact on the perceived status of women in relation to men.

Another linguistic tool relevant to this study is semantic orientation, which is a quantifiable, numerical representation of a word’s evaluative character, or its perceived “goodness” or “badness” (Hatzivassiloglou, V. & McKeown, K., 1997). Semantic
orientation research provides insight into the reasons why words that may, at first glance, appear to be equal in value are not necessarily perceived as such from one person to another.

In evaluating studies addressing sexist communication patterns within specific disciplines, the work of Grise-Owens (2002) revealed linguistic sexism in the social work curriculum through content analysis of the primary academic journal in the discipline. Zdenek (1999) analyzed the appearance of gender bias in the language of software design, while Ward (2004) looked at linguistic sexism in collegiate sports and the impact on female performance. These and similar studies provide evidence of profession based linguistic sexism, but no literature was found to date addressing linguistic practices in the fields of architecture or interior design.

**METHODODOLOGY**

This project involved a conceptual content analysis of mainstream periodicals and academic journals with interior design themes, and design-related television programs presented on Home and Garden Television (HGTV). After determining the appropriate level of analysis, the researchers defined the specific content concepts (i.e. words and other linguistic markers) to be coded. For this pilot study, the words coded were “beauty,” “pretty,” “fun,” and “joy,” with other words and lexical patterns being noted for further content analysis. Variations of each word (e.g. “beautiful,” “joyful”) were included in the frequency tabulations. The researchers identified twenty-one appropriate periodicals and eleven HGTV shows to be coded and the frequency of concepts appearing in the text and dialogue were noted. Most of the mainstream periodicals were targeted to women readers (e.g., *O at Home, Martha Stewart Living, Real Simple*) but others were gender non-specific (e.g., *Dwell, Interior Design, Metropolitan Home*). The primary researchers performed the content analysis coding both the written and oral media manually between fall 2005 and summer 2006.

**DISCUSSION**

The content analysis revealed that design-related magazines targeting the general public used feminine linguistic forms almost eleven times more than the architectural magazines and academic journals, while HGTV shows used feminine linguistic forms almost three times as much as the architectural and academic periodicals. Additionally, HGTV
television shows also used a wide range of other emotive words that would be classified as more feminine in nature (e.g. “precious,” “darling,” “fabulous,” “sensuous”).

Academic journals and architectural magazines will occasionally use the word “beautiful” but rarely if ever do they use the words “pretty,” “fun,” or “joy.” However, the word “handsome” was found in architectural press. The researchers posit that the words “beauty” and “joy” are gender neutral, that “pretty” is perceived as feminine and “handsome” as masculine, and that, as such “pretty” is frequently objectionable to designers and academics when used to describe their work. When interior designers distance themselves from “pretty” and similar gendered words, they are also distancing themselves from the feminine and, as Havenhand (2004) argues, the essence of the profession.

Ironically, it seems that the general public is more comfortable with a language of interior design that embraces the profession’s feminine underpinnings than interior designers are. Yet, embracing the feminine may have positive financial implications. The general public wants “pretty” and the $160 billion-a-year global beauty industry numbers validate this.

Americans spend more each year on beauty than they do on education. Such spending is not mere vanity. Moreover, being pretty—or just not ugly—confers enormous genetic and social advantages. Attractive people (both men and women) are judged to be more intelligent and better in bed; they earn more, and they are more likely to marry. (Pots of Promise, 2003). This same article references another study (Langlois, Ritter, Roggman & Vaughn, 1991) that found babies as young as three months old will smile longer at faces judged to be attractive than they do unattractive ones, suggesting that the recognition of beauty is somewhat instinctive. And the work of philosophers – including Plato, Hume, Burke, Bosanquet, Beardsley, and Marx – have espoused the intrinsic nature and value of beauty for centuries. “Beauty must be exhibited as a necessary condition of humanity” (Kant, 2000, p. 60).

SUMMARY

The purpose of this study was to formally explore the use of language within and around the interior design profession. The findings revealed important new information regarding the use of specific lexical items in interior design related media while lending
credence to the supposition of gender biased language variations among professionals and the general public. However, the findings also reveal the need for additional research in this area. Specifically, a larger body of source material should be coded using the original concepts for this study while additional concepts and feminine linguistic practices should be added to the coding process. Once these linguistic variances are understood, interior designers and educators can begin to reflect on the reasons behind them and rise to the challenge of embracing and developing an authentic language for the profession.

Developing a common language is necessary for continued advancement of the interior design profession. As those in the profession strive to codify the language, they should embrace a feminine foundation, which is not only true to the history of interior design, but also in line with public perception and has the power to ultimately provide strength and clarity for the profession. Finally, the development of a unique, authentic language may equate to financial profits for practitioners who effectively celebrate the “pretty” and “fun” aspects of interior design while also facilitating better and richer design discourse between educators and their students.

REFERENCES

http://www.economist.com/printedition/displayStory.cfm?Story_ID=1795852


Footnotes

1 A random sampling of Bachelor of Architecture programs across the USA found that 46% of the students are women. Schools surveyed include Notre Dame, Cornell, Pennsylvania State University, University of Miami, Rice, Virginia Polytechnic University, Louisiana State University, University of Kansas, University of Oklahoma and University of Southern California)
Nancy Vincent McClelland: Advancing the Interior Decoration Profession in the Early 20th Century

Bridget May

Abstract

In a career spanning more than fifty years, Nancy Vincent McClelland evolved from a newspaper reporter to a respected, well known interior decorator, author, and authority on wallpaper and antiques. She was a successful businesswoman when it was uncommon for women to do so. Through activities and writings, she supported and advanced Interior Decoration profession and subsequently achieved national recognition as first the woman president of the American Institute of Decorators (AID).

PURPOSE

The primary purpose of this paper is to examine Nancy McClelland’s contributions as an advocate advancing the emerging Interior Decoration profession in the early 20th century. Her selected writings and professional activities will highlight her contributions to Interior Decoration and show her forward thinking on issues such as educational standards and her participation as decorators grappled with such professional problems as recognition.

PROCESS

Using concepts derived from definitions of professionalism in her time and today, Miss McClelland’s involvement in and advocacy for interior decoration’s move toward increased professionalization are documented. The process centers on education; service to the client; professional organizations; and professional standards and licensing (Bledstein, 1978; Coleman, 2002; Piotrowski, 2002).

Education and Service to the Client

Nancy McClelland strongly advocated education for decorators although not formally trained herself. She recommended study at an art school in drawing, architecture, color, and lighting; foreign and domestic travel, and an apprenticeship (McClelland, 1929). Later, she worked with AID to set up educational standards for members including a college degree. She taught workshops, gave speeches, and advanced decoration through a correspondence course (McClelland & Eberlein, 1922) and radio broadcasts (Kirkham 2000; Decorators, 1935). She wrote four books and numerous articles. She acknowledged service as professional standard and urged decorators to create “suitable surroundings” for clients, help client visualize, and teach good taste. (McClelland, 1929, 246-247).
Professional Organizations

A member of the Decorators’ Club and Architectural League, she was a founding member and governor of American Institute of Interior Decorators in 1931 (Decorators, 1931), secretary (Decorators, 1936), and fifth national president and first woman president 1941-1944. Students joined for the first time during her presidency (History of ASID, 2005, 15).

Professional Standard and Licensing.

Miss McClelland saw AID as critical in helping decorators achieve recognition and separation from the many people calling themselves decorators. She stressed that AID sought to “establish and maintain the highest standards . . . ethics and rules of practice” (McClelland, n.d., 3). She was among the few who thought certification necessary and looked to the day “when decorators also will have to be licensed by state boards and will be required to show examples of their work in order to obtain this license” like architects (McClelland, n.d., 3).

SUMMARY

Nancy Vincent McClelland, lacking formal training and emphasizing period decoration, was like the lady decorators of her day. What sets her apart and makes her significant is that she was an advocate to professionalize interior decoration by supporting and advancing educational and professional standards. Miss McClelland recognized the positive aspects of decoration as a career but realized it had a ways to grow. Because of her actions, the profession changed.

REFERENCES


Nancy Vincent McClelland: Advancing the Interior Decoration Profession in the Early 20\textsuperscript{th} Century

In a career spanning more than fifty years, Nancy Vincent McClelland (1877-1959; Figure 1) evolved from a newspaper reporter to a respected, well known interior decorator, prolific author, and eminent authority on wallpaper and antiques. She was extremely active in professional organizations and participated in activities that supported and advanced the Interior Decoration profession.

Figure 1. Nancy Vincent McClelland. Undated Photograph. Nancy McClelland Archives, Cooper Hewitt National Design Museum, New York, New York.
PURPOSE

The primary goal of this paper is to examine Nancy McClelland’s contributions as an advocate advancing the emerging Interior Decoration profession in the early 20th century. Its review of her selected writings and professional activities (Figure 2) will document her contributions to Interior Decoration. Highlighted will be her forward thinking on interior design issues, such as educational standards, and her participation as decorators grappled with such professional problems as recognition. Like other lady decorators, Miss McClelland favored period decoration (Figure 3) and wrote advice books. And like some, she was a successful businesswoman and entrepreneur at a time when it was uncommon for a woman to do so. What particularly sets her apart is her advocacy of professionalism throughout her career and that she achieved national recognition as the first woman president of the American Institute of Decorators (AID).

CONTEXT

During the second half of the 19th century, knowledge based disciplines, such as law and architecture, established national associations and uniform standards to distinguish themselves as professionals not amateurs (Bledstein, 1978; Robertson, 1997). Writers, women’s colleges, and Home Economics pushed for the professionalization of women’s roles, like parenting or home making (Bledstein, 1978; Robertson, 1997). By the turn of the 20th century, what it meant to be a professional was well understood and highly desired by both practitioners and consumers. Women began joining professions outside the home (Robertson, 1997). Interior Decoration was one vocation open to them since it was thought appropriate for women because of their domesticity and perceived innate decorating abilities (Wheeler, 1895 April 6 & 1895 April 20; Bookwalter, 1907; Pope 1907). These concepts lead to the rise of Interior Decoration as a profession. This is paralleled by an expansion of the service sector, which drew more middle-class women into the work force especially in sales and commerce. White collar work provided upward mobility for women (Blackwelder, 1997), and it soon became more acceptable for women to have a career, a “pre-established, total pattern of organized professional activity, with upward movement through recognized preparatory stages, and advancement based on merit and bearing honor” (Bledstein, 1978, 175).
In this milieu, Nancy McClelland begins decorating, and Figure 2 shows some of her career accomplishments. There is little evidence of where or how Miss McClelland absorbed the ideas of professionalism or why she sought it, although reading or contacts within the field are most likely.

1877  Born in middle class family, Poughkeepsie, NY
1897  Receives a Bachelor of Arts in English and Latin, Vassar College; Phi Beta Kappa
1897  Reporter, Philadelphia Press, covers items of interest to women
1900  Wanamaker’s Department Store, advertising department and window displays
1907  France as representative and buyer for Wanamaker’s
1913  Opens Au Quatrieme, decorating and antique store, Wanamaker’s New York City
       Toured New England collecting American antiques
1918  Au Quatrieme sold collections of American antiques assembled by Wallace Nutting
1920  Au Quatrieme sold collection of American antiques by Dwight M. Prouty, Boston
1922  Opens Nancy McClelland Inc,
       The Arts and Decoration Practical Home Study Course, 1922, with Harold Eberlein
       Decorates Columbia Trust Bank, New York City
       Sold antique scenic wallpaper to Electra Havemeyer Webb
1924  Historic Wallpapers, first book, established her as an authority on wallpaper
1926  The Practical Book of Wall Treatments
1928  The Young Decorator, a decorating book for children
       Sold handpainted Chinese wallpaper to Henry Francis DuPont (in Chinese Parlor now)
1929  Chapter on Interior Decorators in An Outline of Careers for Women
1930  Chevalier of the Legion of Honor for Historic Wallpapers
       Elements of Interior Decoration, Arts in Trades Club, for men only
1931  Founding member of American Institute of Interior Decorators
       New York chapter established in her office
1934  Choosing a Career Conference Speaker; New York City
1935  Secretary of AID
       Radio broadcast promoting AID definition of an Interior Decorator
1936  Furnishing the Colonial and Federal House
       Supplied wallpapers for John Brown House, Providence, RI
1937  Nancy McClelland, Inc. supplied most of the wallpaper for the new Williamsburg Inn
1938  Lecture, Metropolitan Museum of Art
1939  Duncan Phyfe and the English Regency reprint 1980
       Lecture Decorators Club,
1940  Consultant for wallpapers at Mount Vernon
       Lecture Metropolitan Museum of Art
       Speech on Decorating, Smith College
1944  Fellow of Royal Society of Arts, London
1946  First Justin Allman Wallpaper Award, National Wallpaper Wholesaler’s Association
       Finishes work on Morris Jumel Mansion, New York City
1948  Michael Fridesam Media, Architectural League for service in the cause of industrial art
1951  Mary Washington College, VA, graduation speaker
1959  Passes away

Figure 2. Nancy McClelland, Career Highlights, Important Projects, Awards, and Books.
Figure 3. Mrs. Dwight Wiman’s Bedroom. *Arts and Decoration*, 1930. Scrapbook, Nancy McClelland Archives, Cooper Hewitt National Design Museum, New York, New York.

However, she was a college graduate, and women’s colleges of her day advanced the idea of the professional woman mainly in a domestic context (Bledstein, 1979). She probably learned professionalism, if not entrepreneurship, through her association with John Wanamaker and Wanamaker’s Department Stores (*In Memory*, 1959).

**REVIEW OF LITERATURE**

A few books, like *Interior Design in the 20th Century* (Tate and Smith, 1986), *Interior Design of the 20th Century* (Massey, 1990), and *Women Designers in the U.S.A., 1900-2000: Diversity and Difference* (Kirkham, 2000), discuss the lady interior decorators but only Tate and Smith (1986) discuss Miss McClelland in any depth. They, however, include only information from
her obituaries (Nancy McClelland, 1959; Nancy V. McClelland, 1959; Miss McClelland, 1959; In Memory, 1959). Similarly, some journal articles discussing the decorators mention Miss McClelland (McNeil, 1994). A few document her work, such as supplying wallpapers to people (Rowan, 2002). She is the subject of one Master’s thesis (Preston, 2005).

There is much primary source material on Nancy McClelland. Her archive at the Cooper Hewitt includes papers, photographs, correspondence, scrapbooks, and wallpaper designs. Some archival materials survive at museums and restorations including Winterthur Museum (Rowan, 2002) and Colonial Williamsburg (McClelland, 1937). Various newspapers have articles that reference her or her firm (Decorators 1931, 1935, & 1936). Regrettably, papers from her presidency of AID do not survive. She also wrote four books and numerous articles for magazines including House Beautiful and Country Life.

**PROCESS**

Using concepts derived from definitions of a professional in her time and today, Miss McClelland’s involvement in and advocacy for interior decoration’s move toward increased professionalism in the early 20th century are documented and analyzed. The process centers on these elements: education or training; service to the client; professional organizations; and professional standards and licensing (Bledstein, 1978; Coleman, 2002; Piotrowski, 2002).

**FINDINGS**

**Education.**

Like others, Nancy McClelland had no formal education as an interior decorator; her degree was in English and Latin (Miss McClelland, 1959). Training came from her study of art and art history and visits to palaces and museums while in France for Wanamaker’s Department Store (Miss McClelland, 1959). She said she learned to decorate at Au Quatrieme, a decorating and antique store, which she opened for John Wanamaker in 1913 New York (Thornley, 1929).

Miss McClelland strongly advocated training for decorators throughout her career. In 1929 she set forth educational requirements for decorators in a book of career choices for women. She recommended a “two or three year course in a school of fine and applied arts” that included freehand and mechanical drawing and knowledge of architecture, color,
lighting, period styles, rugs, and materials. She thought travel and foreign language especially important. Miss McClelland encouraged an apprenticeship to learn the decorating business (McClelland, 1929, 246-248). Her recommendations are similar to others of her time (Bookwalter, 1907; Pope, 1907). About 1940, she supported a “four-year professional course of collegiate value, equivalent in scope to the comprehensive course in architecture now offered at leading universities” (McClelland, n.d. 3). Throughout her career she taught workshops and seminars at such places as the Metropolitan Museum of Art (Bach, 1938 January & 1940 September). She advanced education and promoted decoration as a career through a correspondence course (McClelland & Eberlein, 1922), speeches (McClelland, n.d.), and radio broadcasts (Kirkham 2000; Decorators, 1935).

Service to the Client.

Miss McClelland acknowledged service as a professional standard. She believed it was “part of a decorator's job to study and understand a client and her family and to put them into suitable surroundings” that met their needs and thus she describes a standard true today. She also thought that “one of the important services that decorators can render to a client is in helping her to visualize a completed scheme.” Also imperative was helping educate the public about good taste (McClelland, 1929, 246-247), something she herself did by various means.

Professional Organizations

Miss McClelland belonged to several professional organizations including the Decorators’ Club and Architectural League of New York. Most importantly, she was a founding member of as American Institute of Interior Decorators (AID) in 1931. She was a governor (Decorators, 1931) and secretary (Decorators 1936). According to the AID Bulletin (1959), the New York chapter was organized in her office in Sept 1931. In 1941, Nancy McClelland becomes the first national woman president and fifth AID president, serving 3 terms ending in 1944. Student members joined for the first time in 1942 during her presidency (History of ASID, 2005, 15). At her death, the AID Bulletin lamented that, “AID has lost one of its most beloved members and loyal supporters” (1959).

Standards for Practice, Licensing

Early 20th century Decorators struggled with recognition and separation from amateurs. According to Miss McClelland, organizations like AID were critical to help decorators break away from the myriad of people decorating interiors and calling themselves
decorators, especially those with no training. Comparing AID to a similar action by architects, she declared, “not so long ago architects were forced to organize to protect themselves against untrained men who claimed the rights and privileges of trained men” (McClelland, 1929, 245). This also shows that interior decoration, like interior design, looked to architecture as a model.

In a speech at Smith College about 1940 she stressed that AID sought to “establish and maintain the highest standards for decorators and decoration in all their functions and ethics and rules of practice” (McClelland, n.d., 3). She noted that AID was working to set up educational standards to which all members would have to adhere (McClelland, n.d., 3-4). Apparently, she was among the first and few who thought certification was necessary. In the same speech, she foretells future directions in the profession with her words: “we are fondly hoping that the day will come when decorators also will have to be licensed by state boards and will be required to show examples of their work in order to obtain this license” (McClelland, n.d., 3). She compared this with architecture and noted that safety was a critical factor for licensing. AID first discussed licensing in 1939 but put it aside. It did not address the issue again until 1965 (History of ASID, 2005).

CONCLUSION

Nancy Vincent McClelland, with her lack of formal training and emphasis upon period decoration, was like the other lady decorators of her time. What sets her apart and makes her significant is that she was an advocate to professionalize interior decoration by supporting and advancing educational and professional standards. Miss McClelland recognized the positive aspects of decoration as a career but also realized that it had a ways to grow (Figure 5). She worked to make it happen, and because of her actions, the profession changed.

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Figure 4. Left: Victoria Wallpaper, c. 1830; Right: Williamsburg Inn, Williamsburg, VA showing Victoria Wallpaper supplied by Nancy McClelland, Inc.
It must be a wonderful thing to be a decorator!
Nearly every day somebody makes this remark to me, and I usually reply, ‘Well it is and it isn’t.’

As a matter of fact, it is wonderful to live your life among beautiful things, and to spend all your time in an attempt to create beauty, but it would be far more wonderful to be a decorator if the profession had the dignity and authority of an architect’s profession-- if it were standardized as to the training, experience, and knowledge necessary for admission to its ranks.”

Interior Decoration, p. 245, in An Outline of Careers for Women, Nancy McClelland, 1929

Figure 5. Nancy Vincent McClelland. Undated Photograph. Nancy McClelland Archives, Cooper Hewitt National Design Museum, New York, New York.
Gender, Interiority and Status in Architectural Theory: A Pattern of Downgrading the Feminine

Mark Nelson

Abstract

PURPOSE

This presentation seeks to identify reasons that interior design may be perceived as a lower status profession than architecture by looking at writings of architectural theorists in Western culture. It is hypothesized that there is a historical pattern of creating both hierarchies of importance (exteriors above interiors) as well as hierarchies of gender characteristics (masculine above feminine) embedded in architectural theory, which contributes to the privileging of design activity related to those parts of the building ranked higher in the architectural gender hierarchy. Additionally, identifying recurring historical associations between gender and the built environment (such as Le Corbusier’s association between femininity, disease and disorder (Hooper 2002, p. 65)) could contribute to an understanding of gender patterns in career and educational choices in the field of interior design.

PROCESS

The analysis consists of looking for gendered systems of thought and associated value systems in the writings of architects and architectural theorists from ancient times to the present, drawing on the methodology of feminist theory. Systems of thought and value systems that create gender hierarchies and that rank interiority, femininity or traits attributed to the feminine as lower or inferior support this analysis. If these systems of thought and value systems have predominated over time, they may have become embedded in our notions of the design process and could be contributing to gender patterns in interior design practice and education.

SUMMARY

The custom of making gender the center of a metaphorical system for architecture dates back to Plato and the Greeks in the 4th Century BC. Architects and theorists from the
Roman Vitruvius in the 1st Century BC all the way to the present have established hierarchical
gender systems. Especially since the 16th Century, femininity in architecture has had negative
connotations. In the late 20th Century, Modernism privileges form, rationality and the
machine, continuing a tradition of privileging masculine traits and exteriority in architecture.

Based on the texts examined, architectural theory has used gender as a theoretical
framework for thousands of years, and for at least the last five hundred years (with some
exceptions) femininity, interiority and traits associated with the feminine have been classified
as inferior to masculinity, exteriority and traits associated with the masculine. Since
interiority and femininity have traditionally been linked together in architectural theory, the
field of interior design may be perceived as feminine not just through current social custom,
but through embedded ideology. Additionally, since the feminine and feminine traits have
historically been devalued in architecture, the “feminine” profession of interior design may
be perceived of as having lower value than the profession of architecture. It is suggested
that including discussions of these issues in the discourse of the field as well as during the
education process (such as when studying a star architect’s “gender embedded” buildings)
could begin to lay the groundwork for a reformulation of architectural theory that detaches
interior design and interiority from architectural hierarchies or gender-based metaphorical
systems. This could in turn detach gender from educational and career choices as well.

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Gender, Interiority and Status in Architectural Theory: A Pattern of Downgrading the Feminine

PURPOSE

This presentation seeks to identify reasons that interior design may be perceived as a lower status profession than architecture by looking at writings of architectural theorists in Western culture. It is hypothesized that there is a historical pattern of creating both hierarchies of importance (exteriors above interiors) as well as hierarchies of gender characteristics (masculine above feminine) embedded in architectural theory, contributing to the privileging of design activity related to those parts of the building ranked higher in the architectural gender hierarchy. Additionally, identifying recurring historical associations between gender and the built environment could contribute to an understanding of gender patterns in career and educational choices in the field of interior design.

Context

A common conversation at faculty meetings and at IDEC conferences concerns the overwhelming number of female students in interior design undergraduate programs in the United States. Ironically, however, “The current literature on the history of the interior design profession is replete with evidence of gender discrimination. Women in the discipline of interior design are presented as being insignificant in the development of the profession. Instead, a masculine narrative of architects identifies a field dominated by women in number, but by men in perceived significance.” (Turpin, 2001)

What bears further study is not just that women’s contributions to interior design have been devalued; while women’s contributions to many disciplines have been devalued in the past, most disciplines (including the field of architecture) are no longer dominated by a single gender, especially at the educational level. Why do so few men choose an interior design education? The review of literature and the discussion sections below suggest that, even when all interior architectural space was designed by men (prior to the 20th century), interior design did not have the status that building design did. Going one step further than
Turpin, perhaps the ultimate goal is not only to put the contributions of women back into interior design; it is to put interior design into a valued position within the field of architecture.

**REVIEW OF LITERATURE**

Gendered theory in architecture has a lineage that passes through many of the major thinkers in Western culture. “There is, however, a long history to this sexualization of space, recontextualized by and through the body of woman, and it stretches back at least to the time of Plato, when the metaphoric transference of feminine attributes to spatial concepts appears to have been firmly established.” (Boyer 1996, p. 99). Only slightly more recently, Vitruvius, a Roman theorist writing in the first century BC, “…famously promulgated a gender hierarchy for the orders, likening the Doric column to the upright body of a man, the Ionic column to that of a woman, the Corinthian to that of a maid or virgin.” (Jones 2002, p. 75) However, while both Plato and Vitruvius could be said to have perpetuated gender stereotyping, they seem to have valued rather than devalued feminine qualities. (McEwen 2003, p. 200)

Jumping forward in time, the seminal architectural theorist Alberti (1435) divided architecture into the “masculine” exterior of the building, representing intellect, and the “feminine” interior, representing emotion. (Ingraham 1998, p. 61) Alberti also wrote at length not only about architecture, but about the subservient role that women should take in the family and society. This thinking seemed to solidify over time as, in the 16th century rules of the monastic Carthusian Order: “…women are especially polluting, absolutely forbidding their entry into Charterhouses.” (Lindquist 2003, p. 178)

In the 17th century, Bernini and other architects carried on the gendering tradition of Vitruvius and continued to discuss the column orders in terms of differences between gendered bodies. (Forty 2000, p. 44) For a time in the 18th century “feminine” architecture did become popular: “The adjectives used to describe the rococo are feminine, or customarily associated with femininity.” (Park 1992, p. 32) Later, however, Blondel (active in 1752) saw things differently, as did many others. “Within Blondel’s scheme of criticism, masculine was unquestionably superior to feminine architecture.” “…Blondel assumed that masculine architecture was invariably superior to feminine…” (Forty 2000, p. 48-9)
In the early 19th century, the philosopher Hegel felt that a building’s exterior should be masculine, and Thomas Hardwicke carried on a tradition of attacking Rococo for its feminine qualities. (Forty 2000, p. 44-5) In America, Emerson argued that “only when American art became ‘masculine’ would it have proved its worth.” (Forty 2000, p. 51)

Twentieth century theorists began to call for the complete elimination of “feminine” ornament and the domination of “masculine” intellect. Carrying on the traditions of Alberti, for Adolph Loos “The naked wall becomes a symbol of the victory of logos over eros.” (Harries 1997, p. 41) Quoting Le Corbusier, “…mastery means the straight and rational lines of masculine geometry; the city’s disease and disorder are associated with the feminine and the curved.” (Hooper 2002, p. 65) Likewise, “When Le Corbusier approaches the city with the intention to cleanse and destroy, he is acting to conquer the destructive power associated with feminine disorder: its fluidity, indeterminacy, and amorphousness.” (Hooper 2002, p. 71) Furthermore, “…Le Corbusier is characterizing the new consciousness as essentially rational… and, like not only other modernists, but many who would sit themselves in a rationalist and idealist tradition, associates these mental disciplines with masculinity.” (Whitely 1997, p. 203).

In the present, things have changed and architectural systems no longer consist of gendered binary male/female pairs that represent good and bad. Rather than being inclusive, however, the new language of form, space and order eliminates femininity from discussion; Forty theorizes that in the new language, “Form’ as used by most modernists was male, a masculine ideal.” (2000, p. 58). “But even when people stopped referring to architecture as masculine or feminine, they still seem to have taken for granted the best architecture is always masculine.” (Forty 2000, p. 60).

**PROCESS**

The process of looking for hierarchies of importance (exteriors above interiors) as well as hierarchies of gender characteristics (masculine above feminine) in historical writings about a architectural theory hinges on whether that theory perpetuates gender stereotyping and uses gendered language to describe architecture and interior design. This examination of a gendered narrative in architecture uses a methodology similar to Turpin’s, which is based
on “...methods structured in feminist scholarship. According to DuBois et al. (1985), the most common methods by which an author reveals gender discrimination include (1) the omission of women from the narrative, (2) the different value assigned to women’s accomplishments as a result of being viewed under masculine criteria, (3) the perpetuation of gender stereotyping, and (4) the language by which the subjects are described.” (2001)

**DISCUSSION**

The review of literature has focused especially on the writings of scholars who have found ample evidence of gender issues throughout the history of architectural theory. What the discussion in this paper adds to that discourse is to bring those issues into the context of interior design education and career choice.

It seems clear that there is a history of gender stereotyping and hierarchically gendered language in architectural theory, which could contribute to at least three perceptions. First, that interior space is gendered as feminine, implying that anyone who designs interior space is feminine. Second, that interior space is not as important as building exteriors, so those who design interior space are not as important as those who design building exteriors. Third, that any aspect of architecture associated with stereotypical feminine traits such as ornament or sensuality is inferior to architecture that has masculine qualities such as intellect and form.

Discussing and offering alternatives to these perceptions is one way of changing them. “...to assume that designing flamboyant, aggressively tall buildings is an inherently male act and designing modestly scaled, sensually curved buildings an inherently female act is to delimit and stereotype both women and men to our mutual detriment.” (Weisman 1992, pp. 15-16) Additionally, care should be taken to discuss the gendering of tools and methods used within the profession (Nelson 2005) Finally, discussing the ways that modern architecture censors the female body can help remedy a traditional situation where “The female body is suppressed or excluded.” (Agrest 2000, p. 365).
SUMMARY

Since interiority and femininity have traditionally been linked together in architectural theory, the field of interior design may be perceived as feminine not just through current social custom, but through embedded architectural ideology. Additionally, the traditional placing of interior space at the bottom of a hierarchical system means that the designers of interior space have low status. Including discussions of these issues in the discourse of the field as well as in the education process (such as when studying a famous architect’s “gender embedded” buildings) could begin to lay the groundwork for a reformulation of architectural theory that detaches interior design and interiority from architectural hierarchies or gender-based metaphorical systems. This could in turn detach gender from educational and career choices as well.

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Quick Three-Dimensional Sketches: Educator and Practitioners’ Use, Personal Competency, and Perceptions of Interior Design Student Preparedness

Jill Pable

Abstract

PURPOSE & CONTEXT

Given that the design of interior space is largely a visual endeavor, creating graphic representations that approximate a design solution before the project is built are a necessary aspect of design practice. Despite sketches’ historic inclusion in practice and education activities, the specific character of sketching as it is currently used in interior design practice has not been thoroughly investigated. Consequently, it is difficult for design programs to know how to teach sketching or to lead design practice to better sketch application. It may be helpful, then, to explore how practitioners and educators perceive and use quick 3d sketching within design process and in their client presentations and teaching pedagogy.

METHODODOLOGY

A research study was undertaken to investigate the use and perceptions of quick 3d sketches by interior design practitioners and educators. The study used quantitative-style questionnaires distributed to these groups as well as interviews designed to enhance the questionnaire data with ‘thick’ qualitative description. A total of 104 (18%) educator questionnaires and 457 practitioner questionnaires (18%) were analyzed and eight practitioner and three educator interviews were conducted.

SUMMARY

Attitudes toward Quick 3D Sketches

Educators and practitioners were unified in their positive perceptions of quick 3d sketches as a component of the design process, and the majority of practitioners expressed belief that quick 3d sketches communicate early design ideas to clients sufficiently well that sketches should be used.

Use of Quick 3D Sketches

Both practitioner and educator respondents use and teach perspective-style quick sketches prevalently. Responses concerning the use of digital and hand techniques varied by criteria such as phase in the design process, experience level of the designer and practice
specialty area. Practitioners often produce quick sketches in group brainstorm sessions and may share such sketches with clients.

Educator and Practitioner Competencies in Sketch Production

Practitioners’ responses were mixed in their current satisfaction with their firms’ sketch use, and most practitioners would use quick sketches more if they were more comfortable producing them. More than two-thirds of practitioner respondents expressed dissatisfaction with sketch training in their own education. Despite widespread agreement that sketch competency is important for studio instructors, 50% of educator respondents stated that less than half of their studio instructors were ‘competent’.

Perceptions of Student Preparedness

Educators’ responses varied concerning their opinion of graduating students’ sketching abilities. One-third of respondents reported that their program’s recent graduates were neither prepared nor unprepared (neutral), moderately unprepared, or significantly unprepared to create sketch perspectives.

Notably, the majority of practitioner respondents disagreed that interior design education programs are improving in their ability to impart sketching skills to their students. Similarly, 44% of practitioners felt students had not received adequate preparation to create quick sketches. These findings echoed the study’s preponderance of practitioner free responses that voiced concern about graduating students’ ability to express their creativity quickly and effectively, and that students were losing the ability to spontaneously sketch solutions by hand. Most practitioner respondents felt that strong sketching skills would make a significant difference in their perception of a job interviewee.

REFERENCES

Quick Three-Dimensional Sketches: Educator and Practitioners’ Use, Personal Competency, and Perceptions of Interior Design Student Preparedness

PURPOSE & CONTEXT

Given that the design of interior space is largely a visual endeavor, creating graphic representations that approximate a design solution before the project is built are a necessary aspect of design practice. Axonometric and perspective graphics are generally regarded as the most realistic and the most daunting to produce. Despite sketches’ historic inclusion in practice and education activities, the specific character of sketching as it is currently used in interior design practice has not been thoroughly investigated. Consequently, it is difficult for design programs to know how to teach sketching or to lead design practice to better sketch application. It may be helpful, then, to explore how practitioners and educators perceive and use quick 3d sketching (as it will be called here) within design process and in their client presentations and teaching pedagogy. An inquiry might translate into these questions:

1. Do educators and practitioners perceive that quick 3d sketches are useful in solution ideation?
2. How are quick 3d sketches used by practitioners to reach design solutions and by educators in their curricula?
3. Are interior design practitioners and educators themselves proficient in creating quick 3d sketches?
4. Do practitioners and educators perceive that interior design students are adequately prepared to produce quick 3d sketches upon graduation?

REVIEW OF LITERATURE

Sketching serves a variety of important functions for the interior designer. Sketches act as a vehicle to communicate visual ideas about rooms or details to other design professionals or clients. The utility and speed of sketching is particularly advantageous, as many ideas can be tried out and retained or discarded without large time investments
or actual construction expense (Diekman & Pile, 1985). Sketches are also being used within presentations as the collaborative aspect of the design process expands to embrace clients (Pable, 2006). With the increased application of digital techniques, the method by which 3d sketches are produced may be changing (Leggitt, 2002).

METHODOLOGY

A research study was undertaken in 2006 to investigate the use and perceptions of quick 3d sketches by interior design practitioners and educators. The study used quantitative-style questionnaires distributed to these groups as well as interviews designed to enhance the questionnaire data with ‘thick’ qualitative description.

A 58-item questionnaire was distributed to 600 IDEC members to gather educator data. 104 questionnaires were received back yielding a 17% return rate. To triangulate this data, three educators were also interviewed concerning their attitudes toward quick 3d sketching.

Similarly, a 59-item practitioner questionnaire was distributed to 2600 professional members of the International Interior Design Association. 2500 of those queried were chosen with segmented random selection to solicit equally proportionate responses from practitioners engaged in the eight defined practice specialties of residential, retail, hospitality, facilities management, entertainment, corporate, institutional and healthcare (ASID, 2006). A total of 457 questionnaires were returned, yielding an 18% response rate. In order to triangulate these findings, eight practitioner interviews (one for each of the eight practice specialty areas) were also conducted. All interviewees were widely recognized in their specialty fields through leadership roles, were recipients of design awards, and/or were authors. All were active principal or partner designers within their firms located in San Diego, Chicago, New York, Jacksonville, Mobile, Minneapolis and Ottawa.

The questionnaire and interview questions were reviewed by multiple professionals for construct validity. To ensure equal understanding of the term ‘quick 3d sketches’, example drawings were provided to all respondents (see figure 1). Interview data were unitized and categorized, and common emergent themes were identified. Patterns and connections were repeatedly reorganized based upon review of the responses (Babbie, 1998).
Because previous research concerning designers’ drawing usage is sparse, a grounded theory approach was adopted that allows categories to emerge from the data rather than from theories developed by other researchers (Strauss & Corbin, 1990).

The interview’s qualitative data with a relatively small sample size (n=8) necessitates caution when generalizing to the design practitioner population at large. However, this component proved useful in its further triangulated illumination of questionnaire data.

**FINDINGS**

*Attitudes toward Quick 3D Sketches*

Educators and practitioners were unified in their positive perceptions of quick 3d sketches as a component of the design process, and practitioners (72%) and educators (91%) mildly or strongly believe that better design solutions result if quick 3d sketches are used. 83% of practitioners expressed belief that quick 3d sketches communicate early design ideas to clients sufficiently well that they should be used.

*Use of Quick 3D Sketches*

Both practitioner and educator respondents alike use and teach perspective-style quick sketches prevalently. Educators and practitioners use quick 3d sketches in the design process primarily after orthographic process drawings such as plans and elevations are underway.

Responses concerning the use of digital and hand techniques varied by criteria such as phase in the design process, experience level of the designer and practice specialty area.

- The majority of practitioners (71%) and educators (85%) prefer hand-drawn quick sketches over digital sketches in the concept development phase.
- The preference for hand drawn sketches in the design development phase statistically differed between practitioners with less than 20 years experience and those with more than 20 years, with more experienced practitioners preferring hand-drawn sketches (Chi Square x2 (2) = 15.01, p<.001. Cramer’s V= .19). A similar statistically significant effect was observed for hand versus digital preference in design development drawings between educators with full professorial rank versus assistant professor rank (Chi Square x2 (2) = 17.33,
p<.001. Cramer’s V = .56). This suggests that younger professionals are more open to the use of digital production than their more senior counterparts.

- For those practitioners who reported digital sketch production, AutoCAD (30%/132 responses) and Sketchup (28%/125 responses) were most often mentioned (respondents were permitted to report more than one software package).

- Hand and digital graphics may have implications for client perceptions, according to practitioner interviews.
  
  ▪ Preference for hand versus digital design process and presentation graphics may vary by design specialty. Corporate and facilities planning may embrace digital sketch methods earlier in the design process, as early precision is often preferred by clients. Retail, healthcare, residential, and entertainment practice may place more stock in the human experiential aspect and more frequently employ hand methods, though these drawings may be digitally assisted.
  
  ▪ Introducing digital drawings too early in the process may bring clients to the conclusion that the design is ‘all locked up’ with little chance of client revision. Some designers used digital drawings cautiously due to fear they are too specific.
  
  ▪ The current prevalence of digital drawings may cause a client to value a hand drawn sketch more highly because the designer took the time to create something ‘human’.

- Practitioners often produce quick sketches in group brainstorm sessions and may share such sketches with clients (see table 1).

*Educator and Practitioner Competencies in Sketch Production*

*Practitioners.* Practitioners’ responses were mixed in their current satisfaction with their firms’ sketch use, and most practitioners (74%) would use quick sketches more if they were more comfortable producing them. 69% of practitioner respondents expressed dissatisfaction with sketch training in their own education.

*Educators.* Two-thirds of educator respondents expressed a moderate to strong confidence in creating room and object perspectives themselves, and 73% reported using quick sketches to impart information to students. However, despite widespread agreement
that sketch competency is important for studio instructors, 50% of respondents with an opinion stated that less than half of their studio instructors were ‘competent’ (see table 2).

Perceptions of Student Preparedness

Educators. Educators’ responses varied concerning their opinion of graduating students’ sketching abilities. 54% reported dissatisfaction with their students’ integration of two and three-dimensional graphics within the design process, and 73% reported that their students must be actively prompted to produce quick 3d sketches. One-third of respondents reported that their program’s recent graduates were neither prepared nor unprepared (neutral), moderately unprepared, or significantly unprepared to create sketch perspectives.

Professionals. The majority (69%) of practitioner respondents disagreed that interior design education programs are improving in their ability to impart sketching skills to their students (see table 3). Similarly, 44% of practitioners felt students had not received adequate preparation to create quick sketches. These findings echoed the study’s preponderance of practitioner free responses in both the questionnaires and interviews that voiced concern about graduating students’ ability to express their creativity quickly and effectively. Further, practitioners expressed apprehension that students were overly oriented toward digital drawing production and were losing the ability to spontaneously sketch solutions by hand.

CONCLUSIONS

The study’s findings suggest that practitioners and educators are unified in their enthusiasm for quick 3d sketches as a design process tool and a client communication vehicle. Sketching serves as a practitioner tool for increasingly frequent group brainstorming, and this may not yet be fully explored within design curricula. Choice of hand or digital sketch media may be influenced by design specialty, phase in the design process, and by respondents’ number of years of experience. Both practitioners and educators voiced concern about the abilities of all groups (practitioners, educators and students) to produce quick 3d sketches. As 60% of practitioner respondents felt that strong sketching skills would make a significant difference in their perception of a job interviewee, a suitable pedagogical emphasis on quick 3d sketching may best serve students as they look toward graduation.

REFERENCES


For the purpose of this questionnaire, “quick 3D sketches” have the following characteristics.

- They are **rapidly produced drawings** (less than an hour) that depict how people experience interior space, like the following examples.

  ![A quick 3D sketch perspective](image1)

  ![A quick 3D sketch axonometric](image2)

  ![A quick 3D sketch detail](image3)

- They show an interior space or details that are **not yet constructed** (they are drawn from imagination)
- They are **loose and casual** and may assist in designing a space
- They may or may not be shown to a client or other people
- They may be first generation or second generation traced from the first, but they are not highly refined
- They may be in black and white or color

**NOTE:** For this questionnaire, quick 3D sketches do **NOT** include

1. **Plan views, sections and elevations** of interior spaces
2. Abstract process drawings like **bubble diagrams** and **block diagrams**

Figure 1. Text and graphics provided to all respondents to clarify the meaning of “quick 3D sketches”. Respondents were advised that digital-based sketches were also acceptable.
Table 1
Practitioners’ responses to circumstances of sketch production: sketches produced alone, during group brainstorm sessions, and with clients present (n = 457).

Table 2
Educators’ responses to the percentage of studio instructors at their institution they deem ‘competent’ in their personal quick 3d sketch abilities (n = 104).
Table 3
Practitioners’ responses when asked their agreement with the statement “Interior design education programs are doing a better job than they used to in training students to create quick 3d sketches” (n = 457).

<table>
<thead>
<tr>
<th>Degree of agreement</th>
<th>% of total responses</th>
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<tr>
<td>Strongly disagree</td>
<td>10</td>
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<tr>
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<td>20</td>
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<td>Mildly agree</td>
<td>10</td>
</tr>
<tr>
<td>Strongly agree</td>
<td>5</td>
</tr>
</tbody>
</table>

![Bar chart showing Practitioners' responses to the statement](chart.png)
Effect of Light Source and Direction on the Cognitive Performance of College Students with ADHD

Mitzi R. Perritt, Rhonda S. Calhoon, E.D. McCune, and Sandra L. McCune

Abstract

PURPOSE

As children become young adults, the myth of “outgrowing” Attention Deficit Hyperactivity Disorder (ADHD) often is disproved; adults are steadily diagnosed with ADHD. The inattentiveness ADHD children experience may follow them into college, the workforce, and their social lives (Attention Deficit Disorder Association, 2004; Matlen, 2005; & Strock, 2005).

In addition to physicians, architects and designers might play a role in helping the ADHD sufferer. For example, thoughtful research-based design can provide environments which facilitate academic performance. Research from the 1970s has suggested that lighting has an effect on the ADHD individual’s ability to maintain focus (Ott, 1976). Consequently, this study investigated the effect of light source and direction on the following three variables: a) accuracy and speed of cognitive performance and b) the number of off-task behaviors observed during a testing period.

METHODOLOGY

A purposive sample (Kerlinger, 1986) of 31 students with ADHD was secured through the campus Office of Disability Services. All respondents read eight randomly selected reading passages and answered comprehension questions. Testing occurred in four identical testing rooms, each outfitted with two lighting scenes which yielded a total of eight testing situations. Light sources selected for the study represented feasible options for educational or residential settings that complied with energy code: tube fluorescent in both direct and indirect housings (3500K), compact fluorescent (3500 K), full-spectrum fluorescent (5000 K), metal halide, low voltage, halogen, and standard incandescent. Each scene provided a light level of 30 footcandles, adequate for reading printed material (Illuminating Engineering Society of North America, 2000).
All testing rooms were identical in dimension and décor. Each room featured 36.75 square feet of space, 9-foot ceiling height, neutral light-value wall color, white acoustical ceiling tiles, subdued blue carpet, 2' x 4' laminate woodgrain table, and navy upholstered chair. “White” noise boxes masked office circulation and conversation. Respondents provided demographic data prior to testing. Cameras videotaped each test session providing data for test completion times and observed off-task behaviors. Reading test scores also were tallied.

SUMMARY OF RESULTS

Sample demographics included age, gender, ethnicity, college classification, and medication. Respondent ages ranged from 18 to 31 with 15 females and 16 males. Most respondents were white (90%). Seniors dominated the sample at 45% followed by freshmen at 23%. Most respondents (74%) elected not to take ADHD medications prior to testing.

An analysis of variance repeated measures design yielded useful results. Students produced higher test scores when reading by compact fluorescent and halogen sources. The longest times/attention spans occurred with fluorescent parabolic and halogen. The fewest off-task behaviors were observed under full-spectrum. However, this statistical finding may not be entirely positive. Even though halogen lighting produced the greatest number of behaviors, this result could be justified since students spent the longest times in the halogen setting which, in turn, produced the highest scores. All lighting mentioned above was delivered as direct (downward) lighting.

Research findings may assist design and healthcare professionals as well as educators and families in providing supportive learning and work environments for students coping with ADHD.

REFERENCES


Effect of Light Source and Direction on the Cognitive Performance of College Students with ADHD

STATEMENT OF PURPOSE

Life with Attention Deficit Hyperactivity Disorder (ADHD) is a complicated journey. Often the ADHD child is not professionally diagnosed until school age, and by then negative and inappropriate behaviors have been established. Additionally, many adults do not understand the inability of an ADHD child to conform to certain rules of behavior. For example, bright lights often distract the ADHD student. In fact, many students wear caps in the classroom to provide a shield against the “distracting” lights provided in school settings (R. Choate, personal communication, 2005). Unless drug and/or behavioral treatment begins early, the child undergoes unfair scrutiny for his uncontrollable behavior and inability to focus.

Drug therapy is the primary treatment for ADHD individuals. Stimulants and non-stimulant drugs are prescribed to treat symptoms and are often considered the panacea for controlling undesired behaviors. Unfortunately, drug treatment may produce troubling side effects such as insomnia, agitation, decreased appetite, irritability, anxiety, nausea, headaches, and heart conditions (ADHD News, 2006).

As a child becomes a young adult, the myth of “outgrowing” the disorder is often disproved; adults today are steadily diagnosed with ADHD. The problems ADHD children experience with inattention may follow them into college, the workforce, and their social lives (Attention Deficit Disorder Association, 2004; Matlen, 2005; Strock, 2005).

In addition to healthcare professionals, architects and designers might also assist ADHD sufferers. For example, thoughtful research-based design can provide environments which facilitate academic performance. Research from the 1970s suggested that fluorescent lighting produces an effect on the ADHD individual's ability to maintain focus (Ott, 1976). Certainly, any feasible manipulation of the environment
that enhances cognitive performance would be welcomed, especially by ADHD suffers who experience adverse side effects from drug therapy. Therefore, this study sought to advance the body of knowledge by investigating the effect of eight light sources and the direction of light output on three dependent variables: accuracy and speed of cognitive performance and number of off-task behaviors exhibited by persons with ADHD.

**REVIEW OF LITERATURE**

New information and theories have emerged in the ADHD community. Today an estimated 5-10% of children and 3-6% of adults have ADHD. Although boys are more likely to have ADHD than girls (National Institute of Mental Health, 2001), the Surgeon General (2002) stated that girls are less likely to be diagnosed. Additionally, it has been discovered that most ADHD individuals possess average to above average intelligence (Schwiebert, Sealander, & Dennison, 2002).

Treatment for ADHD varies among individuals. Often stimulant drugs are prescribed. Since drugs can produce undesirable side effects, Greenspan (2002) stated that drugs should be administered only after investigating all sources of environmental distractions such as sight, sound, smell, or surrounding activities. Clothing tags touching the body or bright lights may cause severe distraction. Depending on intensity, a color can also become stifling or energizing making concentration impossible (Cook, 2006). According to Nadeau (1995):

...individuals with attention deficit disorders are both drawn to and overwhelmed by a highly stimulated environment. If the individual is “understimulated,” he or she may become sleepy, tired, lethargic, or mildly depressed. If the individual feels “overstimulated,”

he or she may become overwhelmed and will “shut down.”

Fluorescent lighting has become the dominant light source in public spaces (Kuller & Laike, 1998; Kopec, 2006). Studies reported that fluorescent light will increase
hyperactivity, headaches, visual discomfort, and cognitive dysfunction; jeopardize central nervous system function (Kuller & Laike, 1998; Ott, 1985); and trigger epileptic seizures (Erba, 2006).

Therefore, with the increased number of ADHD diagnoses in contemporary society and the documented physiological problems produced by some light sources, further study is warranted. New energy-efficient light sources and those with improved color rendering now exist which may have potential for enhancing cognitive and behavioral performance in persons with ADHD.

**METHODOLOGY**

A purposive sample (Kerlinger, 1986) of 31 students with ADHD was secured through the campus Office of Disability Services. All respondents read eight randomly selected reading passages and answered comprehension questions. Testing occurred in four identical testing rooms, two being mirrored images of the others, and each was outfitted with two lighting scenes to produce a total of eight testing situations. Light sources selected for the study represented feasible options for educational or residential settings that complied with energy code: tube fluorescent in both direct and indirect housings (3500K), compact fluorescent (3500 K), full-spectrum fluorescent (5000 K), metal halide, low voltage, halogen, and standard incandescent. Table 1 summarizes the specifications of the lamps and luminaires. Each scene provided a light level of 30 footcandles, adequate for reading printed material (Illuminating Engineering Society of North America, 2000). Figure 1 presents photographic images of the eight lighting scenes.

Testing rooms were identical in dimension and décor. Each room featured 36.75 square feet of space, 9-foot ceiling height, neutral light-value wall color, white acoustical ceiling tiles, subdued blue carpet, 2’ x 4’ laminate woodgrain table, and navy upholstered chair. “White” noise boxes masked office circulation and conversation. Respondents provided demographic data prior to testing. Cameras videotaped each test session providing data for test completion times and observed off-task behaviors. Reading test scores were tallied.

**RESULTS**
Frequencies were computed for the sample of 31 ADHD students. Student ages ranged from 18 to 31 with 74.19% falling within the 19-23 year span. Gender was represented almost equally with 48% females and 52% males. The majority of respondents were white (90%). Seniors dominated the sample at 45% followed by freshmen at 23%. Most respondents (74%) elected not to take ADHD medications prior to testing.

The effect of light on the three dependent variables of reading scores, time, and behavior was investigated using an analysis of variance repeated measures design. Findings were considered significant at p< .05.

Analysis of reading scores yielded two significant findings. Means of scores produced under low voltage lighting differed significantly from means of scores produced under compact fluorescent (p=.0055) and halogen (p=.0441) lighting. It can be deduced that students performed more successfully when testing under compact fluorescent lighting (with a mean test score of 5.39 out of a possible 10 points) and halogen lighting (yielding a mean score of 5.23) than under low voltage lighting (having a mean score of 4.39); however, no significant difference was found between the mean scores of compact fluorescent and halogen lighting (p=.7120).

For the variable time, significant differences emerged between the means of four lighting pairs: fluorescent versus low voltage (p=.0080), fluorescent versus incandescent (p=.0196), low voltage versus halogen (p=.0063), and incandescent versus halogen (p=.0084). The shortest testing mean times were attributed to low voltage (8.76 minutes) and incandescent (9.19 minutes) versus the longest times for fluorescent parabolic (9.98 minutes) and halogen (10.04 minutes). However, working fast does not necessarily mean working accurately as evidenced in the lower test scores with low voltage lighting. Perhaps the longer testing times produced under halogen lighting can be attributed to better concentration and a longer attention span which, in turn, yielded higher test scores.

The final variable of off-task behaviors produced four significant comparisons between the off-task behavior means for the following scenes: full spectrum versus halogen (p=.0092), compact fluorescent versus halogen (p=.0427), metal halide versus halogen (p=.0191), and incandescent versus halogen (p=.0136). Light sources yielding the fewest off-task behaviors were full-spectrum, compact fluorescent, metal halide, and standard incandescent. Interestingly, students exhibited the greatest number of off-task behaviors under the halogen light source. However, it was the halogen source under which students
recorded the highest test scores and worked the longest length of time. Perhaps it is logical to assume that when students worked longer, their total of off-task behaviors naturally was higher than for students who did not work as long. One student commented that the halogen light was his favorite because it was “awakening” (i.e. stimulating). He added that when he is very alert, he moves more.

CONCLUSIONS

Study findings suggest two categories of light sources. Those offering the least benefit to ADHD student reading and comprehension were low voltage, metal halide, direct/indirect fluorescent, and standard incandescent. Sources promoting success were halogen and compact fluorescent (3500K). Perhaps fluorescent parabolic (3500 K) assisted in maintaining focus as it yielded the second longest testing time, if length of time equates with attention span.

Two additional conclusions address the direct/indirect fluorescent and full-spectrum lighting. The only source which did not emerge as significant in any of the analyses for score, time, or behavior was the direct/indirect fluorescent light. Only direct sources produced significant results. In addition, the light source producing the least number of off-task behaviors was full-spectrum, but its performance in test scores and testing time were not found to be significant. It is known that full-spectrum lighting, which is fluorescent lighting with a 5000-5500 Kelvin temperature similar to natural daylight, is used in the clinical treatment of depression resulting from the mood phenomenon known as Seasonal Affective Disorder (Verulix, 2006). In this study, it appeared to produce a calming effect on ADHD students. Therefore, the appropriate applications for full-spectrum lighting merit further study.
REFERENCES

Table 1.

*Specifications for Eight Lighting Scenes*

<table>
<thead>
<tr>
<th>Room</th>
<th>Lighting Scene</th>
<th>Specifications</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>1</td>
<td>Direct fluorescent lighting (existing) using a recessed 2’x 4’ parabolic luminaire with T8 triphosphor lamps (1 luminaire); 3500 Kelvin color temperature</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>Direct low-voltage lighting using a recessed HA3MR adjustable downlight with 3470C clear specular trim (2 luminaires)</td>
</tr>
<tr>
<td>B</td>
<td>1</td>
<td>Direct fluorescent lighting (“full spectrum”) using a recessed 2’x 4’ parabolic luminaire with GE SPX50 lamps; 5000 Kelvin color temperature</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>Direct compact fluorescent lighting using a recessed C7042E with 7600 LI trim (2 luminaires)</td>
</tr>
<tr>
<td>C</td>
<td>1</td>
<td>Direct metal halide lighting using a recessed MD6730 70-watt lamp with 6700 LI trim and ED17 ellipsoidal cone reflector (1 luminaire)</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>Task lighting with a portable table luminaire using a 60-watt incandescent lamp</td>
</tr>
<tr>
<td>D</td>
<td>1</td>
<td>Direct/indirect fluorescent lighting using a pendant four-foot housing APWP2T81C277AC48T1-4 with three T8 triphosphor lamps (1 luminaire); 3500 Kelvin color temperature to match the direct fluorescent so that only lighting direction is varied</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>Task lighting with a portable table luminaire using an HA 23165 halogen lamp</td>
</tr>
</tbody>
</table>
Typology of the Workplace: 
Form Follows Use and Social RealmPurpose

Roberto Rengel and Yu Fong Lin

Abstract

PURPOSE

The purpose of this research has been to conduct a typological study showing the correspondence of architectural form, use, and social climate as expressed in the planning of the modern American workplace. The study draws its material from published office projects starting in the early 1950’s, a period that represents the post WWII building boom and the beginning of the modern 20th century office. Its goals are twofold: one concerned with classifying basic office planning approaches as types, the other concerned with testing the potential of typological studies as a means to generate knowledge that addresses the fundamental essence of design: the generation of meaningful and responsive form.

Beyond the study of form this study incorporates criteria related to use and social dimensions in the workplace. Based on these goals three generative dimensions were identified as being directly observable via space plans: Levels of hierarchy or bureaucracy (McGregor, 1960; Tannenbaum & Schmidt, 1973; Argyris, 1962), the proportions of task versus relationship attributes (Hersey & Blanchard, 1969) referred to in the study as consideration, and the proportions of individual versus collaborative work settings (Duffy, 1997).

PROCESS

The sources for the office projects analyzed were the popular design journals Interiors and Interior Design. A systematic review of issues from January 1950 to December 2005 was conducted and copies made of all office projects of approximately 3,000 square feet or larger. The method of inquiry employed in this typological study has been formal analysis in the tradition of Laseau & Tice (1992), Clark & Pause (1985), and Baker (1989). This approach focuses on the observation of the finished artifact as its basis. It is not directly concerned with the intentions of the designer. Instead it focuses on what the final product presents. When comparing projects the focus is on typological rather than chronological relationships. The analysis itself relies heavily on the use of diagrams as an aid to understand and communicate the attributes under investigation.

The analysis of the office floor plans focused on identifying attributes related to the three generative dimensions: Hierarchy, Consideration, and Collaboration. Additionally, observations were made about the following six aspects of form: 1) parts and wholes, 2) circulation patterns, 3) location and arrangement of open and enclosed spaces, 4) geometry
of arrangements, 5) extent and location of public and private areas, and 6) the overall organizational scheme (parti) of the space.

SUMMARY

The three generative dimensions yielded 12 typological combinations. Within each of these 12 possibilities, however, there are considerable form variations as presented in the graphic examples. This first phase of research on workplace typology has suggested criteria and a methodology for using the workplace body of work to study the office as a place of both productivity and social interactions. As far as testing the technique of typological analysis for interior design projects, the initial indications are very favorable. Furthermore, the methodology shows promise of being capable of becoming the kind of scholarly pursuit that goes to the core of the essential design task of generating form in response to complex and sometimes conflicting requirements. (Francescato, 1994, p. 268)

REFERENCES

Typology of the Workplace: Form Follows Use and Social Realm

PURPOSE

The purpose of this research has been to conduct a typological study showing the correspondence of architectural form, use, and social climate as expressed in the planning of the modern American workplace. The study draws its material from published office projects starting in the early 1950’s, a period that represents the post WWII building boom and the beginning of the modern 20th century office. The office projects analyzed in this study span several important developments in work and management practices, office furniture offerings, and technology, all having significant effects on the way work is conducted and offices planned.

The specific topic in question is modern office design and the question of how the interior design profession can best utilize the immense body of documented work that is available as through published material. The body of work has been viewed as a whole, rather than as individual case studies, with the aim of identifying recurrent planning patterns in response to the needs of both office businesses and their employees. The significance of the study lies in the vast contributions this body of office design work can add to the profession’s body of knowledge in the area of office planning. Its goals are twofold: one concerned with classifying basic office planning approaches as types, the other concerned with testing the potential of typological studies as a means to generate knowledge that addresses the fundamental essence of design: the generation of meaningful and responsive form.

The use of typological studies in interior design, despite its great potential, remains largely unexplored. Much attention has been given in recent years to the new and innovative ways of working (Duffy, 1997; Becker, 1995; Zelinsky, 1998). Yet an attempt to systematically study the interior planning of the modern workplace as a whole has not occurred except for a brief chapter in a book about the development of modern high rise office buildings (Abalos & Herreros, 2003).
FRAMEWORK/LITERATURE

This study is limited to the American workplace from 1950 to 2005 and focuses on issues of organization and planning, not style. At the core of its framework are two central beliefs: The tremendous potential, a view shared by many, to enrich the profession’s body of knowledge through the study of precedent (Nesbitt, 1996; Colquhoun, 1967; Rapoport, 1990), and the need for a scholarship of design that includes methods based on constructs that are at the core of its endeavor (Francescato, 1994). This is what Muratori called instrumental scholarship (Muratori, 1959), conceived as a tool for the central task of design, the generation and development of form. As argued by Francescato, typological research gets close to design’s central concerns and is “pertinent to making architecture (praxis), thinking about architecture (theory), and knowing in architecture (research)” (Francescato, 1994, p.254) By architecture he referred also to the other environmental design fields, among them interior design.

This study uses typological analysis as its instrument to study the planning of the modern office interior. In so doing it seeks to go beyond a mere classificatory study of form in the workplace. Recent examples of typological studies include the work of Baker (1989), Clark & Pause (1985), Laseau & Tice (1992), and Schirmbeck (1985), among others. The focus has varied some but, by an large, has concentrated on the study of form with the aim of uncovering generative principles in the work studied. While the analysis of form in design is certainly a legitimate endeavor, it seems to fall short of its potential to generate knowledge. Some scholars have argued for the importance of going beyond form and into the social realm of inhabited space (King, 1994; Markus, 1994, Lawrence, 1994). Others have made a case for the inseparable relationship between form and use (de Quincy, 1825, Durand, 1801; Markus,1994; Francescato, 1994). Given that the topic in question is the workplace, the notion of use becomes associated with the idea of work and productivity, while the social realm is concerned with the social dimension of offices, that is, the way humans relate to each other in the process of producing work. Concerns for the use and social realities of the workplace required this study to look beyond the design disciplines and into the canonical works related to organizational behavior, management, and motivation in the workplace (Mayo, 1945; McGregor, 1960; Argyris, 1971; Herzberg, 1959; Likert, 1967; Blake & Mouton, 1964; Tannenbaum & Schmidt, 1957 and Hersey & Blanchard, 1969).
The various theories of management over the years seem to consistently point to two areas of concern referred to by various names but essentially related to the need to produce, on the one hand, and the need to be treat employees with consideration, on the other. Hersey and Blanchard use the terms task and relationship (Hersey & Blanchard, 1969). Related to these two areas of concern are also concerns for the balance between bureaucracy and democracy which started getting attention with the Hawthorne Studies (Mayo, 1945) and McGregor's Theory X/Theory Y studies (McGregor, 1960). In terms of addressing the impact of work processes on the office environment the work of Duffy (1997) has been by far the most influential.

Based on the criteria of use and social dimensions in the workplace three generative dimensions were initially identified as being directly observable via floor plans: Levels of hierarchy or bureaucracy (McGregor, 1960; Tannenbaum & Schmidt, 1973; Argyris, 1962), the proportions of task versus relationship attributes (Hersey & Blanchard) referred to in this study as consideration (Halpin, 1959), and the proportions of individual versus collaborative work settings (Duffy, 1997).

**PROCESS**

The sources for the office projects analyzed were the popular journals Interiors and Interior Design. A systematic review of issues from January 1950 to December 2005 was conducted and copies made of all office projects of approximately 3,000 square feet or larger. This yielded hundreds of projects to examine.

The method of inquiry employed in this typological study has been formal analysis in the tradition of Laseau & Tice (1992), Clark & Pause (1985), and Baker (1989). This approach focuses on the observation of the finished artifact as its basis. It is not directly concerned with the intentions of the designer. Instead it focuses on what the final product presents. When comparing projects the focus is on typological rather than chronological relationships. The analysis itself relies heavily on the use of diagrams as an aid to understand and communicate the attributes under investigation (Appendices 2.5). The analysis for this study was conducted by the principal investigator and an experienced graduate student and involved considerable debate and deliberation.
The observation of the office floor plans focused on identifying attributes related to the three generative dimensions identified above: Hierarchy, Consideration, and Collaboration. Additionally, observations were made about the following six aspects of form: 1) parts and wholes, 2) circulation patterns, 3) location and arrangement of open and enclosed spaces, 4) geometry of arrangements, 5) extent and location of public and private areas, and 6) the overall organizational scheme (parti) of the space (Appendices 2 – 5). Separate analytical diagrams were performed for each of the three generative dimensions and each of the six form aspects for each of the floor plans studied. Projects were then discussed and grouped taxonomically based on their similarities.

**FINDINGS**

The three generative dimensions yielded 12 typological combinations as seen in Appendix 1. Within each of these 12 possibilities, however, there are considerable form variations. This is congruent with Quantremere de Quincy’s distinction between a type and a model; a type meaning, not the image of a thing to be imitated, but the “idea of an element which ought itself to serve as a rule for the model.” (de Quincy, 1825). Thus, a type represents a principle, in our case composed of several attributes, which can be given physical form in many different ways.

The richness of the findings is best apprehended graphically as one sees many examples of different degrees of similarity/difference side by side and recognizes both the power of the generative ideas to produce predictable schemes, and, at the same time, the rich variety possible within each type.

Conclusions

This first phase of research on workplace typology has suggested a preliminary set of criteria for using workplace precedents to study the office as a place of both productivity and social interactions. Still ahead are the tasks of selecting iconic projects to represent each type and of describing in detail the many form variations possible within every type. As far as testing the technique of typological analysis for interior design projects, the initial indications are very favorable and seem open ended. In this case the study focused on organizational concerns of the workplace. In future cases the focus can be on other issues such as style and character.
So far the methodology shows promise of, in fact, being capable of becoming the kind of scholarly pursuit that Francescato envisions, one that goes to the core of the essential design task of generating form in response to complex and sometimes conflicting requirements. As he puts it “by evolving and enhancing a use-and-time centered scholarship…” designers can “come closer to fulfilling the vital social and cultural roles of architecture…so clearly at the core of the idea of type.” (Francescato, 1994, p. 268)

REFERENCES

Consideration

Hierarchy

High
Medium
Low

Low
High

Low
High

Collaboration

APPENDIX 1
Appendix 2  Typology of the Workspace

**Parts/Wholes**
Almost no repetitive parts

**Rigidity**
Loose and flowing
Reminiscent of office landscaping from the 60's

**Movement**
Loop around the core
Otherwise, free movement around workstations

**Public/Private**
Users seem to have access to space
Few barriers, separations

**Solids/Voids**
 Mostly open except one side

**Parti**

**SPECIFIC FORM**
Appendix 3  Typology of the Workspace

**Parts/Wholes**
- Repetitive offices and desks
- Unique public areas

**Movement**
- Double loop
- Public loop around core
- Private loop in front of perimeter offices

**Solids/Voids**
- Mostly enclosed offices at perimeter
- Core and conferencing solids in central zone
- Comfortable open loop in-between

**Rigidity**
- Rigid & formal arrangement

**Public/Private**
- Public has access to central area of reception & conferencing functions

**Hierarchy**
- Hierarchical organization
- Private offices occupy most of perimeter

**Collaboration**
- Evidence of consideration
- Low density open areas
- Inviting, spacious areas around core
- Some open space to outdoors

**Specific Form**
Appendix 4  Typology of the Workspace

**Parts/Wholes**
Composed of repetitive open furniture clusters Repetitive project and meeting areas

**Rigidity**
Rigid, rhythmic arrangement

**Movement**
Perimeter loop in front of project rooms Central linear spine

**Public/Privat**
Public meeting rooms adjacent to reception area up front Public does not penetrate deeply into space

**Solids/Voids**
Mostly open plan Perimeter project rooms have open fronts

**Parti**

SPECIFIC FORM
Exploring Transparent Security Design: 
End Users Evaluate Their Personal Security 
Within a County Courthouse Lobby

Smita Sahoo and Mary Joyce Hasell

Abstract

Purpose

This study assessed a public courthouse lobby in a midsize southeastern city that employed transparent or invisible security measures (U.S GSA, 2005). Invisible security measures, such as physical barriers, cameras or security guards, were out of sight. This study evaluated how invisible security affects the end users’ judgments of their personal security.

Methodology

Two crime-related theories—Routine Activity and Rational Choice (Clarke & Felson, 1993)—tell us that when low risk of detection or apprehension accompanies a suitable crime target, offenders are more likely to commit a crime. In line with these theories, the study hypothesis was that transparent security in a courthouse entrance and lobby can undermine legitimate users’ sense of security.

The study was conducted in three parts. The first part sought to determine the designers’ intentions in planning the courthouse entrance and lobby by reviewing the programming documents. The design firm confirmed that their design intentions and goals included recommendations outlined in the U.S. Court Design Guide (USCDG), the GSA’s Design Notebook for Federal Building Lobby Security, and Design Standards for U.S. Court Facilities.

Second, a pre-study was conducted of the lobby sequence that analyzed the physical building characteristics using the Morphological Analysis Guide (Doll, 1975). An evaluation of the social context using a Users Needs Analysis Guide followed (Author, 1999). Diagrammatic analyses illustrated how the physical design of the courthouse lobby was intertwined with the users’ social behaviors. Comparisons were made between these diagrams and the Clarke & Cornish (2003) Matrix of Situational Crime Prevention Opportunity-Reducing Techniques in order to identify the security techniques incorporated into the lobby design.

Third, an interview survey was conducted with 100 lobby users to assess their cognitive judgments about their safety in the courthouse lobby. Data were collected for two weeks during business hours. The intention was to determine users’ perceptions of their personal security as well as their cognitive judgments about the lobby design, its openness, friendliness, comfort, dullness, and so on.
SUMMARY OF RESULTS

The results of paired sample t-tests found that areas with invisible security (transparent security) negatively impacted the users’ sense of security and safety. Hence, we believe that the original design intent of creating a lobby that is both secure and friendly was not entirely achieved by the architecture firm. The study findings help to fill a knowledge gap by providing evidence about the affects transparent security design strategies have on end users’ cognitive judgments, while also contributing to the body of crime prevention literature as a whole.

REFERENCES


303
Exploring Transparent Security Design: End Users Evaluate Their Personal Security Within a County Courthouse Lobby

PURPOSE

U.S. courthouses are symbols of justice, authority and democracy. But ironically, they are also targets for a variety of risks ranging from external terrorist attacks to internal violence and crime (McMahon, 1978). Thus, it is important for designers to balance both safety and symbolism in courthouse designs in order to convey democracy, justice, security and friendliness to the public. Incidents such as the bombing at the Murrah Federal Building in Oklahoma City in 1995 and recent courthouse murders at Atlanta’s Fulton County Courthouse (Olipchant, 2005) make clear how important it is to protect the nation’s public buildings and those who use them.

In 2003, the GSA (General Services Administration) developed new Design Standards for U.S. Court Facilities. These design standards provided comprehensive programming and design criteria for United States Courts facilities and focused on “achieving transparent building security” like hidden cameras invisible to the untrained eye (Nadel, 2004). According to the US GSA (2005), security budgets now constitute a significant percentage in the total investments in buildings that include visible security measures like antiterrorism blast-resistant barriers as well as transparent security or invisible measures.

The purpose of this study was to evaluate a courthouse building completed in 2003 that employed the new Design Standards in the lobby sequence. Specifically, did the security strategies engaged by the designers affect the end users’ cognitive judgments about their personal security? Did the users feel more secure with visible security measures (security personnel and physical barriers) than they did with transparent security measures like hidden cameras? When the security measures were difficult to see, did the end users cognitively judge the built environments to be susceptible to violence and crime? Additionally, were built environments that were perceived to be secure also judged as open, friendly, and comfortable?
THEORY AND LITERATURE REVIEW

Two Situational Crime-related theories—Routine Activity and Rational Choice theories (Clarke & Felson, 1993)—argue that when low risk of detection or apprehension accompanies a suitable crime target, an offender is more likely to commit a crime. Empirical studies on ‘fear of crime’ suggest that user perceptions of personal security and safety are often affected by cues in the surrounding physical environment (Skogan, 1986; Nasar & Fisher, 1993; and Loewen, Steel & Suedfeld, 1993). Potential offenders and legitimate users alike judge their personal safety, security and vulnerability based on design features of their immediate surroundings. Clarke & Felson (1993) found that invisible security features and imperceptible guardianship may minimize offenders’ sense of risk, thereby inadvertently ‘encouraging’ crime. However, while Routine Activity and Rational Choice theories give us a partial understanding of how criminals perceive security measures, they do little to enhance our understanding of the average, or legitimate, user’s perceptions. In a perfect world, designers would prefer invisible security systems to unsightly barriers, and building owners would prefer technology to personnel. Nonetheless, based on Routine Activity and Rational Choice theories, the study hypothesis stated that transparent security can actually make users feel less secure and less safe than visible security measures such as physical barriers, visible cameras (CCTVs), or security guards.

METHODOLOGY

This three-part study was conducted at a County Courthouse of Criminal Justice (ACCCJ) in a mid-size southeast city (See Figures 1 & 2). First, the design intentions for this courthouse as stated in the Dana Larson Roubal (DLR) Group’s programming documents were reviewed and summarized. Orr & Wunderlin (2005) confirmed that these design intentions and goals included recommendations outlined in the U.S. Court Design Guide (USCDG), the GSA’s Design Notebook for Federal Building Lobby Security, and Design Standards for U.S. Court Facilities. Both transparent and visible measures were a major part of the security design strategy employed in the ACCCJ building and lobby.

Second, a pre-study was conducted of the lobby sequence that analyzed the physical building characteristics using the Morphological Analysis Guide (Doll & adapted by Author,
An evaluation of the social context using a Users Needs Analysis Guide (Author, 1999) followed. Diagrammatic analyses illustrated how the physical design of the courthouse lobby was intertwined with users’ social behaviors. Comparisons were made between the diagrams and the Clarke and Cornish (2003) Matrix of Situational Crime Prevention Opportunity-Reducing Techniques in order to identify the security techniques incorporated into the lobby design. Table 1 summarizes this comparison and is discussed later in the findings section.

Third, a survey interview was conducted with a convenience sample of 100 respondents who were the legitimate public users of the courthouse lobby. Data was collected for two weeks during business hours. The intention was to determine users’ perceptions of their personal security as well as their cognitive judgments about the lobby design, its openness, friendliness, comfort, dullness.

The survey included 14 questions and took 12 minutes to conduct. Participants were asked about the frequency of their visits to this courthouse. Next, they commented on the likelihood of a crime occurring to them in each of the 6 courthouse lobby spaces (including the outside entry plaza, reception area, the waiting area, rest room and elevator lobby and enclosed stairway). For clarity, there was a floor plan (Figure 3) and photographs of each lobby space available for participants to reference. The crimes ranged from having valuables snatched, being physically assaulted without a weapon, sexually harassed, and verbally abused or threatened. Also, respondents commented on the visible lobby screening station. A semantic differential scale determined respondents’ feelings about the openness, comfort, friendliness, dullness, and so on of the lobby. Finally, there were several demographic questions including age, gender and education level.

FINDINGS

The pre-study findings—parts one and two—that included both a Morphological Analysis and User Assessment, showed that many environmental and behavioral theories, situational crime prevention theories and classical design principles had been incorporated within the built environment of the courthouse. Safety in the lobby may be attributed to a combination of design characteristics, management practices and policies that incorporate principles of Situational Crime Prevention and Crime Prevention through Environmental
Design (CPTED). For example, 15 out of 25 Situational Crime Prevention opportunity-reducing techniques (about 60%) (See Table 1) were integrated into the lobby design. The highlighted cells indicate that a particular design technique was used in the lobby setting. To understand just one security technique see Figure 4, Diagram Demonstrating Typical Courthouse User’s Behavior in Waiting Lobby. This diagram shows how the designed physical elements give form to the categories Reduce Provocations 16 & 17 in Table 2. The building column spacing and sociofugal furniture arrangement help to create barriers between user groups and afford privacy and personal space.

In part three of the study, 70% of users’ responses (See Table 2) indicated that they felt it was unlikely that any of the listed crimes (especially crimes like strangers snatching valuables, physical abuse and sexual harassment) would take place in the reception or the waiting areas. In fact one of the users commented that, “even if some one does anything to me, he cannot get away from the security guards. So, I don’t think this could happen to me here.” All the 100 respondents were familiar with the zones A, B and C (Outside entry plaza, reception area and waiting area) however, about 64 were familiar with restrooms, 69 with the elevator lobby and only 20 respondents had used the enclosed staircase unit.

Of the six different zones (See Figure 3), zones B and C (reception area and waiting area) were perceived to be the safest followed by zone E (elevator lobby) and finally, the least safe areas were zones A, D and F (outside entry plaza, restroom and enclosed staircase). According to the pre-study analyses, zones B and C (reception area and waiting area) had the largest number of visible security elements followed by zone E (elevator lobby) that benefited from the near by security screening station. However, zones A, D and F (outside entry plaza, restroom and enclosed staircase) had no visible security elements or personnel.

The results of paired sample t-tests found that areas with invisible security (transparent security) negatively impacted the users’ sense of security and safety. Thus, this study supported the research hypothesis that transparent security may make some users feel less secure and less safe than conventional or visible security measures. It also found that, like offenders, legitimate users make judgments about personal security and vulnerability based on the physical cues within their surroundings.
DISCUSSION

Several empirical studies (Archea, 1985; LaVigne, 1997; and Nasar & Jones, 1997) examined how offenders make rational decisions before committing a crime based in part on environmental cues; however, there are no published studies on how legitimate users make judgments about their personal safety and security within courthouses. This study examined how legitimate users perceived safety and security in the entrance lobby of the county courthouse. The study findings indicated that the original design intention of creating a lobby that is both secure and friendly was not entirely achieved by the architectural firm. Additionally, these findings help to fill a knowledge gap about the affects transparent security design strategies have on end users’ cognitive judgments.

REFERENCES


Figure 1. Research Setting (Photographs (n.d.). Obtained February, 2005, from the County Courthouse)
Figure 2. Main entrance to the courthouse via front entry plaza (Photographs (n.d.). Obtained February, 2005, from the County Courthouse)
Figure 3. The diagram illustrates the six different zones of the entrance lobby under observation. (Map prepared by author)
Table 1. Matrix of 25 Situational Crime Prevention opportunity-reducing techniques

 Technique followed  □
 Technique not followed □

<table>
<thead>
<tr>
<th>Increasing perceived effort</th>
<th>Increasing perceived risks</th>
<th>Reducing anticipated rewards</th>
<th>Reduce provocations</th>
<th>Removing excuses</th>
</tr>
</thead>
<tbody>
<tr>
<td>2. Control access to facilities Different zones have barriers Entry is monitored</td>
<td>7. Assist natural surveillance Strategic location of screening station &amp; reception desk</td>
<td>12. Remove targets</td>
<td>17. Avoid disputes Sociofugal spaces avoids interaction</td>
<td>22. Post instructions Through signage</td>
</tr>
</tbody>
</table>

(Source: Adapted from Clarke and Cornish, 2003)
Figure 4. Diagram demonstrates a typical courtroom user’s behavior while waiting for the jury selection/trials in the waiting lobby. It also demonstrates the theory of sociofugal spaces, Proxemics, Social distance, Personal distance and Public distance in the waiting lobby (Freehand sketch by author)
Table 2. Percentages of the Responses about the Perceptions of Personal Security

<table>
<thead>
<tr>
<th>CRIME</th>
<th>Very likely</th>
<th>Somewhat</th>
<th>Not at all</th>
<th>Total response</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ZONE A</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Outside entry plaza</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 Snatching valuables</td>
<td>18%</td>
<td>36%</td>
<td>46%</td>
<td>100%</td>
</tr>
<tr>
<td>2 Physically hurting</td>
<td>16%</td>
<td>30%</td>
<td>54%</td>
<td>100%</td>
</tr>
<tr>
<td>3 Sexually abusing</td>
<td>23%</td>
<td>34%</td>
<td>43%</td>
<td>100%</td>
</tr>
<tr>
<td>4 Verbally abusing</td>
<td>39%</td>
<td>34%</td>
<td>27%</td>
<td>100%</td>
</tr>
<tr>
<td><strong>ZONE B</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reception area</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 Snatching valuables</td>
<td>3%</td>
<td>10%</td>
<td>87%</td>
<td>100%</td>
</tr>
<tr>
<td>2 Physically hurting</td>
<td>3%</td>
<td>8%</td>
<td>89%</td>
<td>100%</td>
</tr>
<tr>
<td>3 Sexually abusing</td>
<td>7%</td>
<td>14%</td>
<td>79%</td>
<td>100%</td>
</tr>
<tr>
<td>4 Verbally abusing</td>
<td>15%</td>
<td>29%</td>
<td>56%</td>
<td>100%</td>
</tr>
<tr>
<td><strong>ZONE C</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Waiting area</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 Snatching valuables</td>
<td>4%</td>
<td>19%</td>
<td>76%</td>
<td>99%</td>
</tr>
<tr>
<td>2 Physically hurting</td>
<td>4%</td>
<td>13%</td>
<td>82%</td>
<td>99%</td>
</tr>
<tr>
<td>3 Sexually abusing</td>
<td>8%</td>
<td>17%</td>
<td>74%</td>
<td>99%</td>
</tr>
<tr>
<td>4 Verbally abusing</td>
<td>17%</td>
<td>33%</td>
<td>49%</td>
<td>99%</td>
</tr>
<tr>
<td><strong>ZONE D</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Restroom area</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 Snatching valuables</td>
<td>16%</td>
<td>25%</td>
<td>23%</td>
<td>64%</td>
</tr>
<tr>
<td>2 Physically hurting</td>
<td>16%</td>
<td>22%</td>
<td>26%</td>
<td>64%</td>
</tr>
<tr>
<td>3 Sexually abusing</td>
<td>17%</td>
<td>18%</td>
<td>29%</td>
<td>64%</td>
</tr>
<tr>
<td>4 Verbally abusing</td>
<td>20%</td>
<td>25%</td>
<td>19%</td>
<td>64%</td>
</tr>
<tr>
<td><strong>ZONE E</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Elevator Lobby</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 Snatching valuables</td>
<td>7%</td>
<td>22%</td>
<td>40%</td>
<td>69%</td>
</tr>
<tr>
<td>2 Physically hurting</td>
<td>5%</td>
<td>21%</td>
<td>43%</td>
<td>69%</td>
</tr>
<tr>
<td>3 Sexually abusing</td>
<td>7%</td>
<td>24%</td>
<td>38%</td>
<td>69%</td>
</tr>
<tr>
<td>4 Verbally abusing</td>
<td>11%</td>
<td>34%</td>
<td>24%</td>
<td>69%</td>
</tr>
<tr>
<td><strong>ZONE F</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Staircase Block</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 Snatching valuables</td>
<td>6%</td>
<td>7%</td>
<td>7%</td>
<td>20%</td>
</tr>
<tr>
<td>2 Physically hurting</td>
<td>6%</td>
<td>6%</td>
<td>8%</td>
<td>20%</td>
</tr>
<tr>
<td>3 Sexually abusing</td>
<td>5%</td>
<td>8%</td>
<td>7%</td>
<td>20%</td>
</tr>
<tr>
<td>4 Verbally abusing</td>
<td>6%</td>
<td>9%</td>
<td>5%</td>
<td>20%</td>
</tr>
</tbody>
</table>
The Poché: The Intersection Between Ethics and Design

Randy Stauffer

Abstract

PURPOSE

Poché commonly refers to the dark fill of space between the interior and exterior surfaces of a wall. Louis Kahn poetically transformed this familiar notion of the poché into the intriguing potential of occupiable pockets of space. This paper analyzes how Kahn’s use of the poché in the First Unitarian Church develops interior space that fosters dialogue between the poetic understanding of the individual and the ethical development of a community. Kahn’s physical attributes of the poché are understood as ambiguous spatial edges related to the marginal relationships in a community. Jürgen Habermas’s idea of communicative action becomes an ethical construction that shows how these spaces can house discourse that mediates the two.

CONTEXT: HABERMAS, KAHN AND COMMUNICATIVE ACTION

Habermas’s Communicative Action

For Jürgen Habermas (2005, p.100) communicative action “designates social interactions where language use aimed at reaching mutual understanding plays the role of action coordination.” In other words, communicative action informs discursive practices that resolve differences between individuals and their communities as well as those outside the community. The space of the poché, understood as communicative action, fosters dialogue that coalesces emergent voices into a community of consensus.

Kahn’s Use of Hierarchical Blurring

In Kahn’s First Unitarian Church, the poché allows for varying degrees of individual and community interaction. Kahn created interior spaces that addressed the needs of those inside as well as outside of the community. This idea, as Sara Williams Goldhagen (2001, p. 141) explains, reflected “the convictions of the Rochester Unitarians by articulating various levels of communal involvement governed by the principle of free choice.” The poché and its organization at times reinforces a strong spatial hierarchy, and at other times dissolves this hierarchy. Individual identity, discussion among groups separate from the community’s normative discourse, and transformations of community identity emerge out of non-normative discourse through hierarchical blurring, engendering an evolving dialogue between individuals and the community.
Sites of Intersection and Discourse

The sites of intersection between Habermas’s and Kahn’s ideas are best viewed through three interdependent lenses: the social, experiential, and tectonic. The social, expressed through institutional language, reveals the discourse of authority. The experiential, informed by memory and sense, reveals the discourse of individuals. The tectonic, grounded in building, reveals statements of truth regarding physical laws and materiality. The interdependence of these three perspectives fosters slippage between hierarchical structures, both social and spatial.

SUMMARY

Interior design relies on integrating social structures into physical form in order to respond to the needs of a given institution. Social structures rely on social justice to create ethical and just institutions. Through the Habermasian filter of communicative action it is possible to see how Kahn’s use of the poché poetically transforms a tectonic space of static structure into a space of fluid networks, an experiential space of weight and opacity into a void of light and memory, and a social space of absence into an incubator of social interaction where poetic language emerges into ethical community practices.

REFERENCES

The Poché: The Intersection Between Ethics and Design

PURPOSE

This project explores a particular spatial condition -- the poché -- as a uniquely interior condition housing social opportunities for integration of the individual with the community as well as the poetic with the ethical. The concept of the poché is expanded beyond Kahn’s notion of space turned over to the service of a building. Though Kahn focuses on the poché as a space for building systems and a mediator of light, this paper proposes to further expand the potential of these spaces to enhance the programmatic and experiential issues in interior spaces and the communities they house; specifically the programmatic need for dialogue and negotiation.

Inhabiting these pockets of space is further informed by Jürgen Habermas’s idea of communicative action. Through this process communities integrate the discourse occurring in the group, among individual participants, as well as among those outside its collective institutional boundaries. Communicative action mediates between the voice of the institution’s collective center, its margins, and external ideas.

An analysis of Kahn’s intent of creating interstitial space at the First Unitarian Church (see figures 1, 2, 3, and 4), demonstrates how this makes Habermas’s ideas applicable. The Unitarian-Universalist Association (UUA) is appropriate to this analysis as a community because of their institutional belief in non-hierarchical affirmation of knowledge and belief (Buehrens, Church, 1998). 216

FRAMEWORK

Kahn developed a simple sketch illustrating his strategy for bringing light into the interior of a building and circulating services through a building (see figure 5). This plan of a hatched wall had the word “Inside” on one side of the wall and “Outside” on the other (Brownlee, De Long, 1991). He developed three additional sketches that slowly eliminated the hatching or poché. This would evolve into Kahn’s use of the hollow structure as a mediator of light (see figure 6 and 7) and a space for building services (Frampton, 1996). Though the elimination of the solid poché served those two main purposes for Kahn, it is
possible to see how the poché can also become a space that serves the community through individual interaction outside of the main served spaces.

Kahn’s notion of Form relies on the belief that all spaces are the realization of “the unmeasurable aspects of our existence… Such things as thought, feeling, realization are all unmeasurable.” (Latour, 1991, pp. 103) In Kahn’s writings he employs poetic contradictions. However, in the poetic language it is possible to understand that Form for Kahn was less about the physical attributes of space, the formulas of the program, or the technical explanations of construction, as individual components, and more an embodiment of all coincidentally. Form is “realization that stems from the transcendence of our own feelings into the feeling of ourselves as others, and it actually represents the fact of feeling itself.” (Latour, 1991, pp. 103) The First Unitarian Church houses both a place of meeting and places of learning. Unitarian institutional structure relies on dialogue in both areas as well as dialogue in non-authorized spaces.

Jürgen Habermas’s theory of communicative action is applied to understand how the space of the poché fosters dialogue that coalesces emergent voices into a community of consensus. For Habermas, communicative action “designates social interactions where language use aimed at reaching mutual understanding plays the role of action coordination.” (Habermas 2005, pp 100) In other words, communicative action informs discursive practices that resolve differences between individuals and their communities as well as those outside the community.

The First Unitarian Church in Rochester, New York provides an example of how the ideas of Habermas and forms of Kahn intersect. In Kahn’s First Unitarian Church, the poché allows for varying degrees of individual and community interaction. Kahn created interior spaces that addressed the needs of those inside as well as outside of the community. This idea, as Sara Williams Goldhagen (2001, p. 141) explains, reflected “the convictions of the Rochester Unitarians by articulating various levels of communal involvement governed by the principle of free choice.” UUA is “dedicated to ‘a free and responsible search for truth and meaning’ and the ‘inherent worth and dignity of every person’. They were formed out of belief in the opposition to a strong hierarchical structure to religion doctrines; Universalists never adopted a creed.” (Green, 2003) UUA embodies the social implications of the poché and its organization and how it can be seen both as reinforcing a strong spatial hierarchy as well as dissolving this hierarchy. Individual identity, discussion among groups
separate from the community’s normative discourse, and transformations of community identity emerge out of non-normative discourse through hierarchical blurring, engendering an evolving dialogue between individuals and the community.

The sites of intersection between Habermas’s and Kahn’s ideas are best viewed through three interdependent lenses: the social, experiential, and tectonic. The social, expressed through institutional language, reveals the discourse of authority. The experiential, informed by memory and sense, reveals the discourse of individuals. The tectonic, grounded in building, reveals statements of truth regarding physical laws and materiality. These three perspectives provide different frameworks by which the poché poetically and ethically fosters slippage between hierarchical structures, both social and spatial.

**REVIEW OF LITERATURE**

Four main bodies of literature are reviewed for this project. The first looks at the writings of Louis Kahn to further explore his ideas of the form, design and space. His writing provides insight into his use of the poché as the mediator of light and space of building services.

Additional literature on Kahn focuses specifically on documentation of the first Unitarian Church in Rochester, New York. It explains earlier versions of the church design as well as the final design (see figures 8, 9, and 10). The transformation of design illustrates Kahn’s process of more clearly understanding the UUA principles. From this body of work ideas on the experiential, social and tectonic aspects of the design will emerge.

The literature on Habermas revolves around his ideas on Communicative Action. In addition Habermas has been seen as a current philosopher who embraces the “unfinished project” of modernism. This is particularly relevant to the possibilities that interior design has for engendering space with social justice. The “unfinished project” of modernism will be explored from two perspectives: his own writings and the interpretation of his writings by contemporary critics (Best, Kellner 1991).

The last area of review is found in the writings of the UUA. In order to explore how the social conditions of a particular community engendered the spaces they inhabit, it is important to understand the writings that make up the social structure of the UUA.
METHODOLOGY

The methodology for this project relies on an analysis of the First Unitarian Church in Rochester New York viewed through the lens of Jürgen Habermas’s ideas on communicative action. Interior space embodies the desires of the communities and individuals they house. Understanding the design process that leads up to the realization of a project can inform future development of interior spaces to reflect more coherently the needs of the community. Through an historical understanding of Kahn’s design, it is possible to see how the project has become a living program for the First Unitarian Community.

My project employs Habermas’s ideas to further clarify that all interior spaces rely on providing avenues for communities and individuals to interact and evolve. Habermas (2005) is specifically interested in the ethical ideas of communities and individuals as understood through the intersection of theory and practice. A focus on three lenses of interior design – experiential, social, and tectonic – provides interaction between the theoretical and the physical. His work continues the modernist project by eliminating “this sharp delineation, this exclusive concentration on one aspect of validity alone and the exclusion of aspects of truth and justice, (which) breaks down as soon as aesthetic experience is drawn into an individual life history and is absorbed in ordinary life.” (Foster, 1983, p. 12)

Conclusion

The joining of the aesthetic and physical, theory and practice, and the phenomenological and analytical, provides an understanding of how Kahn’s poché and Habermas’s communicative action reify the Unitarian ideas in the design and use of the First Unitarian Church. The analysis leads to a clearer understanding of how organization of space can reinforce the desires of a particular community and its members and physically embody their ideas and beliefs.

SUMMARY

Interior design relies on transforming social structures into physical form in order to respond to the community and individual needs of a given institution. Social structures rely on social justice to create ethical and just institutions. Through the filter of Habermasian
communicative action it is possible to see how Kahn’s use of the poché poetically transforms a tectonic space of static structure into a space of fluid networks, an experiential space of weight and opacity into a void of shadow and memory, and a social space of absence into an incubator of social interaction where poetic language emerges into ethical community practices.

REFERENCES


FIGURES

Figure 1. Exterior view of First Unitarian Church by Louis Kahn

Figure 2. Entrance to First Unitarian Church
Figure 3. Section and plan of First Unitarian Church

Figure 4. Interior of First Unitarian Church meeting space
Figure 5. Kahn’s sketch of wall plan removing the poché

Figure 6. Sketch of hollowed out structure to mediate light
Figure 7. Light study sketch of First Unitarian Church

Figure 8. Sketch showing development of design for First Unitarian Church
Figure 9. Intermediate sketch of design development

Figure 10. One of the final sketches of the design development
Student Experience In An
Online Interior Design Studio

Hans-Peter Wachter

Abstract

PURPOSE

In the early 1990’s, schools of architecture experimented in various forms with online design studios. Publications on this topic are usually investigating collaborative efforts between design schools. Participants in this study will share their experience in designing and communicating in an online design studio where the objectives are taught online and feedback and design critique is given online. Their attitude towards technology, technical preparation, and the specifics to computer based communication will be discussed. (Schön, 1987) argued that design cannot be taught but is learnable. The tool or strategy that will achieve this goal for a teacher is the use of a practicum. The platform for the design practicum under investigation is the web based classroom management system “Desire2Learn”.

METHOD

Participants, through sharing their experiences in taking an online design studio the first time, will help to understand teaching online design studios. Without understanding the essence of experience that students have in an online course, it is difficult to design the format effectively given that we do not have a long history of online taught design courses. Investigating web based teaching opens an opportunity to contribute to the general study topic of online design courses.

Interviews deliver the information that can help to develop a pedagogy tailored towards online design studios. The interview transcripts and fieldnotes have been assessed for patterns and trends in the responses. The result will be a larger, more complex understanding of first time participation in an online interior design studio.

RESULTS

The decision of taking an online design course is often based on the assumption that taking the course online will leave more time for the student to participate in extra curriculum activities or to schedule more time for a job. The majority of participants experienced a high level of anxiety. They experienced that the physical absence of an instructor requires a vast amount of self discipline, self motivation and organizational skills, far beyond the experience they had in a traditional classroom setting. Participants stated, that for the first time they experienced the value of effective communication and the need to structure communication in order to improve outcome in a design project.
REFERENCES


Group Affiliations and Good Vibrations. *Organizational Behavior and Human Decision Processes*(77(1)), 22-43.


Student Experience In An Online Interior Design Studio

PURPOSE

In the early 1990's, schools of architecture experimented in various forms with online design studios. Two types of communication systems, synchronous and asynchronous, are employed in online teaching. First, synchronous communication is a real-time interaction of geographically distributed participants. (Appendix :visual one) Second, asynchronous communication, is a delayed time interaction between the participants in which information is exchanged. (Appendix:visual two) Participants in this study will share their experience in designing and communicating in an online design studio. Their attitude towards technology, technical preparation, and the specifics to computer based communication will facilitate or hinder communication in the virtual learning environment. (VLE)

LITERATURE REVIEW

(Schön, 1987) argued that design cannot be taught but is learnable. The tool or strategy that will achieve this goal for a teacher is the use of a practicum. Learners in a practicum will constantly reframe the problem by detecting new consequences and implications, feedback, and response to such feedback. How is this reflective conversation initiated? Is the intervention of the instructor during reflection-in-action necessary for learning designing or can reflective conversation rely on self-motivation and self-recognition of the problem in a VLE?

Learning style theory suggests that learners have very unique styles of processing information (Dunn, 1978; Kolb. D.A. & Fry, 1975) Information is processed depending on their cognitive preferences and learners will engage in a problem solving process encircling processing information, training in support of development and thus accepting new information. (Kolarevic Branco, 1999) notes that preferences of participants for synchronous or asynchronous media relates to their personal work style. Upbringing in a western culture or eastern culture will exhibit a different expression in work styles as well. More introverted participants or those prone to silent reflection, will only poorly utilize synchronous technologies. Comfort of participants plays an important role in getting ready
for the online course. (Conrad, 2002) (Thomas Kvan, 2000) describes in a study about design collaboration strategies between the University of Hong Kong and the Harvard School of Architecture, that textual communication plays an important role in collaborative design problem solving by encouraging divergent thinking and exploration of ideas.

RESEARCH FRAMEWORK

Participants, through sharing their experiences in taking an online design studio the first time, will help to understand teaching online design studios. Interviews deliver the information that can help to develop a pedagogy tailored for online design studios. The interview transcripts and fieldnotes have been assessed for patterns and trends in the responses. The result will be a larger, more complex understanding of first time participation in an interior design studio. The focus in data interpretation will be what terminology students will use and how they will relate to the research question.

findings are organized in two sections:
  a) descriptive interview conversation and related events
  b) personal reflections and interpretations of the interviews
>Table one, coding<
>Table two, meaning units<

FINDINGS

1. effort

The decision of taking an online design course is often based on the assumption that taking the course online will leave more time for the student to participate in extra curriculum activities or to schedule more time for a job.

Participants felt that the instructor did not exhibit as much effort into the course “follow through” as they had experienced in face-to-face design courses. It can also be assumed that, similar to a face-to-face course, the success of an online design studio depends in large part on the instructors input and dedication.

2. motivation and structure

The majority of participants experienced a high level of anxiety. They experienced that the physical absence of an instructor requires a vast amount of self discipline, self motivation and organizational skills, far beyond the experience they had in a traditional
classroom setting. All participants claimed that the absence of an instructor increased their procrastination level and therefore the increased level of anxiety they experienced.

3. communication

Participants stated, that for the first time they experienced the value of effective communication and the need to structure communication in order to improve outcome in a design project. All experiences a high level of frustration not to get an answer right away because of the asynchronous format of the course. For some these experiences raised serious questions and consequences such as dropping the course or understand ones own deficits in order to improve them.

GENERAL CONCLUSION

Without understanding the essence of experience that students have in an online course, it is difficult to design the format effectively given that we do not have a long history of online taught design courses. Investigating web based teaching opens an opportunity to contribute to the general study topic of online design courses. Although the literature provides information on a variety of aspects in structuring and managing online classes, this study has an opportunity to start a discussion on how to design an online design studio more effectively to provide cognitive development, discussion on what contributes to a positive experience in an online design studio and how can an understanding of student experiences in an online design studio contribute to a better course design. The outcome can be a better pedagogy for online teaching or lead us into a discussion how studios need the component of the physical presence of an instructor to be a successful learning experience.

REFERENCES


**Appendix Visuals**

Visual one

![Visual one](image1)

Visual two

![Visual two](image2)
Table 1
A: online I just assume that I do the right thing.
There is just too much time between me
designing or deciding on a solution and some
feedback from the instructor. There is always
the option to throw that question into the
forum and ask your peers about something but
then you don’t know if you get the right answer
and usually you get a lot of different answers
and you get confused.

<table>
<thead>
<tr>
<th>DEC</th>
<th>yellow</th>
</tr>
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<tbody>
<tr>
<td>COM</td>
<td>green</td>
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<tr>
<td>COM</td>
<td>blue</td>
</tr>
<tr>
<td>COM</td>
<td>green</td>
</tr>
<tr>
<td>STRESS</td>
<td>blue</td>
</tr>
<tr>
<td>DEC</td>
<td>green</td>
</tr>
</tbody>
</table>

Table 2

<table>
<thead>
<tr>
<th>meaning unit</th>
<th>theme</th>
</tr>
</thead>
<tbody>
<tr>
<td>P will never forget how angry and frustrated she was after writing a number of emails and getting no response from her instructor, trying to clarify requirements for the construction documentation.</td>
<td>P recalls the moment when she was confronted with the limitations of controlling communication in an online design studio. The awareness that she cannot force an answer in an online environment as she could have in a face-to-face situation created a negative experience related to online learning for her.</td>
</tr>
</tbody>
</table>
P knew she had to make a decision. She thought she was in control and she thought she must make a decision if she wanted to deal with the lack of feedback. It was either to move on or to drop the course.

P thought she was in control and knew she needed to make a decision to either withdraw from the course or to face what lies ahead. She decided to think positive and to face the obstacles.
Participation as Learning-by-Doing in Habitat for Humanity

Yun Zhu

Abstract

PURPOSE

This paper examines the effects of participation in the construction and design process on human and social resources in a Habitat for Humanity (Habitat) context. Habitat for Humanity offers decent, safe, and affordable low-income housing by organizing local resources and users’ participation in the construction of their own houses, as well as the construction of other families’ houses. Families also have limited choices in design selections, such as location, exterior and interior colors and/or materials. The participation in construction and design is a part of the sweat equity process in Habitat. Finn (1994) studied the sweat equity phenomenon as an empowerment experience. She found that construction as well as the design process had positive impacts on families. In a mass-housing study, Reis (2000) found that families preferred participation before moving into their houses. However, research is insufficient to address both qualitative and quantitative aspects of participation. Without scientific support, Habitat defines sweat equity differently among local affiliates. Some local Habitat affiliates do not include design participation as a part of the sweat equity. If design participation is included, the time spent on design participation is only a fraction of the total hours a family contributes to other activities. Habitat is also challenged to provide more exterior and interior design choices.

According to Dewey’s (1913) learning-by-doing theory, participation, or the doing process, involves learning experiences, which leads to personal growth. It was hypothesized that participation in the construction and design process contributed to the human and social resource development. The research contributes to a better understanding of the roles of the sweat equity and helps local offices improve the sweat equity process. It also contributes to house design and planning strategies for low- and very low-income families.

METHODOLOGY

The case study was conducted in three Habitat affiliates located in three cities in the Southern Region of the US. Convenience sampling and volunteerism generated 49 responses. A self-administered survey was used to measure the quantitative measures of sweat equity and human and social resources. An interview questionnaire was used to measure the meanings of participation. The independent variables were the number of activities in relation to construction and design of families’ houses. The dependent variables were the human and social resource development families gained through sweat equity. Multivariate analyses were applied to examine the relationship between participation and
human and social resource development, and context analyses addressed the qualitative characteristic of sweat equity.

SUMMARY OF RESULTS

The study found significant evidence that participation in the construction process increases families’ attachment pride, and self-responsibility to the house, and satisfaction to the house, house design, and design participation, and the frequency of maintenance. Design participation, however, had negative impacts on attachment and satisfaction, but the content analyses showed that families supported design participation and provided ideas for design improvement. Since design participation in Habitat was very limited, further studies need to address the learning cycle in the design participation.

REFERENCES

Participation as Learning-by-Doing in Habitat for Humanity

STATEMENT OF PURPOSE

This paper addresses the effects of homeowners’ participation in the construction and design process on human and social resources in a Habitat for Humanity (Habitat) context. Habitat is a self-help housing organization for low- and very low-income families. Habitat families contribute hundreds of sweat equity hours to the construction of the exterior and interior of their own houses as well as other families’ houses. Habitat families have limited choices for the location, exteriors and/or interiors design of their houses. But these design-related activities vary in range and intensity, and they are not defined as sweat equity by Habitat. The effects of participation in the construction and design process had not been empirically examined in Habitat. Inspired by Dewey (1913)’s learning-by-doing theory, this study provided a better understanding of the sweat equity process and contributed to interior and exterior design as well as planning strategies in Habitat. The findings benefit not only local Habitat families but also non-profit low-income housing programs statewide, nationwide, and worldwide.

THEORY

Participation refers to the doing process through which stakeholders influence and share control over development initiatives and the decisions and resources which affect them (World Bank, 2002). Dewey (1939) believed that the doing experiences contain the learning process when the experiences result in personal growth. The achievement of personal growth comes not only from the experience but also the meaning constructed from it (Miettinen, 2000). Dewey claims that learning experiences “cover all the doings that involve growth of power—especially of power to realize the meaning of what is done” (1913, p. 66). Interacting with one’s physical or social environment is necessary in order to acquire new skills and knowledge (Roth, 1962). Once new skills are learned, they become a part of human and social resources. In accordance with this school of thought, Rodgers (2002) distinguished routine actions from educative actions, depending on whether or not one realizes the meanings of the action. Participation in the construction or design process in Habitat is a learning process if the activities increase human and social resources. Gifford
(2002) built an informal learning model to reflect learning experiences in the physical settings, but only pictured learning as an outcome. In his model for cognitive and behavioral cycles in a physical community, he excluded the active roles of learning.

According to Deweyan learning-by-doing theory, a conceptual framework was built to reflect the active learning experience in Habitat. It extended Gifford’s concerns for personal characteristics, physical settings, behaviors, cognitions, and design/planning. The new model regarded sweat equity as a predictor for a broader range of outcomes that included human and social resource developments of the low-income families (see Figure 1). It was hypothesized that participation in the construction and design of the Habitat houses contributed to families’ human and social resource development.

. Figure 1. Conceptualized framework for sweat equity in a Habitat context

<table>
<thead>
<tr>
<th>Participation</th>
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<tbody>
<tr>
<td>Sweat Equity</td>
</tr>
<tr>
<td>For example:</td>
</tr>
<tr>
<td>• Learn to help/build</td>
</tr>
<tr>
<td>• Build with sharing</td>
</tr>
<tr>
<td>• Participate in design</td>
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</tbody>
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<table>
<thead>
<tr>
<th>Residents’ Characteristics</th>
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<tbody>
<tr>
<td>For example:</td>
</tr>
<tr>
<td>• Age</td>
</tr>
</tbody>
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<table>
<thead>
<tr>
<th>Outcomes</th>
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<tbody>
<tr>
<td>For example:</td>
</tr>
<tr>
<td>• Human Resource Development</td>
</tr>
<tr>
<td>• Social Resource Development</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Physical Settings</th>
</tr>
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<tbody>
<tr>
<td>For example:</td>
</tr>
<tr>
<td>• Houses in scattered sites</td>
</tr>
<tr>
<td>• Habitat neighborhoods</td>
</tr>
</tbody>
</table>

**REVIEW OF LITERATURE**

Researchers advocated participation because it was beneficial to the well-being of homeowners, as well as to their neighborhoods and to society (Bruin & Cook, 1997; Florin & Wandersman, 1990; Perkins et al., 1996; Perkins et al., 1990; Rohe & Basolo, 1997; Rohe & Stegman, 1994b; Schmidt, 1998; Taggart, 1995). In these studies, participation was regarded either as the number of organizations or neighborhood meetings a person attended or as a byproduct of other social factors. Finn (1994) identified sweat equity as a process of
empowerment among Habitat homeowners. However, she did not have quantitative data to support her statements. Participation needs to be positioned as a dynamic yet measurable input from the end-users. Reis (2000) found that residents prefer user participation in the design process to user remodeling after the construction is complete. Federal housing programs seem reluctant to give up the control during the housing participation (Hasell & Scanzoni, 2000). Compared to federal programs, non-profit self-help housing programs incorporate participation into daily practice.

Habitat defines sweat equity as the “labor that Habitat homeowners expend in building their houses and the houses of their neighbors, as well as the time they spend investing in their own self-improvement” (Lassman-Eul, 2001). This definition emphasizes the physical labor in relation to building houses, but it ignores the activities in relation to design and social skills. Since it is unclear how sweat equity contributes to human and social skill building, Habitat does not specify the nature of the labor activities in which a family should participate.

**METHODOLOGY**

A case study was conducted in three Habitat affiliates in the Southern Region of the United States. Since the majority of Habitat householders were female, only female householders were included. Convenience sampling and volunteerism generated 49 sets of responses. Data were collected from the self-administrated survey questionnaires and the open-ended interview questions. The independent variables were participation in the construction and design process. Respondents reported on the number of activities in which they were involved during the construction and design processes. The dependent variables were human resources and social resources, including pride, attachment, satisfaction, responsibility, maintenance, and so on. Factor analysis was applied to reduce 25 dependent variables to 10 factors. Multivariate analyses were applied to examine the relationship between participation and human and social resource development. Context analyses of the interview responses verified some findings in the survey and extracted the meanings of participation emerged from the interview responses.
RESULTS OR FINDINGS OR DISCUSSION

The multivariate analyses in Table 1 showed that significant main effects existed for construction and design participation, controlled for education and sweat equity hours. In other words, participation in construction and design had significant effects on human and social resource development.

Table 1. Multivariate Analyses of Covariance Examining Dependent Variables after Controlling for Education and Hours

<table>
<thead>
<tr>
<th>Effect</th>
<th>Pillai's Trace</th>
<th>F</th>
<th>Hyp. df</th>
<th>Error df</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept**</td>
<td>0.447</td>
<td>3.145</td>
<td>9</td>
<td>35</td>
<td>0.007</td>
</tr>
<tr>
<td>Construction**</td>
<td>0.496</td>
<td>3.821</td>
<td>9</td>
<td>35</td>
<td>0.002</td>
</tr>
<tr>
<td>Design participation*</td>
<td>0.400</td>
<td>2.589</td>
<td>9</td>
<td>35</td>
<td>0.021</td>
</tr>
<tr>
<td>Hours</td>
<td>0.327</td>
<td>1.899</td>
<td>9</td>
<td>35</td>
<td>0.087</td>
</tr>
<tr>
<td>Education*</td>
<td>0.400</td>
<td>2.593</td>
<td>9</td>
<td>35</td>
<td>0.021</td>
</tr>
</tbody>
</table>

Note. * p < 0.05; ** p < 0.01; 2-tailed significance.

Approximately 24.0% of the variance in the human and social resources was explained by construction, and about 36.1% of the variance was explained by design participation. Specifically, construction was significantly related to attachment to house\(^1 (\beta = 0.274, t = 2.528, p < 0.05)$, design-house satisfaction\(^2 (\beta = 0.312, t = 2.465, p < 0.05)$, and maintenance frequency (\(\beta = 0.396, t = 2.872, p < 0.01)$). Design participation was related to attachment to house (\(\beta = -0.105, t = -2.186, p < 0.05)$, and maintenance frequency (\(\beta = -0.160, t = -2.601, p < 0.05)$). The more activities respondents participated in during the construction of their houses, the more attached those persons became to the house and the more pride they had in the house, thus developing more self-responsibility as well as design-house satisfaction. Also, the more activities in which respondents participated regarding the exterior and interior construction of their houses, the more frequently they maintained their

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\(^1\) Attachment to house is the factor that represents pride in the house, house attachment, and self-responsibility.

\(^2\) Design-house satisfaction is the factor that represents satisfaction to the house in general, satisfaction to house design, and satisfaction to design participation.
houses. According to the learning-by-doing theory, Habitat families learned maintenance skills during this process, and it contributed to more frequent houses maintenance. In the content analyses, families preferred learning more repair and maintenance from Habitat workshops, including plumbing, flooring, siding, roofing, and so on.

Design-related activities were negatively related to the satisfaction of the house, design, and design participation as well as the frequency of house maintenance. This negative correlation was inconsistent with the hypothesis. It was hypothesized that the number of design-related activities in which families participated was positively related to human resources. The deviation may be explained by the limited variation in design participation that families experience. In the interview, Habitat families articulated the importance of design participation. Some families also expressed the frustration in design participation because they did not know how to choose colors, layouts, and finishes. Not all families learned design and decorating skills during their previous apartment experiences, and they did not learn these skills during sweat equity. For example, most families (91.8%) would like to learn interior and landscape design skills during sweat equity. According to Deweyan learning-by-doing theory, learning is the critical part instead of just doing. If families lacked necessary design skills, it was difficult for design participation to contribute to human and social resource development. When families realized their lack of design skills and that they might not make the right decision for their houses, this might impact their self-esteem, satisfaction with house design, design participation, and confidence in skills, which all were a part of human resources. Therefore, lack of learning during design participation may explain the negative relationship between design participation and human resources.

**CONCLUSIONS**

This study found evidence that participation in the construction process significantly increases attachment to the house, design-house satisfaction, and the frequency of maintenance. Participation in the design process decreases Habitat families’ attachment to the house and design-house satisfaction. Since design participation in Habitat is very limited and not actively and formally established, further studies are needed to address the learning aspect during design participation in a Habitat context.
REFERENCES


Fortifying African American Identity: Designing a Theme Park Environment

Cherdena Daniel, Ted Drab, MiHyun Kang, and Lynne Richards

Abstract

PURPOSE

The role of African Americans in American society has been a major issue throughout history. African American families are exposed to what Boykin (1986) described as a triple quandary: exposure to a majority culture, a minority status, and a Black culture or identity within a mainstream environment. This triple quandary leads to an internal struggle to develop a healthy sense of both personal identity and group identity (Allen 2000). Additionally, negative media representation combined with the mainstream population’s pre-existing notions about African Americans perpetuates destructive images and derogates African Americans’ self-esteem (Gandy 2001).

This project involved the designing of a state of the art heritage-themed park facility to commemorate the monumental achievements and contributions made by African Americans. The goal of the proposed theme park is to resolve identity inconsistencies among African Americans and ameliorate misconstrued typecasts held by non-African Americans.

METHODOLOGY

Using the Afrocentric Paradigm (Karenga, 1980), the Résistance Modality Model (Robinson & Ward, 1991), the Afrocentric Worldview (Asante 1989), and previous research concerning responses to interior stimuli exhibited by both African Americans and European Americans, the facility was designed to employ themed entertainment as the primary educational medium. Congruent with the theoretical concepts of experiential learning (Kolb, 1984), and symbolic–interaction (Blumer, 1969), the design was formulated to: 1) celebrate and emphasize the positive aspects of African American culture, 2) present African American culture with integrity, 3) embrace the Afrocentric Paradigm and Worldview, and 4) create an inclusive and educational environment open and inviting to all racial groups.

SUMMARY

Previous research provided guidelines for the development of commercial interior environments that appeal to both African American and European American consumers (Daniel & Richards, in review). Driven by these guidelines and the four abovementioned objectives, the design of the African American theme park was organized around significant historical eras and pivotal moments within African American cultural history. Spatially, the
park was organized into an Entrance Plaza, Harlem walk, and a Pavilion Plaza around which radiate four distinct pavilions: a Historical Pavilion, Pioneers/Inventors Pavilion, Sports Pavilion and Arts Pavilion.

The Entrance Plaza, Harlem Walk, and Arts Pavilion were selected for more in depth illustration of the design foci and implications. The Entrance is a circular plaza consisting of an archway, ticket gate, and African American symbolism. The Harlem Walk will provide visitors with an immersion into the Harlem Renaissance era. Consumers will be able to walk and experience this pinnacle period of Black entrepreneurship, art and entertainment. The Arts Pavilion showcases African-American artists who have impacted African-American and/or mainstream culture. Within the Arts Pavilion, two interior spaces were schematically developed for this project: the Performing Arts Center and the Jazz/Afro Experiential Restaurant. Using interactive technology and exploratory exhibits, the Performing Arts Center showcases African American contributions in music, dance, and theater. The Jazz/African Experiential Restaurant is a multifunctional restaurant and day spa emphasizing the quintessential cultural ties between African and Jazz music.

REFERENCES

Fortifying African American Identity: Designing a Theme Park Environment

STATEMENT OF PURPOSE

Many scholars have posited that African Americans are struggling with an identity crisis because they live within a dominant society yet are a minority and exhibit subcultural behavior (Boykin, 1986). The exposure to a majority culture coupled with minority status generates a double-consciousness (Dubois, 1969). The “two-ness” faced by African Americans leads to an internal struggle to develop a healthy sense of both personal identity and group identity (Allen 2000).

Despite identity conflicts, African Americans have been able to survive, adapt and form a distinct subculture that continually influences the larger American culture. However, there is minimal effort from national institutions and organizations to educate society about these positive Black accomplishments. The purpose of this project, therefore, was to take a proactive approach to help resolve this identity quandary by designing a state of the art theme park facility that commemorates and educates the public about the monumental achievements and contributions made by African-Americans, thereby counteracting negative Black stereotypes.

Using experiential learning (Kolb, 1984) and symbolic-interaction theory (Blumer, 1969) as a theoretical framework, the intent of the theme park is to immerse participants into African American culture to facilitate internalization and understanding. More specifically, the goals of the theme park are to: 1) celebrate and emphasize the positive aspects of African American culture, 2) present African American culture with integrity, 3) embrace the Afrocentric Paradigm and Worldview, and 4) create an inclusive and educational environment that is open and inviting to all racial groups.

CONTEXT

The design of interior commercial space, which is sensually experienced by patrons, can be manipulated in order to elicit desired human responses through the incorporation of design components which signify or hold symbolic meanings. Human perceptions of interior space, as with all encounters of the real world, consist of sensory data that have been
filtered through an individualized mental field of past experiences and cultural learnings (Golledge & Stimson, 1997). To date, there is limited research on the concept of using entertainment as a cultural socialization tool. The current project explored this uncharted research area. Ultimately, it is hoped that the project will foster understanding of alternative cultures, attenuate existing misconceptions about African Americans, fortify Black self-esteem, and bring about effective social change.

**LITERATURE REVIEW**

To combat undesirable changes in African American sub-cultural identities, Asante (1989) proposed that African Americans re-establish African cultural ties to promote personal and collective growth. Afrocentricity also is suggested by numerous scholars as a mechanism for reclaiming true African American identity. The framework chosen to emphasize Afrocentrism in this project was the Afrocentric Paradigm (Karenga, 1980). This paradigm allows African Americans to redefine themselves in ways that are culturally congruent and that promote healthier self images (Robinson & Howard-Hamilton, 1974). The Afrocentric Paradigm is operationalized using the Nguzo Saba system (Karenga, 1980) and the Resistance Modality Model (Robinson & Ward, 1991).

To combat negative African American stereotyping, experiential learning (Kolb, 1984) and symbolic interaction (Blumer, 1969) theories were used as the theoretical framework. Kolb described learning as a process “whereby knowledge is created through the transformation of experience”. In experiential learning, emphasis is placed on the combined roles of experience, perception, cognition, and behavior in learning. Concepts are derived and modified according to experience.

Symbolic interaction theory addresses the process of interaction between individuals. According to the theory, individuals begin interaction with preconceived idiosyncratic definitions about who they are and who the other person is (Blumer, 1969). Symbolic interaction theory was applied to the culturally- oriented entertainment context within this design project. In the themed setting, interaction will take place between the entertainment environment and an individual. Cues will be presented by a setting and those cues will be perceived by the individual. The individual then will redefine his/her perception of the
situation towards a greater congruence with the environmental cues. The essential element within the context of an entertainment environment is the adequate presentation of cues.

The multi-sensory experience that theme park participants undergo renders an overall emotional response. Learning and emotion are linked by the establishment of meaning. Environments are perceived as being meaningful when they offer opportunities to feel or experience something desirable (Gustafson, 2001).

**METHODOLOGY**

The design of the theme park was driven by the four objectives, as follows:

*Celebrate and emphasize the positive aspects of African American culture.*

A literature search provided information about African American history, values, attitudes, and beliefs. Following the literature research, dominant African American cultural elements were incorporated into the design of the park.

*Present African American culture with integrity.*

The literature review also provided detailed information about construction methods, materials used, and environmental conditions to guide accurate replication of cultural environments and events.

*Embrace Afrocentricity.*

The park was planned to portray an Afrocentric Paradigm (Robinson & Howard-Hamilton, 1994) by translating the concepts and principles of the Resistance Modality Model (Robinson & Ward, 1991) and the Nguzo Saba system (Karenga, 1980) into tangible design elements in which consumer participants will experience.

*Create an inclusive and educational environment that is open and inviting to all ethnic groups.*

A preceding study investigated the relationship between values held by African Americans and European Americans, and the reactions of members of those two populations to environmental stimuli within three commercial interiors. The results revealed that African Americans and European Americans share similar values and beliefs (Daniel & Richards, in review). Therefore, these analogous values subsequently were reflected throughout the design of the theme park.
RESULTS

In a theme park designed to celebrate African culture, Afrocentric values of course should be emphasized and celebrated. The fact that preceding research revealed that Caucasian subjects evidenced at least some degree of receptivity to all Afrocentric values suggested that an emphasis upon those values within a theme park environment would not preclude Caucasian visitation and enjoyment.

In the designing of the theme park, therefore, these Afrocentric values were extended into design objectives, which then were used to make specific decisions about the interior design of theme park facilities (Table 1). A prototypical theme park based on research findings and design objectives was then schematically designed.

This theme park duplicates typical park layout, containing a heart-shaped peripheral berm isolating the park and the independent pavilions branching from the entry. Functionally, the park consists of an Entrance Plaza, Harlem walk, and Pavilion Plaza that radiates into four distinct pavilions: Historical Pavilion, Pioneers/Inventors Pavilion, Sports Pavilion and the Arts Pavilion. The Entry, Harlem Walk, and the Arts Pavilion were selected for more in depth illustration of the value-driven design objectives and foci. (See Illustrations 1-4)

The theme park Entrance Plaza is circular and contains a stone archway, ticket gate and African American symbolism. The archway is supported by pillars inspired by African candleholders. A sculpture represents the enduring will of the descendants of African American slaves. The paving stones are engraved with the seven principles of Nguzo Saba (i.e., guidelines by which African Americans are encouraged to relate to each other and construct their lives)

The Harlem Walk, by which visitors proceed into the theme park, provides visitors with an immersion into the Harlem Renaissance era. Consumers are able to walk and experience this pinnacle period of Black entrepreneurship, art and entertainment

The Arts Pavilion consists of themed mechanical rides, food service venues, an Amphitheater, Fine Arts Center, TV/Film Studio, Literary Library, an Afro-Jazz Restaurant and a Performing Arts center. Within the Arts Pavilion, two interior spaces were schematically developed: The Performing Arts Center and the Jazz/Afro Restaurant.
Using interactive technology and exploratory exhibits, the Performing Arts Center showcases those African-American artists who have most significantly impacted African-American and/or mainstream culture. Associated with the Performance Theater are supporting areas such as a lobby, dressing rooms, and coat check. Additionally, there is an Omni-dome where laser light shows, documentaries, and animations can be shown. Other primary spaces within the Performing Arts center are the Exploratory Exhibits, Artist Gallery and four Experiential/Educational classrooms. The Exploratory Exhibit space allows visitors to leisurely interact within four thematic music and dance quadrants: Hip/hop, Rhythm and Blues/Neo-Soul, Classical/Modern Dance, and Gospel/Liturgical. Within each quadrant are found interactive games, exhibits, and virtual simulations that incorporate multi-sensory stimulation and allow for group or individual activity.

The Jazz/African Experiential Restaurant is a multifunctional restaurant and day spa emphasizing the quintessential cultural ties between African and Jazz music. There are two distinct areas in the restaurant: an African Village and a Jazz Club scene. The African Village allows consumers to experience African culture by dressing in traditional garb, eating native food of West Africa, and participating in African traditional dance. The African environment was authenticated by incorporation of Afrocentric art, patterns and motifs, African chairs and tables, and natural materials indigenous to West Africa. The Jazz area allows visitors to experience the prevalent Jazz Era. Stepped forms, rounded corners, triple-striped decorative elements and black decoration were incorporated to reflect the Jazz Era (1920’s).
### Table 1 Summary of Value Orientations with Recommended Objectives and Design Implications

<table>
<thead>
<tr>
<th>Values</th>
<th>Objective</th>
<th>Design Implication</th>
</tr>
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<tbody>
<tr>
<td><strong>Community</strong></td>
<td><strong>Foster a familial, communal atmosphere</strong></td>
<td><strong>Open, circular floor plans</strong></td>
</tr>
<tr>
<td>• Most comfortable in family and community gatherings</td>
<td>• Emphasize group interaction, without devaluing individuality</td>
<td>• Community settings</td>
</tr>
<tr>
<td>• Responsible for helping others gain success.</td>
<td></td>
<td>• Facilities for independent activities</td>
</tr>
<tr>
<td>• Belief that a collective group is more important than an individual for social-economic gain</td>
<td></td>
<td>• Facilities for team or cooperative activities</td>
</tr>
<tr>
<td>• Belief in individual autonomy</td>
<td></td>
<td>• Human scale</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Inviting spaces</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Black owned businesses</td>
</tr>
<tr>
<td><strong>Communication</strong></td>
<td><strong>Foster a fun, analogous symbolic environment appealing to five senses</strong></td>
<td><strong>Curvilinear shapes, forms and motifs</strong></td>
</tr>
<tr>
<td>• Valuing of freedom and expression</td>
<td><strong>De-emphasize research,</strong></td>
<td><strong>Bold expressive colors and lines</strong></td>
</tr>
<tr>
<td>• Belief that knowledge should <strong>not</strong> be scientific and proven</td>
<td><strong>Minimize strict social proscriptions/prescriptions</strong></td>
<td><strong>Multi-sensory stimulation</strong></td>
</tr>
<tr>
<td>• Belief that skills in oral communication are more important than skills in written communication.</td>
<td></td>
<td><strong>Conceptual, symbolic layout, materials, motifs, etc.</strong></td>
</tr>
<tr>
<td>• Preference for simultaneous multi-sensory learning.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Preference for communication of ideas, feelings, thoughts in symbolic ways</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Cultural</strong></td>
<td><strong>Emphasize uniqueness of African-American culture</strong></td>
<td><strong>Racially thematic spaces</strong></td>
</tr>
<tr>
<td>• Belief that racial background is an important part of personal identity</td>
<td><strong>Incorporate historical perspective</strong></td>
<td><strong>Material culture that connects cultural evolution from West Africa to America</strong></td>
</tr>
<tr>
<td>• Belief that persons in an extended family may not be related by blood or marriage.</td>
<td><strong>Make consumers feel part of family</strong></td>
<td><strong>Interactive inviting designs and activities</strong></td>
</tr>
<tr>
<td>• Perception of self as an accepted member of society.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nature</td>
<td>Organizational Structure</td>
<td>Success</td>
</tr>
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<td>--------</td>
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<td>---------</td>
</tr>
</tbody>
</table>
| • Belief that humans **should be** in harmony and balance with nature | • Integrates nature and architecture | • Indigenous natural materials  
• Sustainable design  
• Human scale  
• Designs that bring the outside in |
| • Valuing of being on time to meetings and engagements  
• Belief that time is social in that it is a consequence of personal interaction  
• Valuing of managed organizational structures. | • Create a scheduled environment of activities  
• Use design techniques to enhance relaxation | • Organized and logical facility layout  
• Facilities for leisure activities within a scheduled time frame |
| • Belief that success is **not** measured by the amount of money a person makes.  
• Belief that if one works hard, he/she will be successful.  
• Valuing of competition.  
• Belief that one can turn a bad situation into a positive situation | • De-emphasize materialism  
• Introduce delayed gratification | • Materials that are not representative of status display  
• Facilities for constructive competitiveness, explorative tasks that eventually bring rewards |

**SUMMARY**

This project exhibits a model procedure for the application of results obtained from cultural research to specific decisions common to the facility design process. Cultural theme parks, such as that exhibited by this project, have the potential to revolutionize the techniques used in cultural learning and cross-cultural appreciation.
REFERENCES


Illustration 1. Theme Park Site Map
Illustration 2. Theme Park Entry

Illustration 3. Harlem Walk
Illustration 4 African Restaurant Perspective
Design Presentation Inspired by Installation Art

Jin Feng

Abstract

PURPOSE

Drawings and material samples on boards have been the default mode of design presentation in interior design education. Inspired by installation art, a group of students took the initiative to present their retail design projects in the format of an exhibition of installation art. They pushed their design presentation from conventional small scale drawings and models to real-scale multi-sensory experiential immersions. This presentation shares the instructor’s experience working with a creative student group energized by their intensive four-day field trip to an international metropolis.

PROCESS

In a design studio focusing on retail design, students were required to take a field trip to an international metropolis to learn retail design from the real world. The field trip lasted four days on very busy schedules with stops at retail stores, design firms specializing in retail design, and museums. The stimulation was very strong and the students became exited with inspirations and ideas related to their own retail design project. An exhibition of installation art the students saw in a museum triggered discussions about the possibility to use the art form in their final presentation. Their personal experience of well designed retail spaces made the students realized that the essence of retail design is about human experience and the experience is rather holistic and involving all senses. The installation art as an immersive experiential environment can certainly help to convey that holistic experience of a designed retail space. Consensus was reached among the students to experiment on this new form of artistic expression. The students’ initiative was enthusiastically encouraged by the instructor. The plan for the final presentation was adjusted to accommodate the design and final installation. An art historian specializing in installation art was invited to give a lecture to
help the students to understand installation art as a rather complex artistic phenomenon. In the gallery of the design college, each student was assigned a space ten feet by ten feet. The students also worked with the track lighting system to light their installations. Most of the students succeeded in creating a space representing the most important qualities of their designed retail stores. A couple of students incorporated multimedia presentations of computer animations, virtual reality navigations, and video and audio flicks in their installations. The students learned a lot about their design in terms of scale, materials, lighting, and the sense of space in the process of designing and building the installations.

**SUMMARY**

The exhibition shows that an interior design project can be presented as installation art to convey experiential qualities that have been difficult for traditional presentation methods. Most importantly, when people, the designer and reviewer, are immersed into the space defined by the installation, they form a more holistic relationship with the design by being in the design. They can have a better feel about the design. The construction and installation process provides additional challenges to the students to make what they design work as large scale 3D reality.

**REFERENCES**

Support Materials

Handouts

Handout 1: Project Assignment

Interior Design Studio V

PROJECT 1

Five Colours Earth Fashion & Accessories is an Asian fashion company. The company plans to open a branch boutique in the United States. The information about the company and its products can be seen on the Web (url: www.fivecoloursearth.com).

In this project, you are required to produce a design proposal for the boutique. The design should reflect the philosophy and aesthetic quality of the fashion design.

Required Submissions

- Plan
- Reflected ceiling plan
- Elevations
- Material
- 3D model
- Render perspectives
- Details
- Program statement
- Concept statement
- Process work

Note: The format of the presentation of the design will be determined by the designer and approved by the instructor.

Handout 2: Field trip itinerary
WEDNESDAY, OCT. 12
4:49  Meet at Y Airport
6:49  Leave Y International Airport
9:20  Leave C Airport
11:55 Arrive at X Airport
12:30 Check in at Days Hotel
1:30  School of Interior Design
      Tour of Building and Exhibition / Review of Student Work
4:00  Burdifilek Design

THURSDAY, OCT. 13
9:30  T Furniture Systems
2:00  Figure3
3:30  Queen Street West

FRIDAY, OCT. 14
8:00  PATH
10:00 KPMB
11:30 Museum of Textile
2:00  Yabu Pushelberg
5:00  Royal Museum

SATURDAY, OCT. 15
8:30  Kensington Market
9:30  China Town
10:00 Art Gallery
1:00  Shoe Museum
3:00  Bloor Street retail stores

SUNDAY, OCT. 16
12:00 Leave Days Hotel
3:00 Leave X for C (Arriving 3:49)
5:10 Leave C for Y (Arriving 6:17)

Handout 3: Introduction to the student exhibition

INTRODUCTION (to the exhibition: Five Colours Earth)

There are moments in life when your heart is deeply touched and it ignites a passion that changes your life. It was in such a moment when the beautiful embroidery pieces of the people in the deep mountains of the southwest profoundly touched the heart of an architect and transformed her into a fashion designer who incorporates those embroidery pieces into her modern interpretations of traditional apparels. This is the story of H. Y. H and her fashion line Five Colours Earth.

In the senior interior design studio focusing on the design of retail environment, the students are challenged to design a branch boutique for Five Colours Earth in the US to create a culturally enriched shopping experience that reflects the aspiration and philosophy of the designer, and the cultures that are involved.

In the design process, the students are intrigued by the beautiful designs by H. Y. and deeply touched by her effort to preserve the embroidery tradition in that remote area. Passions are ignited, creative energy is unleashed, and desires to express erupt. The passion, energy, and the desire are all reflected in this exhibition. This exhibition is not a teacher's assignment, but the students' own initiative. Inspired by art installations in a museum in X city during our field trip, the students decided to do this exhibition to explore a new artistic format to present their designs in the form of installation art.

This exhibition is made possible with support from many people. We are truly grateful to them. Special thanks to:
Dr. H who kindly allowed us to use Five Colours Earth as the context for our design project and provided information about the fashion line and her company, Ms. D, the US representative of Five Colours Earth, who provided the samples of the projects and came to critique the student designs, Ms. A, who gave us an inspirational lecture on installation art, the Interior Design faculty who critiqued the students designs, and the Dean's office that allowed us to use the College gallery.

Illustration and sample of student work

![Image 1](image1.jpg)

**Figure 1.** Field trip: visiting design firm.

![Image 2](image2.jpg)

**Figure 2.** Installation art in a museum.
Figure 3. Design drawings: perspective and elevation
Figure 4. Installation of student design.
Figure 5. Installation of student design.
Disability Ability: Providing Experiential Learning Experiences in a Large Lecture Format

Holly Cline

Abstract

PURPOSE

The purpose of this project is for students to experience how the designed environment functions for people with a variety of impairments, and to develop a heightened awareness of one’s environment. Providing students with experiential learning exercises increases their sensitivity toward and appreciation for people with disabilities.

PROCESS

All first year design majors (interior design, interior merchandising, fashion design and fashion merchandising) are required to take a lecture course (100+ students) entitled Introduction to Design. To facilitate experiential learning, the course incorporates activities that require students to interact with others in the classroom and on campus.

The Disability Ability project, requires small groups of students (10 students each) to experience 5 different altered abilities: pregnancy, loss of legs, diminishing grip of hands, diminishing sight, and diminishing hearing. Each group is divided into 5 sub-groups of two-person teams, one two-person team for each altered ability. The project has three phases and students are given approximately one week for each phase.

Phase One: Disability Simulation

Each student participates in an exercise that involves an individual activity and an activity with their team partner. The individual activity requires each student to complete various tasks related to their selected altered state. The team activity requires the students to meet outside of class in the design building. Upon arrival, one team member assumes the
altered state and the other team member records the experience. The assignment requires the two of them to, go to the library, find a particular book, take it off the shelf, and make a printed copy of a specified page (the copier is in the basement, which adds difficulty to the scenario). Then the two team members must go to the campus post office, buy a stamp, and mail the copied page to the professor and return to the design building. Throughout the process the students document their experiences through photographs and journal entries.

**Phase Two: Reflection**

Using photographs taken during the simulation, this second phase requires each student two-person team to create a digital collage and compose a three line haiku poem that represents their experience. Students then post their poetic collage onto WebCT for viewing by the other students.

**Phase Three: Discussion**

This phase requires the each group of ten students to discuss their particular experiences. Students follow a written guide to lead their discussion and on which they record their experiences. Each student team (group of 10) generates a question pertaining to their experience and posts this question on WebCT. All students in the class then respond to a different group’s discussion.

**SUMMARY**

The above exercise has been very successful in encouraging students gain empathy and appreciate people who are different from themselves. Students indicate that this exercise is very beneficial to their understanding of others and the role the environment plays in the life of all people.
Support Materials

SYLLABUS

DSN 110: Introduction to Design Break Out Session Assignment # 3

Title: Disability Ability

Objectives:
Basic design evaluation techniques: increasing awareness with one’s environment.
Basic knowledge of the relationship between human behavior and design.
Basic knowledge of the issues that impact and inform design.
Communication of ideas in a written and visual format.

Learning Goals:
To practice letting go of preconceptions through experiential learning exercises
To develop conceptual thinking through poetry
To develop a greater appreciation for those with disabilities
To develop universal design ideas to enhance everyday life

Assignment:
How does the designed environment work for people with special needs?

Many of us have physical conditions that limit our ability to easily navigate our towns. We
have impaired vision, a bad knee, or we use a wheelchair. As a society, we are finally
designing to meet everyone’s needs. This improves the quality of life for all people because
we’ll all experience limited mobility at some point, even if only temporarily.

In this activity you’ll experience how the designed environment functions for people with a
variety of impairments.
EXPERIENCE AN ALTERED STATE

You have already chosen one of the five activities on the next page to get a limited idea of what it’s like to negotiate the designed environment with a physical disability. WARNING: Some of your routine experiences may become dangerous, so you need to pair up with a team mate to make sure you don’t hurt yourself or others. To best understand the complete day of a person with a disability, try to experience the disability from the moment you get of bed until the day is over.

Keep your journal or notepad handy and record difficult interactions with the designs you encounter (even this may be harder than you think). Note how the experiences make you feel, physically and emotionally. Also note how much longer it takes to accomplish simple tasks. Take notes in your journal of “barriers” (things like high curbs without curb cuts, heavy glass doors without electronic openers, elevators that don’t signal what floor you’re on) that make getting around especially difficult for you. And be careful, it’s a jungle out there!

5 ALTERED STATES

The members of the breakout team will divide into groups of two and decide which altered state your team of two will experience.

☐ Look OUT! (visual impairment)
☐ Say What? (hearing impairment)
☐ Get a grip on it! (feeling and gripping impairment)
☐ OH Mother! (pregnancy)
☐ Ride don’t walk! (loss of leg mobility)

Directions:

☐ Grab your camera! (You need only one camera per group of two)
☐ Choose an altered state and a team partner. Exchange phone numbers and e-mail. Decide upon a day and time for your team assignment. Follow the directions for your chosen altered state. You will do this in your breakout groups today.
As you are conducting your altered state, take a few photographs of the process and areas of difficulty you and your teammate experience. Digital photographs are easier and less costly. You will need to obtain at least 5 different photos of your process (in different situations).

Things to think about:

Should the designed environment be accessible to everyone regardless of cost?

What are the costs to our society if everyone isn’t able to make a contribution because the designed environment isn’t accessible?

What new technologies are making the world more accessible to all people?

Are you familiar with the American with Disabilities Act (ADA) and its role in making the designed environment usable by more people? You can learn about the ADA by visiting the following websites:

http://www.udeducation.org/
http://www.adaptenv.org/
http://www.disabilityworld.org/
http://www.design.ncsu.edu:8120/cud/about_us/about_us.htm

LOOK OUT!

If you choose to experience a visual impairment, you’ll need a pair of glasses. Cover the lenses with petroleum jelly (this is located in the design office if you need some).
Directions: LOOK OUT!

Teamwork (2 people together)

☐ 1 participant 1 observer (do not assist participant, but do keep them from hurting themselves)

☐ Record your experience in your sketchbook

☐ Meet in McGuffey, Put on your glasses, and go to the library and find one of the following books with the following call letters:

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Take the book and make a copy of p. 27, go to the post office and buy a stamp, and mail your copy in the envelope provided then return to McGuffey. Record and discuss the experience as a team.

Individual (both team members to complete)

Take home the glasses. One morning put your glasses on while you get dressed and ready for school, drying your hair, picking out your clothes, etc. Record your experiences in your sketchbook.

One evening, watch your favorite tv show with the glasses on. How does this change your viewing experience. Record your experiences in your sketchbook.

SAY WHAT?

If you choose to experience a hearing impairment, you’ll need a pair of earplugs.
**Directions: SAY WHAT?**

Teamwork (2 people together)

- 1 participant 1 observer (do not assist participant, but do keep them from hurting themselves)
- Record your experiences in your sketchbook.
- Meet in McGuffey, Put in your earplugs, ask someone for directions to the Library, follow their directions. When at the library ask directions on how to find one of the following books…

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Take the book and make a copy of p. 43, go to the post office and buy a stamp, and mail your copy in the envelope provided then return to McGuffey: Record and discuss the experience as a team.

Individual (both team members to complete)

Take your earplugs. Call a friend on the phone with your earplugs in. Record your experiences in your sketchbook.

One evening, watch your favorite tv show with the earplugs in. How does this change your viewing experience. Record your experiences in your sketchbook.

**GET A GRIP ON IT!**

If you choose to experience an impairment of your ability to feel things with your fingers or your ability to use all of your fingers, cover both hands with an oven mit.
**Directions: GET A GRIP ON IT!**

Teamwork (2 people together)

- 1 participant 1 observer (do not assist participant, but do keep them from hurting themselves)

- Record your experiences in your sketchbook.

- Meet in McGuffey, Put on your oven mits, and go to the library and find one of the following books with the following call letters:

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Take the book and make a copy of p. 13, go to the post office and buy a stamp, and mail your copy in the envelope provided then return to McGuffey: Record and discuss the experience as a team.

Individual (both team members to complete)

Take your oven mits home. Try to eat a meal with your gloves on. Call a friend on the phone and change clothes. Record your experiences in your sketchbook.

**OH MOTHER!**

Half the population may experience the altered state of pregnancy. Although it may seem to last forever, it is a temporary condition affecting mobility. To experience how pregnancy effects mobility and your clothing, tie the ball around your waist.

Even after delivery, being a parent of a young child can make it difficult to get around. Think about unloading groceries from a vehicle while carrying a sleeping (or crying) infant. To experience some of what it's like, you will check out a stroller in the design office and try taking it everywhere.
Directions: OH MOTHER!!

(you must reserve stroller time prior to this assignment, reserve time in the secretary’s office)

Teamwork (2 people together)

☐ 1 participant 1 observer (do not assist participant, but do keep them from hurting themselves)

☐ Record your experiences in your sketchbook.

☐ Meet in McGuffey, Put on your pregnant belly and grab the stroller! Go to the library and find one of the following books with the following call letters:

    NK    NK    NK    NK    NK
    1520   1520   1530   1530   1935
    1969   1975   1950   1936   B513

Take the book and make a copy of p. 88, go to the post office and buy a stamp, and mail your copy in the envelope provided then return to McGuffey: Record and discuss the experience as a team.

Individual (both team members to complete)

Take your pregnant belly home. Try on your clothes, how do they fit? Pick up a book bag and imagine the extra weight you need to carry around. Try tying your shoes and sitting on the floor. Record your experiences in your sketchbook.

RIDE, DON’T WALK!

If you choose to experience the loss of using your legs, you’ll be wheelchair bound.
Directions: RIDE, DON’T WALK!

(you must reserve wheelchair time prior to this assignment, reserve time in the secretary’s office)

Teamwork (2 people together) (3 hours maximum)

☐ 1 participant 1 observer (do not assist participant, but do keep them from hurting themselves)

☐ Record your experiences in your sketchbook.

☐ Meet in McGuffey, Get in the wheelchair and go to the library and find one of the following books with the following call letters:

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Take the book and make a copy of p. 120, go to the post office and buy a stamp, and mail your copy in the envelope provided then return to McGuffey: Record and discuss the experience as a team.

Individual (both team members to complete)

Reserve wheelchair time (1 hour), In McGuffey experience the following in a wheelchair without the assistance of anyone. Get a drink from the water fountain, use the bathroom, ride in the elevator, and go outside down the sidewalk and return inside to McGuffey. Return Wheelchair where you picked it up. Record your experiences in the sketchbook.

Assignment Directions:

Phase One Due BY Wednesday, October 25th

You and your teammate will make a powerpoint slide of 5 photographs and a haiku relating to your experience of the altered state. Then create save file as a jpeg using the following
protocol for saving. Your group name A,B,C,etc.,.. bo3…….- altered state (see example below for group A.

  groupAbo3-hear (for say what)
  groupAbo3-preg (for oh mother)
  groupAbo3-see (for look out)
  groupAbo3-grip (for get a grip on it)
  groupAbo3-wheel (for ride don’t walk)

and post it in your groups discussion box for breakout #3.

Use the template provided to guide your slide layout. You may add your own creative touch to the slide but remember that... “less is more” and that good design must prevail!

_post this by wednesday, october 25th by 3:00 p.m._

Bring your notes and journal entries regarding this experience to your breakout group on Friday, October 27th.
Construction Through Design: 
A Three-Dimensional Project Experience

Amy Crumpton and Robin Carroll

Abstract

PURPOSE

This semester long studio project was developed to introduce first year students to construction methods for residential design and to introduce the design process, focusing on programming, design development and presentation techniques. The semester was divided into two parts, the first of which was a group project; creation of a ½ scale townhouse model using various construction methods and dimensionally accurate balsa wood lumber. The second part of the semester focused on creating a client profile and designing the interior for this client.

METHODOLOGY

One of the biggest challenges for introductory courses in interior design is enabling students to understand space in three dimensions. An equally challenging issue is creating interest and excitement in learning construction methods. In developing this project, both issues were addressed.

Part 1: Constructing the Model

Students were divided into groups of four students. Each group was given the “Identical Construction” Kit # 105. This kit was chosen for the construction methods included such as stairs, floors, walls roofs and platform and balloon framing methods and because it had interesting three dimensional design opportunities.

Four weeks of calendar time (approximately 16-20 hours of actual studio time) were allotted for construction of the model. Two-thirds of each class meeting was devoted to working on the model. During the other hour, the instructor lectured on construction topics

376
such as sill and floor construction, wall and ceiling construction, doors and windows, stairs and fireplaces, and roof designs.

Part 2: Design of the Interior

Part two of the semester began with a handout of the project requirements (see Handouts section). The first task was development of a client profile including circumstances for construction of the town house. Students were encouraged to pay particular attention to the surrounding architectural context (i.e. where located and integration with the surrounding environment), and developing the client requirements. Students also selected a ‘theme image’ (at right) and descriptive project title to help formulate their design concept.

Students had approximately seven weeks (eight including spring break) to complete their design solution and presentation boards. They were allotted approximately 28-30 studio hours to work on this project. During this period, instruction continued on construction methods and expanded to include electrical, plumbing, and mechanical systems. Additional instruction was given to include techniques required for the final project submission including overviews of rendering, one point perspective, lighting design, board design, and sustainable materials.

SUMMARY

Students voiced an overwhelming support of the construction phase of the project through survey results. 100% of students recommended using this teaching method in future classes. The model was indispensable when we began to discuss ceiling treatments, perspective drawings, and building sections during the design phases of the project.

Completion of the design phase was also successful. Students kept a time log for the project and time spent on the project ranged from 100-150 hours during the seven week period. Final projects ranged from vacation cottages to downtown industrial themed spaces for young couples. Final project requirements may be scaled back for future semesters.
REFERENCES


Support Materials

HANDOUTS

Project Images

Building the Model

Designing the Interior

Kit Information

Identical Construction Kit # 105. Each ¼ inch scale, 2-story townhouse framing kit contains dimensionally accurate micro-cut balsa wood, cutting tools, measuring tape, layout pencil, nails, glue, custom miter-jig, instruction booklet, ten working drawings and a styrofoam work base. In order to facilitate group work, additional miter-jigs, saws and instruction booklets were procured. This allowed each student in the group to be working on wall construction at the same time, lessening the overall time required for construction. Each kit is approximately $100 depending on the supplier. The kits were purchased with lab fees required for the class.
These kits are sold through the following suppliers (in alphabetical order).


Textbooks and sections reviewed

The following textbooks are required for this studio and subsequent studios. Listed here are the main topics and chapters covered during this ID Studio I course.


Chapter 13: Sill and Floor Construction
Chapter 14: Wall and Ceiling Construction
Chapter 15: Doors and Windows
Chapter 16: Stairs
Chapter 17: Stairs and Fireplaces
Chapter 21: Residential Electrical
Chapter 22: Information, Security and Security Wiring
Chapter 23: The Electrical Plan
Chapter 24: Residential Plumbing
Chapter 26: Residential Climate Control


Chapter 4: Drawing and Sketching Interior Environments
Chapter 5: Rendering
Chapter 7: Presenting Materials and Finishes


Chapter 7: Elevations
Chapter 8: Sections

**Townhouse Project Part 1: Frame Construction of a two-story Townhouse Model**

**Project Scenario:**

Working in teams of four, construct a Townhouse built of the materials as supplied in your kit. Each student will receive an instruction booklet and tools to use during class. Each team will receive a set of plans for house construction as well as the materials to complete the construction.

**Project Requirements and Assessment:**

After completion of the model, the instructor will evaluate the completed model for neatness in construction methods, use of materials and correct structural design. Students will also be expected to complete a vocabulary and construction exam as part of the assessment score.

**Townhouse Project Part 2: Designing the interior for a specific client**

**Project Scenario:**

These townhouses are being built by a developer in several parts of the country including both rural and urban settings. They have been shown to appeal to several demographic groups. In highly expensive urban settings they are affordable for upwardly mobile first time home owners and in rural areas, they are perfect for get-away cottages. As you create your town home, also develop a set of circumstances under which your particular townhouse is going to be created.

**Project Requirements (see grading sheet):**

1. Fill out the Client Information Worksheet. This will help you develop a story about the people who are going to live in this particular townhouse. The final ‘story’ should be less than 200 words and should be placed on one of your boards under the heading “Prospective Owner Profile.” You also need to select an image that represents the ‘theme’ that you will be working with.
2. Come up with a project title. Preferably more interesting than “A residence for the Millers”
3. You will design the townhouse with the following parameters:
   a. Wall layout and design – you can move non-load bearing walls and otherwise modify the structure (check with me about ability to modify)
   b. Furniture layout and selection based on your client’s requirements.
   c. Finish selection
   d. Electrical and lighting layout (fixture selection not required)
   e. Creation of a door schedule, window schedule, furniture schedule, and finish schedule
   f. Creation of two design sketches showing specific design elements
   g. Creation of grey-scale shaded longitudinal and transverse section through the house showing wall elevations, furniture and finishes as appropriate.
   h. Creation of three ¾”=1'-0"scale labeled diagrams of construction methods using pictures of your house construction and sketches.
4. Create six boards (mat board mounted on top of foam core) 15” x 20” in size. Place appropriate drawings, schedules and finishes together. Below is one option for creating the set of boards.
   a. Board 1: Upper and Lower Floor plan with door/finish/window schedules, Lighting and Electrical Overlay and Schedule, (1/4” Scale)
   b. Board 2: Upper and Lower Rendered Furniture Plans (black and white or color) with furniture schedule (1/4” Scale).
   c. Board 3: Two design sketches of the interior (rendered color or grey-scale), include the theme ‘image’ on your board
   d. Board 4: Sample and Support Board that coordinates with schedule, and include finish schedule on this board
   e. Board 5: Transverse and Longitudinal Sections (on plans) through the structure rendered in black and white/grayscale
   f. Board 6: Images of the model (color or black and white) with three ¾”=1'-0” sketches and labeled diagrams of the construction methods
5. Boards should be hand lettered, and all boards should have the project title, and ‘Board x of 5.’
## Client Information Worksheet

### CLIENT INFORMATION

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<tr>
<th>Client Name(s):</th>
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<table>
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<tr>
<th>Subject Property Address:</th>
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<tr>
<td>Family Members, ages and interests</td>
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### PROJECT INFORMATION

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<th>Design Focus Areas:</th>
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<th>Client Preferences/Dislikes:</th>
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<td>Colors, moods, etc.</td>
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| Other: |  |
Cultivating Culturally Literate Designers: Experiential Learning of Chinese Feng Shui and Its Application to Design

Wei Dong and Suzanne Scott

Abstract

ISSUE

How can interior design programs teach cultural understandings that will prepare graduates to function in a global marketplace? A few lectures in various classes are not sufficient. Student interest in non-Western design philosophies, recognition of increasing interest of public, professional, and academic sectors in Feng Shui, plus the availability of faculty expertise, resulted in this ancient Chinese philosophy becoming the topic of a 4 credit course in culturally focused design education at the University of (institution).

Using study abroad, this experiential learning course teaches students that the heart of Feng Shui is the creation of harmony between humans, the universe, and the environment. Feng Shui is presented not as a remedy for problems, but as an integral part of Chinese life, affecting family structures, many aspects of daily living, management of well-being and ways of doing business, plus as a design philosophy shaping art, architecture, landscapes, and decorative arts. Relating to so many dimensions of culture, Feng Shui provides a perfect model for cultural analysis that students can build from when examining other cultures.

PROCESS

With support of faculty in Departments of Geography, Linguistics, and Asian Studies, a course was developed to compare and contrast design concepts of Chinese Feng Shui to Western approaches, particularly those derived from environment and behavior studies (EBS). This is a new approach for interior design study abroad experiences, which have typically involved examination of design products (historical and contemporary) in
western countries. It shifts the focus to design theories and philosophies, and to a non-western context.

Students spend four weeks living in dormitories at a Chinese university in Beijing, interacting daily with Chinese students, community people, and the marketplace. Lectures address Feng Shui tenets, issues of globalization, international collaborations, cultural diversity, and person-environment interactions. Feng Shui design principles come alive when students engage in on-site analysis using directed seeing and graphic documentation techniques (McKim, 1980) followed by design application in projects. Learning is extended when students return to campus and teach faculty and other students via presentations and panels, publication of extensive photo libraries on web sites, and by demonstrating application of Feng Shui concepts in their design work.

**SUMMARY**

Benefits of this course far exceeded expectations. Student response has been extremely enthusiastic and participants have been vocal ambassadors for the course, our design program and School, praising this strategic response to enhancing their cultural literacy. Gains for students who only attend pre-travel orientations and share in follow-up experiences were also significant, in part because all department faculty members had traveled to China. We believe success extending knowledge gains from such a course will be enhanced if other design faculty members obtain content knowledge, whether via travel, reading, or workshops. In conclusion, although other campus departments teach cultural identities, they do not provide a perspective focused on design application. We must do this within design programs, and we cannot provide sufficient understanding of culturally relevant design in just a few selected lectures. This course offers a model for taking a more comprehensive step.

**REFERENCES**

An Interdisciplinary Approach to Sustainable Design

Kent Harris and Nita Eskew

Abstract

PURPOSE

As sustainability becomes a prominent topic in the popular culture through media and educational efforts, the idea of educating not only upcoming design professionals but students in other fields seems a promising way to disseminate knowledge and information on the topic. To this end, a January-term course was developed that was both interdisciplinary and experiential. Open to all students, the course was facilitated by faculty from both interior design and chemistry. Students were exposed to current practices and topics that included waste management, water treatment, recycling, manufacturing and construction, etc. Discussions included concepts and terminologies related to green design, alternative energy, and progressive materials. The course included field trips, guest speakers, hands-on laboratory exercises, and a simple design project. The goal of the course was to give students a greater understanding of environmental issues and enable them to make informed decisions and choices about their consumer habits and product choices. An overview of the course structure and content, as well as the application of this topic as a supplement to traditional courses will be presented.

METHODOLOGY

The course framework was based on the concept of experiential education. “Tell me and I’ll forget, show me and I’ll remember, let me do it and I’ll understand.” - led the structuring of this course.

Students were asked to find articles related to environmental issues for discussions, and keep a journal. Texts included “Cradle to Cradle” by William McDonough and Michael Braungart, and “Biomimicry” by Janine Benyus.
Nearly 70% of class meetings included field trips to local and regional sites, guest speakers, and hands-on laboratory work. Field trips included landfill and wastewater treatment facilities, recycling centers, an experimental solar house, building sites of LEED certified architectural projects, and a museum showing entries from a green design contest for Habitat for Humanity. Guest speakers included architects, furniture designers, power company spokesmen, etc. Labs featured production of natural dyes, paper recycling, and a biodiesel extraction.

A team project was given to design a sustainable design educational center using current and emerging technologies considering site-specific conditions, energy-efficient architectural design, and alternative energy sources. Solutions were presented through oral and visual presentations.

Surveys were given at the end of the class asking students to rate their understanding (using a Likert scale) of sustainability topics before and after the course. Students were asked to rank the knowledge gained from each field trip and activity and to determine the most informative and influential activities. An open-ended question to solicit further comments in relation to the course was also included.

**SUMMARY**

Survey results revealed increases in understanding for almost all topics, most ranking their knowledge increase as significant. Students recommended repeating most activities, labs, trips, speakers, etc with little or no modification. More than half of the students surveyed indicated they would strongly recommend the course to others. Since only one student had drafting experience the design solutions did not have the aesthetic and technical quality seen in most design studios, but content and sustainability considerations were well-planned and conveyed.

**REFERENCES**

Support Materials

SYLLABUS

Where did it come from? What’s in it? Where’s it going?

<table>
<thead>
<tr>
<th>Instructors</th>
<th>Email</th>
<th>Office</th>
<th>Office Phone</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prof. Kent Harris</td>
<td><a href="mailto:harris@salem.edu">harris@salem.edu</a></td>
<td>FAC 12</td>
<td>721-2770</td>
</tr>
<tr>
<td>Dr. Nita Eskew</td>
<td><a href="mailto:eskew@salem.edu">eskew@salem.edu</a></td>
<td>10 Science</td>
<td>721-2761</td>
</tr>
</tbody>
</table>

Course Description:

Technological advances since the industrial revolution have changed the way we live our lives on a daily basis. Some of these ‘advances’ have also had a significant negative impact on the environment on a global scale. We are on the verge of a new leap forward that may reverse some of the damage we’ve done. This course will explore the way things are currently done and how they may change in the future. Class discussions, field trips, guest lectures and laboratory experiments will look at some current materials, processes, and products as well as some of the groundbreaking new technologies that will significantly change the way we live our lives.

Course Objectives:

This course will familiarize and educate students with terminology and concepts related to green design, recycling, alternative energy sources and other related topics. Through an interdisciplinary approach, students will become familiar with interior design and chemistry. Students should be enabled to make more informed decisions and choices about their consumer habits and environmental issues.

Grading:

<table>
<thead>
<tr>
<th>Component</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class participation</td>
<td>40%</td>
</tr>
<tr>
<td>Written assignments (journal)</td>
<td>35%</td>
</tr>
<tr>
<td>Design project and presentation</td>
<td>25%</td>
</tr>
</tbody>
</table>
Attendance:
Students are expected to be on time and attend all scheduled classes and field trips. If a class has to be cancelled due to weather, it may be made up on a Friday. If a student misses more than 2 classes, the instructors reserve the right to assign an F.

Assignments:
Journals: Students will keep a journal including reflections on field trips, speakers, and responses to laboratory exercises.
News Articles: Students will summarize 3 current news articles, as assigned, on related topics, and present the information to the class.
Design Project: Students will choose a site and design a building incorporating green design. Students will submit sketches and a materials list, and they will present (15-20 minutes) their project to the class.

Tentative Schedule: class and lab 9-12 Mon – Thurs/Fri. and field trips

<table>
<thead>
<tr>
<th>DATE</th>
<th>TENTATIVE TOPICS</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>Introductions and course overview; C2C – Intro and Ch1</td>
</tr>
<tr>
<td>4</td>
<td>Field trip – Manson Meads wastewater treatment facility</td>
</tr>
<tr>
<td>5</td>
<td>Field trip – Hanes Mill landfill and recycling center</td>
</tr>
<tr>
<td>6</td>
<td>News articles; Lab exercise - paper recycling</td>
</tr>
<tr>
<td>9</td>
<td>Field trip- NCSU solar center</td>
</tr>
<tr>
<td>10</td>
<td>NC Green Power – guest speaker</td>
</tr>
<tr>
<td>11</td>
<td>News articles; Lab demo – biodiesel; C2C – Ch 2</td>
</tr>
<tr>
<td>12</td>
<td>Discuss design project; visit sites</td>
</tr>
<tr>
<td>16</td>
<td>MLK Holiday</td>
</tr>
<tr>
<td>17</td>
<td>Lab exercise – Natural Dyes synthesis</td>
</tr>
<tr>
<td>18</td>
<td>Cia Mooney of Brayton International – guest speaker</td>
</tr>
<tr>
<td>19</td>
<td>News articles; C2C - Ch 4 and 5</td>
</tr>
</tbody>
</table>
20 Possible field trip or guest speaker
23 Field Trip – SmithLewis Architecture, Roanoke, VA
24 SECCA - HOME house project
25 C2C – Ch 6; Work on projects
26 Project presentations

Please note that the two out-of-town field trips will take longer than the normally scheduled class period to allow for travel time and presentations/tours. Please bring a lunch or cash for local dining.

Related Websites:
USGBC.org - US Green Building Council
NC.greenpower.com - Alternative Energy Sources
C2C-home.org - Home Design Competition
cbf.org - Chesapeake Bay Foundation
People Learn by Doing: Introducing Lighting Design Problem Solving in a Lecture Class

Asha Hedge

Abstract

ISSUE

The importance of light and its affects on individuals and environments are well documented and acknowledged by design educators and The Council for Interior Design Accreditation. Historically lighting is taught as a 3-credit lecture class where students are exposed to fundamentals of light and are expected to apply this knowledge in their studio applications.

Based on my 20 years of experience teaching lighting in interior design programs, I have noticed two problems: First, the students are not sure how to apply the fundamentals of lighting in interior applications, which is required in all studios. Second, lighting is a specialized area, and most interior design faculty who teach studios are not comfortable with their own lighting knowledge and are unable to assist students adequately with lighting design and layout. The result is that students try to meet the lighting design requirements in a studio without fully understanding how to apply the qualitative and quantitative principles of light in their designs.

CONTEXT

To bridge the gap between the theory of light and it’s application in interior spaces, I redesigned a 15-week lecture class to cover the fundamentals in the first 11-12 weeks and tackle the lighting problem solving/application issues during the last 3-4 weeks. The focus of this presentation is on the last 3-4 weeks that deals with the ‘Lighting Design Problem Solving’. This module will take 7 class periods that are 75 minutes each in length.
The main objective of the ‘Lighting Design Problem Solving’ module is: The student should be able to analyze a given lighting problem and resolve the problem—a. Identify the problem; b. Interpret and evaluate components of the lighting design process; c. Determine its appropriateness for the problem (decision making). Questions such as: What to light? How to light? What to light with? are dealt through the use of several instructional strategies.

SUMMARY

Due to the large class size (70-80 students), most problem solving work is done in teams. Instructional strategies and learning activities were planned with the philosophy that “people learn what they do” (Merrill, 2002). During the 7 week class period, students were involved in: case studies; on-campus and off campus site visit evaluation/assessments; and in-class team and individual lighting simulations and layout problems. All these activities were documented using technology and media (video clips, PowerPoint slides with animation; Camtasia; and Pacyderm), and made available to students on-line (TRACS or blackboard) for them to review and refer, as needed. The availability of these resources along with the hands-on strategies used in the ‘Lighting Design Problem Solving’ module has enabled students to gain confidence in applying the lighting knowledge in their interior studio applications.

REFERENCE

Support Materials

PROJECT OVERVIEW

Project Goal
The main purpose of this project is to bridge the gap between the theory of light and the application of this knowledge in interior applications. This should help students’ greatly in dealing with lighting solutions in all their studio work and make their designs more functional and aesthetically pleasing.

Project Description
This project is to help interior design students become competent in taking the fundamentals of light and lighting learned in the first 11-12 weeks of the class and applying that knowledge in the application of lighting design during the latter part of the semester. Modifications to the existing lecture class were made to include hands-on group activities; lighting simulations; and incorporation of technology and media to document and evaluate light in interior spaces.

Learner Analysis
The students enrolled in this class are interior design majors with limited knowledge of lighting. This is a required class. My previous class evaluations revealed that students enjoyed learning about a certain topic when a product/application demonstration was done in-class.

Evaluation
• Administer pre- and post-class surveys to study student perceptions and attitudes about the topic of light and about their learning.
• Administer mini-quizzes or one-minute paper at the end of a lecture, demonstration or guest speaker visit to have a better feel for student learning.

• Administer lighting simulation problems at beginning of the module and at the end of the module, so as to determine if there has been a progress of learning that could be associated with the module.

Implementation

• Class lecture materials are presented using PowerPoint presentations utilizing text, video, images and other multimedia elements especially the drawing tablet.

• Pacyderm (type of media) is used to show design process and also aid in practice assignments.

• Camtasia (type of media) is used to document lighting demonstrations and layouts for students to review online as needed. These demonstrations are documented as digital video clips, and uploaded on to the TRACS (Teaching, Research and Collaborating System), course site so that students can go back to the examples on their own time.

• Using the NCQLP (The National Council on Qualifications for Lighting Professionals) model, lighting simulation problems were developed to assess the problem solving ability of the students—ability to identify and analyze a problem and take appropriate steps toward its solution.

Module Plan

Module Name

Lighting Design Problem Solving

Learning Goal

1. Learner should be able to evaluate an existing installation regarding the lighting and provide justifications for their critique.

2. Learner should be able to solve a lighting problem in a given interior application. The three main phases of the lighting problem solving are: (a) Identify the problem
(information gathering—user, space stipulations, codes etc; (b) Analyze the problem (interpreting and evaluating data gathered for decision making); (c) Resolve the problem (decision making).

Focus is placed on the items listed below:

What to light?
   Identify type of task and activity performed in the environment
   Identify what needs to be seen and by whom (age of user)
   Identify what needs to be emphasized or deemphasized in the environment

How to light? (Where to place the light?)
   Ambient light
   Accent
   Task
   Wall/perimeter

What to light with?
   Lamp type
   Fixture/luminaire type
   Controls

Length
The lecture class meets Tue/Thur for 1hr and 15 minutes each class period. This module take 3.5 weeks (7 class periods).

Types of Learning
   • Verbal information: Students will be able to justify lighting installations that they have selected and documented digitally
   • Intellectual skills: Lighting concepts and lighting process rules will be used in evaluating lighting design case studies
   • Cognitive strategies: Students will analyze, interpret and evaluate lighting design problems
• Motor skills: Students will use a Matrix/check list and template for their lighting design and specifications activity

Objectives

1. The student should be able to correctly list (knowledge) and describe the components of the lighting design process (comprehension).
2. The student should be able to analyze a given lighting problem and resolve the problem
   a. Identify the problem
   b. Interpret and evaluate components of the lighting design process
   c. and determine its appropriateness for the problem (decision making)
3. The student should be able to design a lighting layout using the lighting design process (synthesis)

Pre-Instructional Activities

Motivation (some of the activities are done prior to the module)

1. Mid-semester, a site visit to a lighting manufacturing plant in (city name goes here) is conducted. The tour includes a visit to the manufacturing plant as well as to their teaching/demonstration facility. This is a wonderful prelude to the lighting design module.
2. The lecture prior to introducing the lighting design module, I invite a well known practicing lighting designer to visit the class and share his installation portfolio. Many of the awards winning projects of this guest speaker are located in (city names go here) areas which the students might recognize since they are prominent installations.
3. Have online Website links to demonstrations of lighting effects; and light/color interactions offered by lamp and fixture manufacturers.
4. Encourage students to share their good and bad lighting examples with their peers on-line. This generates lot of interest among students.
5. For fun and play I have students select their favorite lighting Websites and their least favorite Websites. This list is compiled and results posted on the class TRACS which generates good discussion in-class and on-line.

**Communication of Objectives**

1. A syllabus with the main objectives clearly stated is presented to the students first day of class.
2. When an individual module is handed the specific objectives that fall under the umbrella objective (that is in the course syllabus presented day 1) is presented to the students so that they clearly understand the direction and learning involved for the duration of the module.
3. I also ask students to explain what they think the objectives mean (few students will be asked), which will be followed by few minutes of discussion.

**Activation of Prerequisites**

1. Since the students have had no classes (prerequisites) that deal with the element of light, the first 11-12 weeks of this class provide the necessary information that are needed for the student to apply them in lighting design.
2. The review of lighting concepts information covered in the first 11-12 weeks will be incorporated in the first objective of this module. This objective is intended to refresh student memory of the concepts as well as give me a clear understanding of students’ knowledge of the topic. Knowledge of lighting concepts such as the properties of light and color, lamp types and their properties, luminaire types, psychological and physiological implication of light, energy issues etc will be reviewed and quizzed (in-class Jeopardy style).

**Common Misconceptions and Preconceptions**

Common misconceptions and preconceptions on the part of interior design students regarding light, involve the perception that lighting theory is technical and difficult to
understand. They also believe that interior designers rarely deal with light and its specifications.

To set the students at ease, on the first day of class—when discussing the class objectives, I share examples of interior spaces and discuss the effects of light on space, materials, color and people. This enables the student to see the importance of light and drives home the message that ‘Light can make or break a space’.

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**Instructional Strategies**

**Information Presentation**

The typical instruction for the ‘Lighting Design Problem Solving’, module which consists of seven class periods follows this sequence:

Class period 1

1. Students write down individually what they consider are important components of the lighting design process (5 minutes or so)
2. Students get into their permanent pre-assigned groups of 6-7 in class and brainstorm the same topic within their group. End of the group discussion, each group presents their ideas on components of the lighting design process (this can be a flow chart or items listed). This is also posted in the online TRACS for the class.
3. I post my idea of the design process online for students to review.

Class period 2

1. Case studies of lighting installations are used to review the components of the light and the design process. This will be done using a PowerPoint presentation and drawing tablet. Visit to installations on campus such as the Library or the Main building provides concrete examples for students to review lighting design and components.
2. As part of homework, the pre-assigned group(s) are asked to identify an installation and digitally capture a minimum of 20-25 pictures that discuss (identify and justify)
the components of the lighting which are complied onto an online (class TRACS) slide/evaluation library for students to use. I also have an example of my evaluation of an installation for students to use as a guide.

Class period 3

1. In-class, a discussion on what makes a lighting work in an installation—components of good/bad lighting, is done using the slide/evaluation library.

2. In-class, a lighting simulation problem is handed to the students. The problem and expectations are discussed. This is a group problem and the students work in their pre-assigned groups in-class. The simulation problem has 2 parts: First, the students brainstorm the problem within the group. The group leader takes notes on ‘problem identification’; interpretation; evaluation; and how they plan to resolve the problem. Students continue to work on the concepts outside the classroom. I help and facilitate the group discussions and provide feedback both in class as well as online.

3. A sample simulation problem will be shared with the students and explain how the simulation works.

Class period 4

1. Here, the 2nd part, of the simulation will be addressed. Using the simulation problem they brainstormed in the last class period, the group has to commit to some components of the simulation and see if the solutions suggested are appropriate. The simulation is interactive in the sense that the student are informed immediately if their selected response is appropriate or inappropriate (in-class group test 50 minutes)

2. All groups learn about the outcome of their lighting simulation. Group with the highest score discusses their process and decisions to the class for 5 minutes.

3. End of class, a second lighting simulation problem (different setting and criteria) is handed to the students. This simulation like the first one provides some fundamental information with the goal of the lighting identified along with many condition variables and preferences.
Class period 5

1. In-class, students work individually on the solutions of the second simulation that was handed the previous class (45 minutes in-class test). The student is informed of the outcome of the simulation immediately.

2. This individual work helps me identify if the student understands the lighting design process and is able to evaluate the lighting needs of that particular setting.

3. Last part of the class, Lighting Layout (reflected ceiling plan) is introduced.

Class period 6

1. Focus is on architectural drawing of the lighting layout. This is done by a PowerPoint presentation along with the drawing tablet as well as Camtasia. All the layouts and in-class demonstration is complied and put on TRACS for students to access and review as needed.

2. Small in-class lighting layout assignment is worked in class. Students work on this individually by following the PowerPoint presentation. (Example: a lobby area in a commercial building).

3. Actual fixtures and lamp types are used and demonstrated to study what a simple down light fixture can do if lamps with different beams spreads are used etc.

Class period 7

1. A demonstration and discussion of specifying the selected light source and luminaires (fixtures) for an installation is conducted in this last class. The lobby example that was used in the previous class period is used in the specification example as well.

2. In-class, I visit a manufacturer’s site (on-line) and demonstrate to students the use of online specification. The example I use in class is www.lightolier.com

**Learning Guidance**

1. Provide practice lighting simulation problem online.
2. Have installation slide/evaluation library online (student generated + examples of lighting within the university setting here at _____ _____ University generated by me).

3. Provide a conditions/solutions variables matrix that the students can use to evaluate lighting installations. Using this matrix the students can practice different installations.

4. Provide lighting layout examples and specification examples online for students to refer.

5. Provide a lighting specification template to students both for practice as well as for use in other studio classes.

**Active Learning/Practice**

The class includes: in-class group discussion; in-class and outside group work on simulation problems; use of matrix and templates to help students practice design problems and specifications. And access to student and faculty generated resource library of lighting installations as well as all demonstrations done in class.

**Feedback**

Feedback regarding homework is discussed beginning of class. Students also receive immediate feedback during class discussion and group discussion sessions. For simulation problems the feedback is immediate which is automated.

**Module Review/Summary**

The goals of the lighting simulation problem(s) is to reinforce the skills learned and enable the students to apply it in problem solving of lighting situations in a variety of settings and criteria.
Assessment

Assessment includes: quiz; lighting simulation problem (group and individual); group evaluation of a lighting installation; lighting layout and specification.

Media Selection

1. Video clips provided online (TRACS)
2. PowerPoint slides with animation
3. Camtasia
4. Pacyderm

Note:

- **Student work, assignments, and demonstration tools will be shared with the IDEC audience in an interactive fashion.**
- **TRACS (Teaching, Research, And Collaboration System) is a new learning, collaboration and research content management system at _________ University. TRACS is being built on Sakai, a community-source technology being developed by a consortium of universities.**
- **Special thanks to the Instructional Technology Support team of The _________ University for helping with the module design.**
Instructions on Building Codes: Compliance with IBC 2006

Seunghae Lee

Abstract

ISSUE

This forum is to present a method of instructions on building codes in interior design. The code issue is a critical topic in interior design. Professional organizations in interior design such as American Society of Interior Designers (ASID, 2005) and International Interior Design Association (IIDA, 2006) guide their members to comply with or conform to the building codes in their membership standards since compliance with codes affects the public’s health and safety directly. In addition, the Council for Interior Design Accreditation (CIDA, 2006) indicates in its educational standards that students in accredited interior design programs shall be able to apply the codes that protect the health, safety, and welfare of the public to their design projects.

Clearly, the instruction on building codes is an important issue for interior design educators whose goal is to prepare students to be competent interior designers in the near future. Moreover, teaching students with the most updated code information available is necessary, but challenging to today’s interior design educators.

PROCESS

Instructions: The lecture, a project, and a test

Instructions on building codes this forum introduces incorporate three instructional approaches: (1) Lecture/discussion, (2) code analysis project, and (3) evaluation with a test. The lecture is composed of 9 one-hour sessions to cover the topics including the introduction, the occupancy classifications and loads, construction types, means of egress, fire-resistant materials and assemblies, fire protection systems, plumbing and mechanical requirements, electrical and telecommunication requirements, and finish and furniture

The code analysis project is assigned for students to apply the codes they learned by analyzing an existing space. The project is a medical office space of a 2-story, approximately 6,000 sq. ft. building. Students analyze each code issue based on IBC 2006. As a result, students present compliance-noncompliance issues with boards and submit a detailed analysis booklet. To complete their learning, students are tested with 30 multiple-choice and 3 short-answer questions.

**IBC 2006**

This presentation will focus on the changes in IBC 2006: (1) New section for children’s playground structures, (2) changes on maximum floor area allowances per occupant, (3) new restrictions on sprinklered, one-story buildings, (4) complete revisions on required separation of occupancies. Other changes will also be mentioned.

**Teaching Forum**

The teaching forum will be presented digitally. It will focus on the changes in IBC 2006 and student project examples will be shown. The handout for this forum will include a project guideline and a sample page from a student’s analysis booklet, and sample questions from the test.

**SUMMARY**

There are many important topics in interior design to be taught. The code issue is one of the most critical issues. Most building codes are established to respond to human sufferings aggravated by design preventing from repeating same mistakes of the past (Cherry, 1999). Instructions on building codes may help future interior designers build and design a safer and healthier environment.
REFERENCES


Support Materials

Handout

Instructions on Building Codes: Compliance with IBC 2006

Code Analysis Project Guideline

1. Schedule

<table>
<thead>
<tr>
<th>Session 1: Chapter 1, 2, &amp; 3</th>
<th>Session 2: Chapter 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Session 3: Chapter 5 &amp; 6</td>
<td>Session 4: Chapter 7</td>
</tr>
<tr>
<td>Session 5: Chapter 8</td>
<td>Session 6: Chapter 9</td>
</tr>
<tr>
<td>Session 7: Presentation</td>
<td>Session 8: Test</td>
</tr>
</tbody>
</table>

Read chapter(s) in your textbook, “The Codes guidebook for Interior,” and corresponding sections from International Building Code (IBC) 2006 as scheduled above. It is your responsibility to read and discuss your questions in class. The lecture will be given for each topic in class and the lecture contents (PowerPoint Presentation file) are available on the course website.

2. Analysis Project

The building is a 2-story and approximately 6,000 sq. ft dental office. Please see the separate handout for the floor plan. The building construction type is Type VB. Please refer to your textbook, “The Codes guidebook for Interior” and International Building Code 2006 to analyze this building for its compliance.

Analysis of compliance/noncompliance with IBC 2006 in terms of topics below:

A. Use or Occupancy Classifications
B. Types of Construction & Building Sizes
C. Means of Egress
D. Fire Resistant Materials and Construction
E. Fire Protection Systems
F. Plumbing & Mechanical Requirements
G. Lighting, Electrical & Communications Requirements
H. Finish & Furniture Selection
I. Accessibility

Address the nine areas above in both written and graphic form to visually point out both “non-compliance” and “compliance” areas of the code. The result may be the presentation boards and a booklet.

Your presentation should reflect your "Senior" status and your own "professional" standards for presenting to a client. Presentation **MUST** be in color.

3. Test
   A test will be given as scheduled above. There are 30 multiple-choice questions and 3 short-answer questions.

**SAMPLE SHEET FROM STUDENT ANALYSIS BOOKLET**
*Student presentation board example will be presented digitally at the presentation.*
<table>
<thead>
<tr>
<th>Section Number</th>
<th>Compliance</th>
<th>Reasoning</th>
<th>Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>1003.2</td>
<td>Yes</td>
<td>Minimum ceiling height in means of egress is 8’, which is above the minimum listed in the code.</td>
<td></td>
</tr>
<tr>
<td>1003.3.1</td>
<td>Yes</td>
<td>No ceiling objects listed, therefore we assume them to be correct.</td>
<td>Items are allowed to protrude below the</td>
</tr>
<tr>
<td>1003.3.3</td>
<td>Yes</td>
<td>No fixtures or furnishing project horizontally over 4 inches.</td>
<td></td>
</tr>
<tr>
<td>1003.3.4</td>
<td>Yes</td>
<td>No protruding objects reduce the minimum clear width of accessible routes.</td>
<td></td>
</tr>
<tr>
<td>1003.4</td>
<td>NA</td>
<td>The designer needs to specify slip resistant varieties.</td>
<td></td>
</tr>
<tr>
<td>1003.6</td>
<td>Yes</td>
<td>The path of egress travel along the means of egress is not interrupted by any building</td>
<td></td>
</tr>
<tr>
<td>1004.1.1</td>
<td>NA</td>
<td>Number of occupants included in building according to Table 1004.1.1.</td>
<td>See attached calculation sheet, occupant loads.</td>
</tr>
<tr>
<td>1004.4</td>
<td>Yes</td>
<td>The exit accesses in both areas comply.</td>
<td></td>
</tr>
<tr>
<td>1004.5</td>
<td>Yes</td>
<td>The area of egress convergence is wide enough to serve both floors.</td>
<td></td>
</tr>
<tr>
<td>1005.1</td>
<td>Yes</td>
<td>Egress widths meet the minimum requirements.</td>
<td></td>
</tr>
<tr>
<td>1005.2</td>
<td>No</td>
<td>Doors reduce the egress width by more than half.</td>
<td>Change door swing to swing into the rooms. See</td>
</tr>
<tr>
<td>1006.1</td>
<td>No</td>
<td>No lighting listed on the plan.</td>
<td>Place lights to illuminate the means of egress.</td>
</tr>
<tr>
<td>1006.3</td>
<td>No</td>
<td>No illumination emergency power.</td>
<td>Include a power backup system.</td>
</tr>
<tr>
<td>1006.4</td>
<td>No</td>
<td>No emergency lighting provided.</td>
<td>Place emergency lighting were needed.</td>
</tr>
<tr>
<td>1007.1</td>
<td>Yes</td>
<td>All exits are accessible</td>
<td></td>
</tr>
<tr>
<td>1007.2</td>
<td>Yes</td>
<td>All means of egress are continuous to a public way, and comply with section 1104</td>
<td></td>
</tr>
<tr>
<td>1008.1.1</td>
<td>No</td>
<td>Door widths are less then 32”.</td>
<td>Increase door openings to meet the requirement.</td>
</tr>
<tr>
<td>1008.1.1.1</td>
<td>Yes</td>
<td>There are not projections into door opening.</td>
<td></td>
</tr>
<tr>
<td>1008.1.2</td>
<td>No</td>
<td>One door is a pocket door.</td>
<td></td>
</tr>
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</table>
Smart and Sardonic: 
An Artist’s Work Helps Students Rethink Design Process 

Tom Peterson, Darrin Brooks, Steve Mansfield, and Victoria Rowe

Abstract

PURPOSE

As the faculty began to prepare for an upcoming semester, a decision was made that we needed to find an approach to our junior studio that offered students an opportunity to not only reach outside of the box, but perhaps to forget where the box was. Our goal was to find a fresh voice and perhaps revolutionary inspiration.

PROCESS

A decision was made to visit the art museum on our campus. Several types of museum collaborations were discussed; the common denominator was that students be provided an opportunity to be inspired by pieces from the collection. This was a great first step as there was much to stimulate a designer if only by observation. This, however, did not satisfy our need to have a new voice or voices. We opted to bring to campus one of the artists, whose work was currently on exhibit, and engage her and the museum director with our students.

After the artist accepted our invitation, we proposed a specific project that would benefit our students as well as the goals of the museum. The interior design team decided on the design of a single object - a wall sconce. Such an object related well to the work of the artist (see handouts), was something that could be fostered by and exhibited in the museum, and that related to the profession of the interior designer.

The project began with a presentation by both the museum director and the interior design faculty team. The work of the artist was introduced, and students were shown a variety of images from the artist’s portfolio. Students were instructed to consider the artist’s
motivation and approach to each work shown. With an enticingly rich body of work at our fingertips, the scope of the project was given: students had two weeks to research, design, and construct a papier mâché sconce (the medium of choice of this particular artist).

Students returned with their visual ideation and research, which was then critiqued by the interior design team and museum director. After the feedback session, students created computer visualizations, and drawings. The museum director articulated through demonstration the specifics of how the sconces could be constructed using the artists method of traditional painted papier mâché.

SUMMARY

Finally, the students presented their finished sconces and installed them as “works of art” in one of the museum galleries. Each piece included a written description commenting on concept through fabrication. The following week students met with the artist in the gallery for a critique. The students found the artist’s responses were far from predictable. She was frank and sometimes brutal, but the students appreciated her process and works with new eyes as they understood better her approach and technique. Students still talk about this adventure in design, as we plan for yet another foray into the museum.

The significance of this type of experience was underscored nine months later by an article in Art Education titled “University in the Art Museum.”

REFERENCES

Living In Complexity: Building Human Issues into Interior Design Studio Experiences

Tiiu Poldma

Abstract

PURPOSE

This teaching forum presents residential projects in the second semester design studio of a first year baccalaureate program. The complex nature of the interior design process is explored, and how design happens with people, within particular contexts and in situated environments. Human issues are integrated into the studio learning using scenarios such as the homeless and the changing nature of the family. The project contexts are shown and visual examples of student projects explore how the design process unfolds in the classroom.

PROCESS/CONTEXTS

It is the first year interior design studios where students are taught the tools, methods, processes and foundations that help to prepare them for future design problem-solving. Interior design is becoming a complex process, where design problems are situated increasingly within global, international, human and social contexts. The global nature of our society, the increased strain on resources and the increasingly complex nature of society demand new ways to understand and problem-solve within current interior design contexts. The second and third projects of a first year design studio are presented. Theoretical ideas about human issues are explored alongside the practical contexts such as the urban milieu, building adaptive reuse and understanding lived environments within an increasingly complex human condition. Project examples include designing for the homeless and designing for changing family structures.
SUMMARY

This type of studio learning stimulates the creative mind while instilling a sense of human empathy for a user who may be understood to be abstract. Issues of ethics and responsibility are explored alongside aesthetic intention. Students understand both aesthetic concepts and human issues and how these are integrated through the application of interior design processes.

REFERENCES


Support Material

Interior Design Studio I
Exploring Life Experiences

Project 3 – Residential interior space (Espace «domestique»)

«Living in St. Henri:
   Tracing the footsteps of Gabrielle Roy’s ‘The happy occasion’»

DEVELOPING INQUIRY IN DESIGN THROUGH THE REFLECTIVE
EXPERIENCES OF UNDERSTANDING SOCIO-CULTURAL REALITIES IN AN
ACTUAL SETTING

PROJECT: REORGANIZATION OF A BUILDING VOCATION INTO A THREE
FAMILY LIVING COMPLEX (3 PEOPLE OR 3 GENERATIONS)

In this project, a particular accent is on the socio-cultural nature of the real neighbourhood as it exists in the urban milieu. If it is important, even vital, for this neighbourhood to be revitalized through the integration of newcomers into the economic activity (in a broad sense), then it is also vital for new inhabitants to benefit from a renewed sense of social integration within the environment. This attention to questioning the social context within the design problem constitutes a part of the final evaluation.

Your client (description of family types below) must be capable of integration within this dynamic of social responsibility in the same way you responsibility is as a designer creating a physical environment to suit their purposes.

Aside from the pure planning aspects of the living spaces, you are asked to consider two fundamental questions:

1. Who is being served by this design intervention;
2. What difficulties are inherent to designing with socio-political concerns for a particular social group or population

This project asks you to consider your role as an interior design within these contexts. You are asked to use your design skills to design not only the living spaces for a better quality of life, but to do so within this social context, all the while organizing these spaces to improve the quality of living, conform to a pre-established program, respecting the surrounding residential environment, and respecting the surrounding conditions.

« A man with a spatial arrangement» is neither an owner nor simply a user, but rather an active informer of ambiance. He organizes the space as a distribution structure, controlling the space, understanding the reciprocal relationships that occur and also the totality of roles that objects might assume. (He must himself be «functional», respective of this space if he desires the messages of arrangement leave him and return to him. This is neither possession nor control, but rather a responsibility* given to him, in the proper sense that he manages ‘responses’. The modern inhabitant does not «consume» their objects. (Here again, «taste» is related to the closed idea of object.) He masters* them, he controls them, he decorates them. He finds himself manipulating* and within a tactile equilibrium of a system.


*Teachers’ emphasis

Objectives:

- Philosophical
  - Develop conscience of the social fabric of the environment
  - Develop awareness of the existing building
  - Develop awareness of the designers’ social responsibility in the face of these 2 parameters

- Pragmatic
  - Study specific needs of a client-user (in this case, composed of 3 people)
Comprehension and integration of familial needs in the conceptualization and planning of the space

Learn

How to ask good questions about house/home/spaces/objects

How to develop a design program

How to develop design strategies and concepts

Differentiate and qualify various spaces created (public, semi-private and private)

Create a design concept for a residential space

Methodology:

1. Study of the Spaces
   • Drawings, plans, perspectives of the existing spaces
   • Volumetric maquettes
   • Texts analysing tensions. This means tensions in the sense of Kandinsky’s meaning, even though the scale here is much larger; meaning, what generating forces emerge from the consideration of numerous ideas, forms, situations, etc. that are contradictory at first glance.
   • In our case we should consider
     • Rehabilitation of abandoned buildings
     • Cohabitation of 3 individuals, linked by familial ties but challenged by conflicts of either schedules of generations
     • This work will help you to develop a concept or identifying theme that will become central to your project development and the development of the design concepts

2. Program analysis
   • Specific design program
   • Horizontal and vertical exploration
   • Design intervention strategies
   • Drawings and working models
3. Intervention – Design Response

- Plans, sections, elevations, interior sketches (considerations from points 1. and 2.)
- Final concept, including:
  - Plans at 1:50 metric
  - Section/elevations
  - Three dimensional views
  - «Tectonic» concept board
  - Working models (as required)
- «Working study» In-depth study of a particular function (eating, sleeping, personal hygiene, etc.), including plans and perspectives or interior sketches (1:25 metric)

<table>
<thead>
<tr>
<th>Schedule</th>
</tr>
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</table>

Week 9: DEFINING THE PARAMETERS OF THE QUESTION
12 – Project begins
13- Site visit; choice of site and of client(s)
14- Study of parameters of site and clients

*Tuesday 19 – 03: hand-in Phase 3A (5%)

Week 10: CONCEPT AND THREE DIMENSIONAL IDEA DEVELOPMENT
Functions and residential needs/elaborated client description (visual + written)
Conceptualization of the residential space (several exploratory ideas)

Week 11: ELABORATION OF CONCEPT/INTERVENTION IN DETAIL
3D idea exploration and development of definitive concepts for the client
Concepts in «real» scale and evaluation of volumetric ideas
Preliminary visual concept

Week 12: FIRST FINAL CONCEPT DEVELOPMENT
«Final» rough concept (to scale, with three-dimensional sketches)
Choice of a detailed spatial development at a larger scale (with teacher approval)

*Thursday 04-04: Interim crit and submission

Week 13: FINAL CONCEPT DEVELOPMENT/DETAILED DEVELOPMENT
Week 14: JURY PRESENTATION
Final presentation of concept and detailed study

* Monday 5:00 – 5:30 – FINAL SUBMISSION of all work
Seeing and Thinking Volumetrically

Jihyun Song

Abstract

ISSUE

A critical expectation for architectural interior designers is seeing and thinking volumetrically. Over the years, educators have taught numerous methods and techniques to address this challenge. As a developmental skill and ability, students build competence over several semesters until volumetric visual thinking becomes second nature. Usually, students are introduced to designing space through technical orthographic drawing, perspective drawing and study models. They continue learning about spatial character via CAD or digital modeling programs. Today, additional tools and programs such as SketchUp and Autodesk VIZ advance students’ levels of designing in 3-dimensions. While manual and electronic skills are understood, exploring these techniques related to stages of creative design and content of interior spatial elements is equally beneficial.

Three different modeling projects are presented and discussed demonstrating students’ development of volumetric seeing and thinking regarding conceptual, constructional and relational elements of interiors. Abstract models contribute to understanding conceptual and constructional aspects of volume, plus spatial relationships. Conceptual modeling contributes to developing and communicating ideas of spatial designs.

METHODOLOGY

Three classes were involved and each was given a project for generating design concepts through volumetric thinking, yet requiring different media and modeling techniques.
Project 1: 3-Dimensional Space Modeling was given to sophomore studio. Students were challenged to create and manipulate interior elements, focusing on geometry and characteristics of space. They used various thickness of white papers and foam core to express the quality of space in conceptual model. Work promoted understanding basic concepts and principles of space, emphasizing relationships and structure. Based on the conceptual model, students examined how to communicate their space with visual reference and graphic cues.

Project 2: Designing 3-D models Inspired by Artist’s Painting was given to another sophomore studio. This group used study models to create small-scaled sculptures inspired by the painting. The challenge was to analyze, manipulate and translate a 2-D format into volumetric constructs including color, line and shape. Students completed 8 study models to guide and refine 3-D qualities. White papers and foam core were used to develop form awareness and model skills. A final step required development of an environmental context to explore spatial relationships between sculptural form and environment.

Project 3: Conceptual Space Model in SketchUp was taught in an Advanced Design Presentation elective course. Conceptual modeling offers an opportunity to expand 3-D thinking through digital media, building a creative sense in spatial manipulations. Based on skills learned through short exercises, students began by adding various geometrical forms, planes, and solids within a given volume. While the software allows flexibility to check progress to a greater extent than physical modeling, students were more challenged to see and think volumetrically with this project.

**SUMMARY**

Students’ understanding of space was demonstrated in both physical models and in digital models considering geometric composition, volumetric ideation, and spatial enrichment. Students’ achievements were observed in the way light behaves in space, shadow and reflection, developing a spatial sense of the envelope, understanding of visual organization of spaces and forms, communicating ideas quickly, and creative and flexible exploration in digital modeling.
REFERENCES


Bringing History into the Design Studio: Developing Historic Studio Projects as Educational Tools

Terrence Uber

Abstract

PURPOSE

This Teaching Forum focuses on the development of new projects for a third-year history-based interior design studio offered in conjunction with the second of a two-course sequence in the History of Interiors.

Building on the previous semester of writing-intensive historical research, the purpose of the assignments for this studio was to provide the students with an alternative focus to the traditional historical design research project, or recreation, which illustrated what they had learned through their research.

PROCESS

There were two project assignments for the studio course. For the first project, the goal was to develop the historical presentation as an educational tool. While illustrating what the students had learned, it provided them with a different focus on how to format and present their research—and a goal beyond the achievement of a grade. They had to attempt to view the presentation through the eyes of an observer having no any previous knowledge of the subject matter.

The format of the presentation was left to the discretion of the students and they were encouraged to explore media with which they were not familiar.

The initial implementation of this project format in the spring of 2006 resulted in some very good and innovative presentations. Examples from the more adventuresome student productions will be included:
- a video documentary on the Greek Revival, complete with voice-overs and soundtrack; --a silent-film to illustrate the Art Deco era of the 1920s, with piano accompaniment;
- a magazine of 1950s Mid-Century Modern Design;
- graphic posters of Space-Age Modern, Pop Art, Art Nouveau

For the second project assignment, the students were instructed to develop a conceptual design based on a historical style or era as an educational tool for their clients. The design could be either residential or commercial. The goal was to incorporate design elements from the selected era in a contemporary setting, without recreating the interiors. The instructions for this project were given to the students verbally and project development was discussed with each student during studio critiques.

The goal of this project was to develop a presentation to present the historically-based conceptual design to their client. The format for this presentation was also left to the discretion of the students, with the only stipulation being that the presentation not exceed 10 minutes in duration.

The initial assignment of this project also occurred in the spring of 2006. A wide variety of visuals were developed to accompany the ubiquitous PowerPoint presentations. The visuals included: graphic posters; miniature stage set; a stained glass window; a lighted logo fixture; and the more traditional presentation boards. Examples of these will be included in the Teaching Forum presentation.

SUMMARY

For first time implementation in the studio, both projects met with a great level of success. The quality and variety of student work was very good. The level of research surpassed what had been done for assignments in previous years in the same course. The students investigated many different types of media and presentation formats beyond the traditional sample boards/ renderings.
Support Materials

PROJECT #1 – HISTORICAL RESEARCH/RE-CREATION/EDUCATION

Project Statement:
This historical research/studio project is designed to provide each student with an opportunity to pursue in-depth research on one particular design style or era. Utilizing primary and secondary sources, a database of information will be accumulated. This information will be used to develop a presentation which can be used as an educational tool to inform a general audience about that design style or era.

Project Objectives:
To research one (1) historical style/period/era to:

1) determine the significant characteristics of the style;
2) understand the influence of various factors within society which shape or help to determine the characteristics and nature of the style;
3) analyze the relationship between design characteristics and elements in the various fields of design, i.e. architecture; interior features—spatial arrangements, materiality; fashion; fine arts; crafts; textiles; etc.
4) develop a presentation which will educate and inform the viewer about the chosen style or era.

Project Components:
The completed project will contain two primary components:

1) Research “Notebook” –
   - A compilation of all research conducted for this project. This will include your research on the eleven categories discussed (Architecture, Fine Art, Decorative Arts, Economics/Social Conditions, Fashion, Food, Movies, Music, Politics, Religion, Theatre); as well as furnishings, spatial arrangement and utilization, materiality, color theory, etc.
- Parts of the research can be included in digital format (CD), but there needs to be a written component (non-digital) which provides a summary of the information contained on the CD.
- The notebook should be clearly organized and designed as part of the project presentation. It is not to be viewed as an extraneous component, but as an integral part of the design package.

2) Presentation as an Educational Tool
- Develop a presentation which will serve as an educational tool to inform a general audience about the chosen design style or era. (Note: This is the same purpose as any design presentation—to educate an audience on a particular topic which they may or may not be familiar with.) The presentation should contain all of the primary information about the style in an easy-to-understand format.
- The presentation must be designed as a “stand-alone” entity—there will be no involvement on the part of the student when the projects are presented. The viewer must be able to view, navigate and comprehend the presentation on their own.

Note: Because it is difficult to locate actual materials or reproductions for many of the design styles which will be presented, visual representations of textiles, wallcoverings, surface treatments, etc. are expected.

Project Format:
The format of the presentation is entirely open. Each student is encouraged to explore different methods of presentation and the use of different media to convey the required information. If computer technology is used, it should be able to run on a laptop computer, although several digital projectors may be available for the initial in-class viewing.

CAD Drawings:
The following CAD drawings will be required for every project:
1) Floor Plans – for all floors of the structure; with dimensions.
2) Exterior Elevations – minimum of one to show the exterior detailing of the structure; more than one may be required, depending on the style/era.
3) Interior Elevations – minimum of one to show vertical elements/surfaces within the structure; in most instances, more than one will be required to show usage in various areas of the residence—kitchen, living, bath, etc.
4) Optional on CAD – Architectural details, joinery, etc. It is assumed that examples of these elements will appear in the presentation, but are not required to be completed with CAD.

NOTE: The CAD drawings do not have to be included in the formal presentation. They can be incorporated into the research component.

DUE DATE: Thursday, March 9, 2006, at the beginning of studio at 11:00 AM.

PROJECT #2 HISTORICAL DESIGN IN A CONTEMPORARY SETTING

(VERBAL ASSIGNMENT – NO WRITTEN PROJECT STATEMENT)

Purpose of Project:
To develop a conceptual design which incorporates a specific historical style in a contemporary setting without recreating the style detail by detail. This is your opportunity to show your creative skills and historical knowledge in a design which will provide the clients with an idea of what you can do for them. On the basis of this presentation, the clients will decide if they will hire your firm to develop their project.

As a conceptual design, there should be no formal contract documents included in the final presentation. You will need to do the historical research to insure accuracy in the interpretation of the stylistic elements to the design of the contemporary setting.
Scope of Project:
Open to either residential or commercial design. Each designer will determine the type of space, use, and preliminary programming requirements.

Client Presentation:
The conceptual design will be presented to the “clients” in a formal presentation. The form of the presentation, forms of media used, types of information to be disseminated are to be determined by the designer. The only restriction on the final presentation is a time limit of 10 minutes. **Presentations will be scheduled for the last week of classes.**

**DIGITAL IMAGE FILE DESCRIPTIONS**
*(Digital files are too large to transmit in this format.)*

**Project #1**
1. Greek Revival Documentary Film
   A documentary film which discusses the origin of Greek Revival architecture in the United States. Images show the distinctive design characteristics of the Greek Revival style. Complete with background music and voice-overs.

2. Art Deco Silent Film
   A film constructed in the silent-movie style which discusses the Art Deco style and the cultural setting in which it evolved. Complete with subtitles and an original piano musical score.

3. 1950s Modern Posters
   A set of two (2) posters which provide historical context and design features of the modern style of the 1950s. Approximately 60-70 images are incorporated in each poster with explanatory text.
**Project #2**

1. Rotations Bicycle Shop

   A poster and powerpoint presentation of a contemporary bicycle shop design based on images from the World’s Fair of 1939.

![Rotations Bicycle Shop Image](image)

2. A Clash of Cultures

   This project focused the evolution of residential design in the 1950s and the juxtaposition of traditional and modern styles. A magazine was “published” which discussed the virtues of mid-century modern and a powerpoint presentation discussed the changing societal values which affected design.
The Quilt Project:  
Stitching Together Material Culture, Motifs, and Meaning  

Catherine Wallack and Nancy Miller  

Abstract  

PURPOSE  

The purpose of this presentation is to introduce a project that simultaneously addresses global perspectives and two-dimensional design. In order for students to recognize the importance of global perspectives, it is critical that the students are introduced to different points of view early in their professional educations. In a program where the initial design studio is devoted substantially to the visual, two- and three-dimensional design, it can be challenging to find a good fit for these socio-cultural issues within the course structure. By introducing material culture, the Quilt Project addresses both the need for students to explore two-dimensional designs in addition to providing them an opportunity to investigate different cultural contexts.  

PROCESS  

The Quilt project has a number of distinct phases. Initially, students receive a PowerPoint presentation on the broad topic of Material Culture. Much of the current study of Material Culture is dominated by semiotics, (Daniel Miller, 1998). However, the common understanding of the term is more relevant to the design students’ needs. Material Culture provides a vehicle to establishing the link between culture and design. (Grassby, 2005) The Material Culture presentation, therefore, includes images from many different cultures and time periods and includes objects ranging from religious icons and thatched huts to art cars.  

In addition, students are then given a general lecture on quilts and quilt traditions. Both presentations are followed by writing and research projects. The first writing assignment is intended to reinforce the concept of objects having meaning to individuals.
Quilts are often undervalued, as remnant of ‘women’s work’. (Milspaw, 1997) This project gives the students an opportunity to recognize these objects from a personal perspective. In a brief reflective essay, each student writes about his/her own memories of a specific quilt or textile. Each student selects a specific quilt tradition to research. The groups previously selected include Hmong, Amish, Guatemalan, Native American and Hawaiian. Students write research papers on these quilts and create precedent presentation boards illustrating the particular visual characteristics of the specific tradition selected. Finally, students create their own ‘paper’ quilts inspired by the traditions they explored.

SUMMARY

The quilt project offers a unique opportunity for students to gain exposure to a wide range of cultures and perspectives. Introducing the topic of Material Culture and requiring the students to relate this concept to their own experiences gives the project greater accessibility. Researching the specific cultures and perspectives adds significance to objects that, otherwise, might be understood only in visual terms. Finally, working with unfamiliar aesthetic sensibilities broadens the students’ design horizons.

The importance of students gaining greater cultural perspective is beyond dispute. However, the challenge of integrating the current CITA standards into any curriculum can be daunting. The Quilt project, by imbedding cultural content within design exploration, allows students to make direct connections between the topics. This not only satisfies the faculties teaching agenda but, more importantly, adds meaning and depth to the students learning process.

REFERENCES

Support Material

A PAPER QUILT

HESC 1034 : STUDIO 1
Fall Semester 2006

 ASSIGNMENT
Quilts are a unique textiles. Constructed of bits of fabric, often from garments that were beyond their original use, layers of fabric and batting were stitched together and made into bed coverings. This project explores the quilt as a part of family traditions, as part of the social fabric of communities, as an object of respect and wonder, and as a representation of material culture. This project has several parts that will require writing, research, and creative application of information found during the first two activities.

 LEARNING OUTCOMES
Throughout the various phases of the assignment, the student will:

- Learn about the integration of writing, research, material culture, and the interdependent nature of those factors and design
- Summarize existing literature about the American quilt tradition
- Distinguish various categories of quilts
- Apply newly gained quilt knowledge and color phenomena

 ASSIGNMENT 7.a: MEMORIES OF A QUILT
Everyone seems to know what a quilt is, and we all have memories of our first meaningful interaction with a quilt. Write a two-page paper relating your first memories of that quilt (whether it was last week or as a small child). Describe in detail the people who were a part of the quilt memory and the place you attach most closely to the memory.
FORMAT:
1. The paper must be computer generated, on 8 1/2” x 11” plain white paper.
2. The name of the author will be placed in the header in the upper left corner of the paper. Single-spaced under the author’s name will be the name of the class: Design 1: Studio.
3. The font used should be New Times Roman, size 10, with 1: justified margins on all sides, and double-spaced.
4. The title of the paper should be centered and only one double-space between it and the first paragraph.
5. Each new paragraph should start with a 1/2” indentation.

DUE DATE:
Wednesday, September 13, 2006

■ ASSIGNMENT 7.B: PRECEDENT STUDY OF QUILTS
Quilts are designed in a wide variety of styles/traditions that respond to the political, social, and material culture at the time of production. Referring to the classroom presentations, choose a particular quilt tradition you find appealing. Find several (more than three) photographs (photocopies or computer generated) of diverse patterns within the tradition to be used for formal visual presentation.

FORMAT, PROCESS, AND MATERIALS:
1. Using black ¼” foam core, cut a backing 11” x 17”.
2. Mount the trimmed photos on the backing using rubber cement.
3. Include a title block in the graphic layout. See example in diagram below.
**DUE DATE:**
Friday, September 15, 2006

- **ASSIGNMENT 7.C: WRITTEN STUDY OF QUILTS**

There is a vast amount of information available about the material culture of the time quilts were popular, both on-line and in the library. There are several types of documents one could utilize in their study. The types of records and documentation listed below are typical in a study of material culture such as the one we will conduct
concerning a quilt tradition. However, the student will determine which items are appropriate to the study of a broad area such as the selected quilt tradition.

1. Probate records are one of the most useful sources for the material historian when studying one particular item, particularly the inventory which provides a listing of the deceased’s real and personal property along with their appraised value. These lists enable the historian to calculate the standard of living, reconstruct room use and identify the household effects. Since we are researching a group of objects, rather than one particular quilt, we will be unable to use specific probate records as clue in our search for information. However, authors of quilt texts and journal articles may refer to such information gained through probate records.

2. Markings such as an engraved inscription, a trademark or patent number can offer clues about the date, manufacturer, quality and/or geographic origin of an artifact. Marks can be impressed, stenciled, stamped, woven, stitched or incised, etc. To assist in the interpretations of markings, the researcher can consult a wide range of reference works on trade marks, for whom it was made, but because a quilt is a handmade object, trademarks, etc. will not be found. A few quilts may have names or initials embroidered into them by the maker, however, most quilts have become anonymous through the years as those who know about the person(s) constructing the quilt have died.

3. Photographs constitute an invaluable record of heritage. They document style of dress and fashion influences. Interior views also provide visual evidence of household possessions and design ethos, such as mixture of objects and formality and informality of furniture arrangement. Occasionally, photographs also record activities of the time. The rich potential of photographic evidence is best summed up by Charles F. Bryan and Mark V. Wetherington: “Through the eye of the camera, the research can examine people and places ‘frozen’ in time … Photographs can tell us much about the social preferences and pretensions of their subjects, and can catch people at work, at play or at home, IN fact, you can ‘read’ a photograph in much the same manner as any other historical document.” For the purposes of this assignment, interior photographs might be found in books about quilts or the history of the time in question. Photographs might be found in family albums as well.
4. The listing below outlines generic questions typical for a material culture researcher. Some questions will not be appropriate to our research because we don’t have the object in our possession and because we are looking as a group of items rather than a single object. Therefore, the questions not appropriate may be omitted.

A. What is the object made of? Is it made of glass, wood, metal, ceramic, or natural fiber? Are these substances available locally? Or is it likely that the objects was made elsewhere?

B. What size in the object?

C. Is it light or heavy and does its weight serve a purpose?

D. Is it independent it is it used with something else?

E. Is it handmade or machine-made?

F. Does it have the natural patina of age? Is it painted or varnished?

G. Is there a pattern or design on the object? Are the decorative designs pictorial views or geometric? Floral or animal motifs? How has this decoration been applied? Does the pattern show evidence of other cultures or ethnic backgrounds?

H. Does the artifact show signs of wear and tear, and/or repair? Are there saw marks, pontel marks, finger marks or other signs of how the object was made? What type of wear is evident?

I. Where might the object have been made? Are there any identifying names, labels or symbols? Are these carved, painted, or impressed? Do these marks identify the maker, manufacturer, place of origin and/or place of sale?

J. Can you identify the function and purpose of the artifact? Was it ornamental or utilitarian?

K. When and how was the object made?

L. How does this object compare with other similar artifacts? Visually? Use of materials? Use of technology? Use of color? Use of pattern?

M. What function does the object serve and his this function changes over time?

N. What did the object cost when it was new? Was it expensive when it was made? How did this cost relate to the prices of other similar items at the time it was made?
O. Who owned this artifact and why?  What was the original owner’s social and cultural background?

P. Was the object a necessity or a luxury?

Q. What was the meaning of the object and how did people react and relate to it?

R. Is the object pleasant to the touch and the eye?

S. What does the construction and form reveal about the level of craftsmanship? Is it sophisticated or rustic in its execution and design?

T. What does the artifact reveal about the community that made and used it?

U. What does the object reveal about the person who used or collected it?

**WRITER’S GUIDELINES:**

The paper will be computer generated and will follow the same guidelines as the previous paper. References, those comments directly quoted from another author or information directly attributable to a specific author will appear in the text of the article immediately following the statement (Miller, 2005). The full citation will appear in the ‘Reference’ section that follows the narrative.

**REFERENCES**

*BOOK:* Last name of author, followed by the initials of the author. (Year of publication in parentheses followed by a period). Title of the book with only the first letter of the first word upper-case and all of the title in the italics. City of publisher, two-letter abbreviation for the state.

*JOURNAL:* Last name of the author, followed by the initiations of the author, (Year of publication in parentheses followed by a period). Title of the article with only the first letter of the first word in upper case. The title of the journal and the volume number in italics. (Issue number in parentheses) pages of the article use abbreviated pp. followed by the page numbers. City of publisher, two-letter abbreviation for the state.

*WEB SITE:* Title of page on web site. URL of web site. Date web site was accessed.

*DATE DUE:* Monday, September 18, 2006
ASSIGNMENT 7D: THE PAPER QUILT

- Continue using the quilt tradition used for the precedent outlined above.
- Select a color theory phenomenon from the study quite to be used in designing a repetitive quilt pattern.
- Design your own quilt using the selected precedent as inspiration. Your quilt should display characteristics of the selected precedent in hue and value, design of repetitive module, and graphic layout. The goal is to design a quilt that displays a ‘reference’ to your chosen quilt tradition. Some quilts will have only one repeat; Hawaiian Quilts have four repeats, and many quilts have 12 to 15 repeats. Some quilts have large areas of plain fabric, consider creating a quilt-like textured surface by ‘piecing together’ several papers in the completed quilt. Be careful not to copy, rather, use the tradition as an inspiration.
- Reproduce your quilt design, using painted papers of appropriate colors to achieve your color phenomenon. Cut the color chips to appropriate size and shape, and adhere them to a stiff background.

MATERIALS AND FORMAT FOR THE PAPER QUILT:

1. The completed paper quilt should be 15” minimum in each direction. It will be placed on a stiff background materials that uniformly extends a minimum of 1” beyond all edges of the quilt design.
2. Colors used in the quilt must be mixed by hand using the primary colors found in the bookstore supply kit. Replacement tubes of paint are available at the bookstore should you need them.
3. The best results will be obtained by using the acrylic paints on medium-weight water color paper, then cut to size and shape with an X-acto knife against a metal straight edge. Next, adhere the quilt pieces to the backing with rubber cement and remove excess glue.
4. The back of the quilt project will contain the name of the color phenomenon used, the name of the quilt tradition that inspired your work, and the standard title block as shown for Assignment 7B.
**DUE DATES:**

September 13, 2006: Submit selected Quilt tradition to be used for the series of assignments.

September 18, 2006: Submit photocopies of concept sketches for quilt repeats.

September 25, 2006: Submit completed quilt.

**EVALUATION CRITERIA**

1. Written work follows directions and writing displays thoughtfulness and depth in thinking and research.

2. Precedent study includes examples of representative quilts in the selected tradition with proper attribution and titles.

3. Paper Quilt is well designed, displaying sensitivity to the specific quilt tradition and the selected color phenomena. Accurate creation of the color phenomenon.

4. Effective use of balance, emphasis, unity and variety, shape, color and value, pattern, unity, rhythm, scale, and proportion.

5. Craftsmanship: Absolutely impeccable with ruler straight crisp lines, vertical edges on backing material, and 90° angles
Healthy Homes - Designing for Low Cost Housing

Paula Frances Peek, Nicole Bieak-Kreidler, and Melissa Franson

Abstract

PURPOSE

As partners in research and outreach, Auburn University’s Residential Interior Design Class joined with Tuskegee University in its “Healthy Homes” project. This opportunity (funded by the U.S. Department of Housing and Urban development) provided hands-on experience in the research, design, and communication of design solutions for a family with a defined health issue. Students were tasked to research and specify furnishings, fixtures and finishes that met or exceeded the qualifications that were also used for the built environment. These criteria included but were not limited to energy efficiency, environmentally friendly or sustainable, and indoor air quality factors. Designed as a team based service learning project each student group independently researched and created aesthetically pleasing design solutions for the 700 square foot dwelling within the constraint of an extreme budget ($3,000.00 for all furnishings, fixtures, artwork, textiles, materials etc.). This strict budget is based upon the “Healthy Home” consumer’s approximated disposable income for one year. This amount was discerned from a two income household, each adult earning minimum wage. Additional restrictions included the residence supporting 2 children, one of which suffered with severe asthma and it’s related illnesses). Specified materials were required to not inflame the asthmatic’s illness and promote healthy living, which in turn enhances the child’s wellness.

PROCESS

Justifications were required for all specified products. The following is a guideline for analysis and description of required outcomes:
Healthy Home Site Visit:
  On site measuring
  observation

Programming Document based upon:
  residential design principals
  observations
  focus group interviews
  research concerning low income environments in relation to:
    asthma
    furniture, fixtures and finishes
    sustainable materials
    healthy materials
    product availability
    clientele
  field trips to low end furniture suppliers

Design Solutions including:
  Furniture Plan
  Furniture, fixture and finish specifications
  Justifications for each furniture, fixture and finish choice
  Itemized budgeting

Presentations:
  Full color 36” x 60” poster featuring:
    3 Color perspective renderings
    furniture plan
    original project logo design
    description of project intent
    explanation of all selection criteria
    description of proposed client
itemized budget
Powerpoint presentation to accompany oral presentation to jury
Presentation boards including:
  Furniture, fixtures and finishes specified for Master Bedroom
  Furniture, fixtures and finishes specified for Children’s Bedroom
  Furniture, fixtures and finishes specified for Living/Dining Area
Trifold Brochure featuring:
  Original project logo design
  explanation of all selection criteria
  description of project intent
  links to Healthy Homes websites
  Links to HUD websites
  Contact Information for & Directions to - - - Healthy Home

SUMMARY

The winning team’s end product will be implemented and air quality testing will be conducted and compared to pre-installation levels, thus providing an understanding of indoor air quality and it’s impact on health. This project provides invaluable information pertaining to low cost, sustainable and healthy furnishings, fixtures and decorative elements. Conclusions suggest the opportunity for multiple product lines relating to low cost, sustainable, healthy home furnishings, fixtures and materials. Multiple outcomes are being made available to designers, manufacturers, researchers, educators, policy makers, stakeholders, and potential Healthy Home clients through a - - - Healthy Home website.
Wining Poster
The Online Learning Community in Interior Design Education

Marlo Ransdell

Abstract

Purpose

Online learning communities foster communication between those with similar academic interests (Anderson, 2004; Bell, 2005; Pea, 1988; & Santovec, 2004). The growth of educational technologies has helped establish effective learning communities throughout the country for students in distance education programs and professionals in continuing education. They provide students and professionals opportunity for communication through the use virtual environments. Educational technologies employed in learning communities allow people who are isolated because of geographical conditions or with time constraints to communicate and share information freely.

The purpose of this study was to examine aspects of online learning communities that have been established in educational and professional fields. It also sought to uncover how online learning communities meet the needs of their users and how this information can be translated for the benefit of interior design education.

Process

This study involved reviewing information from literature and web resources on current online learning communities. This information was compiled and disseminated to expose the characteristics of successful online learning communities. User needs and how these needs were met throughout the different communities are also addressed.
Summary

The results of this study highlight the current state of online learning communities and the ability of these communities to meet the needs of their users online. This information is dissected and translated for use in the field of interior design education. The results highlight the aspects of successful learning communities that could be implemented into creating a web-based interior design learning community.

In summary, this research sought to further the field of interior design education by combining successful techniques of online learning communities to supplement traditional face-to-face teaching methods. It seeks to uncover the aspects of current online learning communities that meet the needs of their users so that interior design education can benefit from the technology.

References

The Online Learning Community in Interior Design Education

Purpose

An online learning community brings people together who have similar research, professional, or educational interests. Online learning communities are successful by meeting the needs of their specific users (Cuban, 1988). The growth of educational technologies has helped establish effective learning communities throughout the country for students in distance education programs and professionals in continuing education.

The purpose of this study was to examine aspects of online learning communities that have been established in educational and professional fields. It also sought to uncover how online learning communities meet the needs of their users and how this information can be translated for the benefit of interior design education.

Context

This study placed online learning communities within the context of interior design education. The visual nature of interior design has traditionally translated into large blocks of studio time that require face-to-face interaction of students and instructors within the classroom setting. Interior design students are often isolated in small studio classes within their colleges or universities. These small classes facilitate important face-to-face interactions in a timely manner. The online learning community is a way to enhance or supplement the traditional methods of interior design instruction with the current technologies that are available. Recently, many interior design programs have required their design students to purchase a laptop computer for use during their educational career. This move has prompted more work being executed through the use of computer software and web-based technologies in the classroom. Online communities employ web-based technology to create communication between broader groups of students where information can flow freely. These communities are a way to broaden design students connections among their peers, as well as connect them with important issues in their industry.

Review of Literature

A recent report on the body of knowledge for interior design highlights communication as a basic need for interior designers (Martin & Guerin, 2005). Online
learning communities foster communication between those with similar academic interests (Anderson, 2004; Bell, 2005; Pea, 1988; & Santovec, 2004). “An online learning community is a virtual environment where people come together to learn informally” (Bell, 2005, pp. 68).

The Consortium for Design Education (CODE) is a program for internationalizing interior design programs (Kucko, Prestwood, & Beacham, 2006). This virtual design project spans a two-day period and allows students from six schools in three different countries to collaborate on a common design problem (Kucko, Prestwood, & Beacham, 2006). This project brings a global approach to design and is facilitated through the use of online technologies and student exchange. The positive aspects reported from the students perspective is the contacts there are able to make by participating in the project (Kucko, Prestwood, & Beacham, 2006).

Research at the Western Governor’s University has shown that not only do online learning communities foster communication, contacts, and a sense of community they also have lead to an 80% retention rate among students who are involved (Santovec, 2004). The camaraderie that is achieved through online communities also enhances student persistence and degree completion (Santovec, 2004). “Online learning communities can offer students a place where they come together virtually and feel acceptance. Virtual learning communities allow students the ability to dialog together, which contributes to peer support” (Santovec, 2004, pp.4). Participation in an online learning community supports students transitioning from outsiders looking in to the role of an insider within an academic community (Calvery & MacDonald, 2002). “Distance educators show increasing acceptance of the idea that the development of a sense of community among learners in online courses enhances their learning experience” (Anderson, 2004, pp. 183).

A model for online professional development and continuing education is STAR-Online (Supporting Teachers with Anywhere/Anytime Resources) which was funded in 2000 by the US Department of Education (Charalambos, Michalinos, & Chamberlain, 2004). This program allows for teachers to access mentors, colleges, and resources through the use of technology. Because the information is available through an online learning environment, geographical isolation and time restrictions become obsolete (Charalambos, Michalinos, & Chamberlain, 2004).
The University of Calgary implemented professional development classes that combine traditional and online strategies ((Wiesenbergl & Willment, 2001). “With continuing professional education increasingly offered through distance and distribute learning technologies, adult educators need to creatively interweave online and traditional face-to-face delivery strategies to craft successful continuing professional learning opportunities and communities that extend beyond typically time-limited opportunities” (Wiesenbergl & Willment, 2001, pp.5). This type of hybrid education allows for a broader distribution of knowledge among students.

Dr. Roy Pea (1988) of the Stanford Research Institute states an area that technology can have the greatest impact on education is in establishing new learning communities. The communication and the amount of useful material that is available can broaden opportunities for teachers and students alike within an online learning community (Pea, 1988). The use of online learning communities makes information, research, and discussions more accessible to a greater number of people.

Some characteristics of successful online learning communities are: that communities are structured to promote interaction, a safe environment is provided where people are free to express their opinions, a place where interaction is based on a constructive dialogue, the rules are clearly defined for participation in the community, and the communication tools that are used are accessible to all participants (Charalambos, Michalinos, & Chamberlain, 2004).

Process

Through thorough reviews of literature and online research, a compendium of established educational and professional online learning communities was compiled. This compilation was further reviewed to uncover similar aspects seen across communities. User needs and how these needs were met throughout the different communities are also addressed.

Results

The results of this study highlight the current state of online learning communities and the ability of these communities to meet the needs of their users online. This information is dissected and translated for use in the field of interior design education. The results highlight the aspects of successful learning communities that could be implemented into creating a web-based interior design learning community.
Summary

In summary, this research hopes to push the field of interior design education further by incorporating educational technologies as a tool for communication and information gathering. It seeks to uncover the successes and failures of current online learning communities in meeting the needs of their users so that design students can benefit from this technology and a broader community of peers.

References

Implementing Green Design and Sustainability: A Prototypical House of the Future

Sally Ann Swearingen and Leisha M. Bridwell

Abstract

PURPOSE

Educators must ensure that interior design students’ work demonstrates understanding of the impact on health and welfare of indoor air quality, noise, and lighting (CIDA, 2006). Interior design students must also demonstrate understanding of sustainable building methods and materials (CIDA, 2006). The purpose of this poster is to present an in-depth project reinforcing prior course discussions on the issues of sustainability by providing students an avenue to demonstrate knowledge and understanding of sustainable methods and green materials. Junior level students in a building construction systems course are charged with interpreting future housing needs to develop a prototypical house in a planned sub-division that combines sustainability as well as creative design concepts.

Project objectives are to 1) develop understanding of sustainable design issues as related to housing construction and design; 2) research contrasts of historical and contemporary housing using renew, reuse, reduce, and recycle; 3) evaluate past housing shapes/forms to site environmental factors: (i.e. geographical location, climate factors, etc.) 4) identify and evaluate current sustainable housing/construction resources; 5) evaluate energy management techniques; 6) review energy concepts in residential design relative to sustainability; 7) apply research to create a 3D model applying design applications (i.e. shading devices) emphasizing sustainable factors, and 8) prepare construction documents for a sustainable prototypical house.

METHODOLOGY

The first two weeks of the course, students analyze a lecture and listen to a speech on Easter Island (Norman, 2006). Discussions are generated on the integration of
sustainable concepts in regard to designing a model “house of the future.” A review of historical housing styles and design factors of southern plantation homes built before 1920. Students have to research other homes before 1920 utilizing sustainable design criteria of reduce, reuse, renew, and recycle (McGowan, Kruse 2004.) Students compile data providing structural and design ideas and research other country’s housing styles determining square footage, housing styles and layouts. Once research is complete, students begin preparation of preliminary plans. The “three tier approach” (Lechner, 1991), table 1, is used in critiquing students’ preliminary designs; this is the first of many revisions.

Students research green design, sustainable communities, and sustainable building products and create a notebook of materials generating models/drawings that address specific sustainable criteria. Design goals are written students from research and used to critique design solutions through each step in the design process. Before the final plans are approved, they are critiqued using the “four R” approach and health and sustainability criteria (McGowan, Kruse 2004). Students are required to support the design solutions with sellable, sustainable design criteria (McGowan, Kruse 2004.)

SUMMARY

Students, who were completely engaged in the project taking time to go through the entire evaluation process of sustainable and design factors, generated refreshing plans offering greater insight. These students seemed to have a deeper understanding of theoretical issues which was apparent when viewing the house form, site orientation, and other environmental factors. Students were more knowledgeable of relevant sustainable and green design issues, energy concepts, and design factors which were evident in construction documents. Students took more pride in design solutions since environmental concerns impact the environment of this generation.

REFERENCES


Implementing Green Design and Sustainability: A Prototypical House of the Future

PURPOSE

Interior designers have an obligation to protect the health, safety and welfare of the public. Educators must ensure that interior design students’ work demonstrates understanding of the impact on health and welfare of indoor air quality, noise, and lighting (CIDA, 2006). Also, environmental concerns are growing as the public’s awareness is heightened with rising costs of utilities and the implications on natural resources. Interior design students must also demonstrate understanding of sustainable building methods and materials (CIDA, 2006). It is imperative to future generations that design students have a thorough comprehension of sustainable design concepts to equip them as practitioners. Therefore, the purpose of this poster is to present an in-depth project reinforcing prior course discussions on the issues of sustainability by providing students an avenue to demonstrate knowledge and understanding of sustainable methods and green materials. Junior level students in a building construction systems course are charged with interpreting future housing needs to develop a prototypical house in a planned sub-division that combines sustainability as well as creative design concepts.

The objectives of the student project are to 1) develop an understanding of sustainable design issues as they relate to housing construction and design; 2) research the contrasts of historical and contemporary housing in regard to renew, reuse, reduce, and recycle; 3) evaluate past housing shapes and forms to site environmental factors: geographical location, climate factors, sensory factors, soil and vegetation factors; 4) identify and evaluate current sustainable resources used in housing construction; 5) evaluate energy management techniques; 6) review energy concepts in residential design relative to sustainability; 7) apply research to create a 3-D model applying design applications (i.e. shading devices) emphasizing sustainable factors, and 8) prepare construction documents for a sustainable prototypical house.
METHODOLOGY

In the first two weeks of the building construction course, design students analyze a lecture on Easter Island and read several supplemental articles on the topic. Also, students listen to a speech on Easter Island which reinforces other information (Norman, 2006). Class assignments and lectures generate discussion on the integration of sustainable concepts in regard to designing a home that could be used as a model “house of the future.” Next, a review of historical housing styles and design factors of southern plantation homes built before 1920 is added to class lectures. Students are asked to research similar homes utilizing sustainable design criteria of McGowan and Kruse, reduce, reuse, renew, and recycle. The challenge is to see if sustainable concepts are implemented in the housing designs by viewing illustrations showing environmental factors (i.e. site analysis, geography, climate, sensory factors) and analyzing energy components from the stand point of heating, cooling and lighting.

Students use information from the literature reviews to compile data that provides structural and design ideas from historical housing along with environmental factors to implement in an effective design solution. Additionally, students research another country’s housing styles to determine square footage, housing styles, and design layouts. Once this research is complete, students begin preparation of preliminary plans. The “three tier approach” of basic design (Lechner, 1991) in table 1 is brought into the analysis loop when critiquing students’ preliminary designs; this is the first of many revisions.

Students continue to explore current environmental issues relevant to residential design and generate models and construction documents that address students’ specific sustainable criteria. Students research green design, sustainable communities, and sustainable building products and finishes and generate a research notebook that compiles these findings, ideas, and concepts. Design goals are written by each student from the compilation of research and are used to critique design solutions through each step in the design process. Before the final plans are approved, they are critiqued using the “four R” approach and health and sustainability criteria (McGowan, Kruse 2004). Students are required to support design solutions with sellable, sustainable, and design criteria (McGowan, Kruse 2004.)
RESULTS

Students who were completely engaged in the project and took the time to go through the entire evaluation process of sustainable and design issues, generated a refreshing plan which offered greater flexibility and insight in the overall design. Students’ design process and methodology was more thorough and complete. A deeper level of understanding of theoretical issues was apparent when viewing the house form, site orientation, and other design environmental factors. After much research students began to question “how is this housing design, product, or material sustainable?” Additionally, students were more knowledgeable of relevant sustainable and green design issues, energy concepts, and design factors which were evident in construction documents. Students’ developmental processes were quicker and more concise.

SUMMARY

Students’ data from the research/process notebook documented sustainable products, materials, and design ideas that were implemented in formulating a satisfying design solution. Critiques of early housing designs and comparisons of contemporary homes seemed to generate projects with more insight into sustainable design concepts necessary for designing in the 21st century. Even though basic design processes were followed by all, these projects carried the research a step further insuring that sustainable concepts were provided in construction documents. Students seemed to take more pride in the development of final design solutions since environmental concerns greatly impact the environment of this generation with more regard to sustainable design concepts necessary for designing in the 21st century. It became the students’ mission to see how they could make a difference in designing green houses for the future.

REFERENCES


Table 1

<table>
<thead>
<tr>
<th>Tier 1 Basic Building Design</th>
<th>Heating</th>
<th>Cooling</th>
<th>Lighting</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Conservation</td>
<td>Heat avoidance</td>
<td>Daylight</td>
</tr>
<tr>
<td></td>
<td>2. Insulation</td>
<td>2. Exterior colors</td>
<td>2. Glazing type</td>
</tr>
<tr>
<td></td>
<td>3. Infiltration</td>
<td>3. Insulation</td>
<td>3. Interior finishes</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Tier 2 Natural Energies &amp; Passive Techniques</th>
<th>Passive solar</th>
<th>Passive cooling</th>
<th>Day lighting</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1. Direct gain</td>
<td>1. Evaporative cooling</td>
<td>1. Skylights</td>
</tr>
<tr>
<td></td>
<td>2. Trombe wall</td>
<td>2. Convective cooling</td>
<td>2. Clerestories</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Tier 3 Mechanical and Electrical Equipment</th>
<th>Heating equipment</th>
<th>Cooling equip.</th>
<th>Electric Light</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1. Furnace</td>
<td>1. Refrigeration machine</td>
<td>1. Lamps</td>
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<td></td>
<td>2. Ducts</td>
<td>2. Ducts</td>
<td>2. Fixtures</td>
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<td></td>
<td>3. Fuels</td>
<td>3. Diffusers</td>
<td>3. Location of fixtures</td>
</tr>
<tr>
<td>Description</td>
<td>Actions</td>
<td></td>
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<td>-------------------</td>
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</tbody>
</table>
| Reduced: lower total burden | - Create smaller compact plans  
- Use structural elements as finishes  
- Optimize material use |
| Reused: longer life span | - Incorporate salvaged materials  
- Design for dismantling and reuse  
- Create flexible designs (that don’t need to be redesigned as often) |
| Renewable: replenished by natural systems | - Specify agriculture-based products  
- Specify certified sustainable harvested wood |
| Recycled: waste becomes a resource | - Specify products with a minimum of 25% post consumer or 40% postindustrial waste |
| Healthy: nontoxic | - Create details that protect materials from water damage  
- Select materials that are easy to maintain |
| Local: Less transportation energy | - Give preference to locally manufactured materials |
| Durable: longer life span | - Specify high-quality, long-lasting products  
- Specify materials that can be partially replaces as needed  
- Create details that protect materials from premature damage |
| Postuse: avoid disposal | - Select materials that can be salvaged, reused, or recycled.  
- Select materials that are biodegradable. |
Single Family Room (SFR) Neonatal Intensive Care Unit (NICU) Design: Testing Space Allocations for the Redesign of Existing NICUs for the SFR Configuration

Debra Harris, Melanie Brang, Lauren Harper, Sandra Jordan, Christina Last, Melissa Manos, Jacqueline Mas, and Viviana Stewart

Abstract

PURPOSE

A recent trend in the design of neonatal intensive care facilities has been to increase the number of private patient rooms for neonates and their families instead of extending open bay patient areas. Several factors have contributed to the recent popularity of single-family rooms: 1) supportive data on infant outcomes (Als, 2004); 2) increased understanding of the value of breastfeeding and kangaroo-care (Ferber & Makhoul, 2004); 3) the hospital-wide trend toward private rooms; and 4) the success of innovative prototypes. The implementation of the Health Insurance Portability and Accountability Act (HIPAA) has also influenced the design of NICUs due to the need to provide patient privacy (Mathur, 2004).

Many hospitals are considering new NICUs and making decisions about the configuration type within the context of their existing facility where building systems and structure may inhibit efficient design of a SFR NICU. The purpose of this research was two-fold: 1) to investigate the premise that the design of single family room neonatal intensive care units does not require more space than traditional units, specific to renovation of existing NICUs; and 2) provide an opportunity to take research into the classroom by involving 7 independent study senior interior design students in the research and analysis process through design, documentation and program evaluation.
METHODOLOGY

Four existing hospital non-SFR NICU units were utilized to test the assumption that SFR NICU design does not require increased area to accommodate the same number of infant stations and meet the programmatic needs of patients, families, and staff. Seven senior interior design students participated in the design and analysis of the NICUs. Using the existing program, the students re-designed the units as a single family room NICUs. After the designs were complete, the data set was documented in Microsoft Excel and diagrams showing space allocation and organization. The plan analysis for each NICU involved measuring total square feet of the unit and categorizing every room into one of six general categories for allocation of space: patient, family, staff, unit circulation, building systems and net-to-gross (un-usable space).

SUMMARY

Due to variability in the existing conditions and limitations of the building configuration, all four units were unable to sustain the original number of licensed beds, contradicting the premise that the design of single family room neonatal intensive care units did not require more space than traditional units. Another assertion was that SFR NICU configuration requires less circulation than other types of unit configurations. Three of the 4 SFR Design Tests incurred an increase of unit circulation ranging from 2% to 15%. Non-usable square feet remained the same or decreased in 3 of the 4 unit designs indicating that existing conditions of a hospital renovation site may influence the plan efficiency more than the perceived increase in non-usable square feet.
REFERENCES


Single Family Room (SFR) Neonatal Intensive Care Unit (NICU) Design: Testing Space Allocations for the Redesign of Existing NICUs for the SFR Configuration

PURPOSE

A recent trend in the design of neonatal intensive care facilities has been to increase the number of private patient rooms for neonates and their families. Infants are affected both directly by their environment and indirectly by the influence of the environment on their caregivers (Harris, Shepley, White, Kolberg, & Harrell, 2006). Several factors have contributed to the recent popularity of single-family rooms: 1) data on the positive impact of developmentally appropriate care on infant outcomes (Als, 2004), 2) increased understanding of the value of breastfeeding and kangaroo-care (Ferber & Makhoul, 2004), 3) the hospital-wide trend toward private rooms, 4) the need to reduce nosocomial (hospital acquired) infections (Ulrich and Zimring, 2004) and 5) the success of innovative prototypes. The implementation of the Health Insurance Portability and Accountability Act (HIPAA) has also influenced the design of NICUs due to the need to provide patient privacy (Mathur, 2004).

Mathur (2004) suggests that SFR design does not significantly increase the total space needs of the NICU. He further states that experience has shown that the SFR NICU configuration requires less circulation than traditional open bay plans and that space requirements within the unit are reduced because areas such as parent sleep rooms become unnecessary. While the author’s position may reflect a design based on new construction with a set of assumptions about private room design, including a room area of 200 SF, many hospitals are considering new NICUs and making decisions about the configuration type within the context of their existing facility where building systems and structure may inhibit efficient design of a SFR NICU.

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3 The term “single room” may be confused with the notion of one open room. For the remainder of this proposal, the term “single-family room” (SFR) will be used.
The purpose of this research was two-fold: 1) to investigate the premise that the design of single family room neonatal intensive care units does not require more space than traditional units, specific to renovation of existing NICUs; and 2) provide an opportunity to take research into the classroom by involving 7 independent study senior interior design students in the research and analysis process through design, documentation and program evaluation.

Context

It has been estimated that SFR NICUs require approximately 650 SF per licensed infant station to meet the programmatic needs for patient, staff and families in the unit (R. D. White, personal communication, January 26, 2006). The space required for SFRs within the NICU may be offset by spaces no longer relevant to the unit, such as family sleep rooms and a decrease in circulation area (Mathur, 2004). However, existing SFR units are finding that family-to-family contact is limited (Harris et al., 2006), suggesting that space for education and social activities should be included in SFR NICU design. Circulation is a functional programmatic necessity that should be further investigated within the context of the SFR NICU.

Healthcare design is a specialty within the interior design profession that requires specific knowledge and an understanding of implementing design strategies based on evidence. Interior design education involving students in healthcare design and research contributes to the knowledge base of the interior design profession and is fundamental in preparing future designers for developing creative and evidence-based solutions for environments that support family-centered care and healing.

Review of Literature

A recent study comparing SFR configuration to open bay, double occupancy and combination NICU units found that 59% of the unit is allocated to patient, family and staff with the remaining area allocated to circulation, building and medical systems, and the net-to-gross factor (Harris et al., 2006). While Mathur (2004) suggests that SFR design does not increase the required area compared to other configurations, Moon (2005) states that SFR units cost more than traditional configurations due to the increased space required to accommodate patient friendly elements like increased room size, family support spaces (Moon, 2005) and non-institutional design elements for positive distraction (Committee to Establish Recommended Standards for Newborn ICU Design, 2006).
The Guidelines for Design and Construction of Hospital and Health Care Facilities (AIA Guidelines) (2006) serves as a design standard for American hospital and medical facilities. Space requirements defined by these guidelines call out for 120 square feet (SF) of clear floor area per infant station, excluding sinks and aisles and, when designing for single patient rooms, an adjacent aisle of not less than 8 linear feet in width is required to permit the passage of equipment and personnel. The Recommended Standards for Newborn ICU Design (Committee to Establish Recommended Standards for Newborn ICU Design, 2006) states that the configuration of the NICU should “individualize the caregiving environment and services for each infant and family.” This recommended standard reconciles with the AIA Guidelines for minimum space, clearance and privacy requirements for the NICU unit.

Methodology

Four existing hospital non-SFR NICU units were utilized to test the assumption that SFR NICU design does not require increased area to accommodate the same number of infant stations and meet the programmatic needs of patients, families, and staff. Seven senior interior design students participated in the design and analysis of the NICUs. Using the existing program, the students re-designed the units as a single family room NICUs. After the designs were complete, the data set was documented in Microsoft Excel.

The plan analysis for each NICU involved measuring total square feet of the unit and categorizing every room into one of six general categories for allocation of space: patient, family, staff, public, systems, and unit circulation. A spreadsheet documented all measurements including total SF, individual room SF, circulation and the net to gross factor (un usable SF). Diagrams were developed for each participating hospital and aggregate data identified the circulation patterns and user zones for each setting (Figure 1). The data was then compared to the existing unit data to evaluate the differences in the unit space allocations and number of infant stations designed for the SFR NICU configuration. The diagrams show the space allocation and unit organization as well as circulation. Descriptive statistics are used to express the values of space allocation within each unit plan and across unit plans.
Figure 1. Example diagrams of NICU allocated space by defined category and unit circulation.

RESULTS

Table 1 shows the total square feet for each NICU and the type of existing unit configuration; the number of licensed beds; average infant area; and the unit square feet per licensed bed based on unit configuration. All unit SFR design test plans exceeded the estimated SF need of 650 SF per licensed infant station. The number of licensed beds per unit decreased in all four SFR design test sites.
Table 1. NICU design outcomes comparing unit square feet per licensed bed, number of licensed beds, and average infant area based on unit configuration.

<table>
<thead>
<tr>
<th>Unit Code</th>
<th>Unit Square Feet (SF)</th>
<th>Unit Configuration</th>
<th>Unit SF per Licensed Bed</th>
<th>Ave. Infant Area</th>
<th>No. Licensed Beds</th>
</tr>
</thead>
<tbody>
<tr>
<td>NICU 1</td>
<td>15,682</td>
<td>Combination</td>
<td>448</td>
<td>109</td>
<td>35</td>
</tr>
<tr>
<td></td>
<td></td>
<td>SFR Design Test</td>
<td>922</td>
<td>244</td>
<td>17</td>
</tr>
<tr>
<td>NICU 2</td>
<td>16,337</td>
<td>Double Occupancy</td>
<td>340</td>
<td>111</td>
<td>48</td>
</tr>
<tr>
<td></td>
<td></td>
<td>SFR Design Test</td>
<td>778</td>
<td>319</td>
<td>21</td>
</tr>
<tr>
<td>NICU 3</td>
<td>20,519</td>
<td>Open Bay</td>
<td>456</td>
<td>111</td>
<td>45</td>
</tr>
<tr>
<td></td>
<td></td>
<td>SFR Design Test</td>
<td>977</td>
<td>309</td>
<td>21</td>
</tr>
<tr>
<td>NICU 4</td>
<td>10,871</td>
<td>Open Bay</td>
<td>544</td>
<td>115</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td></td>
<td>SFR Design Test</td>
<td>776</td>
<td>199</td>
<td>14</td>
</tr>
</tbody>
</table>

Table 2 focuses on comparing the existing space allocations for patient, family and healthcare staff of the original NICU with the SFR design test. In addition to user group categories, the table shows unit circulation and net to gross factor (unusable square feet) for each unit.

Table 2. A comparison of space allocations for existing unit configurations and SFR design tests for patients, families, healthcare staff, circulation, and net to gross factor.

<table>
<thead>
<tr>
<th>Unit Code</th>
<th>Unit Configuration</th>
<th>Patient</th>
<th>Family</th>
<th>Staff</th>
<th>Unit Circ.</th>
<th>Net to Gross Factor</th>
<th>Balance*</th>
<th>total</th>
</tr>
</thead>
<tbody>
<tr>
<td>NICU 1</td>
<td>Combination</td>
<td>24%</td>
<td>7%</td>
<td>38%</td>
<td>21%</td>
<td>7%</td>
<td>3%</td>
<td>100%</td>
</tr>
<tr>
<td></td>
<td>SFR Design Test</td>
<td>26%</td>
<td>4%</td>
<td>24%</td>
<td>36%</td>
<td>7%</td>
<td>3%</td>
<td>100%</td>
</tr>
<tr>
<td>NICU 2</td>
<td>Double Occupancy</td>
<td>33%</td>
<td>7%</td>
<td>17%</td>
<td>27%</td>
<td>9%</td>
<td>8%</td>
<td>100%</td>
</tr>
<tr>
<td></td>
<td>SFR Design Test</td>
<td>40%</td>
<td>2%</td>
<td>8%</td>
<td>30%</td>
<td>12%</td>
<td>8%</td>
<td>100%</td>
</tr>
<tr>
<td>NICU 4</td>
<td>Open Bay</td>
<td>24%</td>
<td>10%</td>
<td>19%</td>
<td>30%</td>
<td>10%</td>
<td>7%</td>
<td>100%</td>
</tr>
<tr>
<td></td>
<td>SFR Design Test</td>
<td>31%</td>
<td>11%</td>
<td>16%</td>
<td>26%</td>
<td>8%</td>
<td>8%</td>
<td>100%</td>
</tr>
<tr>
<td>---</td>
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<td>-----</td>
<td>-----</td>
<td>-----</td>
<td>-----</td>
<td>------</td>
</tr>
<tr>
<td>NICU Open Bay</td>
<td>21%</td>
<td>11%</td>
<td>33%</td>
<td>22%</td>
<td>12%</td>
<td>1%</td>
<td>100%</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>SFR Design Test</td>
<td>26%</td>
<td>8%</td>
<td>25%</td>
<td>24%</td>
<td>9%</td>
<td>8%</td>
<td>100%</td>
</tr>
</tbody>
</table>

*Balance includes public space, building and medical systems, and vertical circulation (if applicable).

NICU 1, an existing combination unit, had 35 licensed beds with an average infant area of 109 SF. The SFR design test layout accommodated 17 licensed beds with an average of 244 SF. Average unit SF per infant station increased 51%; space allocated to patients increased 2% while family and staff space decreased by 3% and 14%, respectively. Unit circulation increased 5%. Based on the estimated need for 200 SF, this unit may have accommodated up to 24 SFR patient rooms.

NICU 2, an existing double occupancy unit, had 48 licensed beds with an average infant area of 111 SF. The SFR test layout produced only 21 licensed beds with an average of 319 SF. Average unit SF per infant station increased 56%. Space allocated to patients increased 7% while family and staff space decreased 5% and 9%, respectively. Unit circulation increased 3%. Based on the estimated need for 200 SF, this unit may have accommodated up to 25 patient rooms.

NICU 3, an existing open bay unit, had 45 licensed beds with an average of 111 SF. The SFR test layout provided for 21 licensed beds with an average of 309 SF for the patient room. Average unit SF per infant station increased 53%. Space allocated to patients increased by 7%; family space increased 1%; and healthcare staff space decreased 3%. Unit circulation decreased 4%. Based on the estimated need for 200 SF, this unit may have accommodated up to 32 patient rooms.

NICU 4 was also an existing open bay unit with 20 licensed beds and an average patient area of 115 SF. The SFR test layout accommodated 14 beds with an average of 199 SF for the patient room. Average unit SF per infant station increased 30%. Space allocated to patients increased 5% while family and healthcare staff space decreased 3% and 8%, respectively. Unit circulation increased 2%. Based on the estimated need for 200 SF, this unit may have accommodated up to 17 patient rooms.
CONCLUSIONS

Each of the 4 NICU test plans presents a unique set of existing conditions which influences the design outcome for a SFR plan. Due to variability in the existing conditions and limitations of the building configuration, all four units were unable to sustain the original number of licensed beds, contradicting the premise that the design of single family room neonatal intensive care units did not require more space than traditional units. Another assertion was that SFR NICU configuration requires less circulation than other types of unit configurations. This study shows that only 1 of the 4 SFR Design Tests managed to reduce circulation within the unit. The other 3 SFR Design Tests incurred an increase of unit circulation ranging from 2% to 15%. Non-usable square feet remained the same or decreased in 3 of the 4 unit designs indicating that existing conditions of a hospital renovation site may influence the plan efficiency more than the perceived increase in non-usable square feet. This is a study with a small sample size, limiting the potential to generalize the findings. It is recommended that future studies compare new facility and existing facility design of SFR NICUs.

REFERENCES


The Evolution of Domestic Kitchen Design: Influence of the Social Determinants of Health During the Industrial Revolution

Dana Moody and Michelle Vineyard

Abstract

PURPOSE

This interdisciplinary study analyzed the history of domestic kitchens by documenting the effects of social and health determinants during the Industrial Revolution. Historical views found in the disciplines of education, health, home economics, nutrition and women’s studies were added to those of architecture and design. Looking at the evolution of design through the perspective of multiple disciplines gives insight into why design concepts evolve. Educators concerned with conveying to students the importance of a comprehensive design perspective will find the approach of this study a beneficial example.

METHODOLOGY

This study was conducted using the historical method of research. This involved studying, understanding and interpreting past events revealed through a thorough literature review from the disciplines of architecture, education, health, home economics, interior design, nutrition and women’s studies. Both primary and secondary documents were reviewed. Focus was given to the social outcomes related to industrialism/technological advancements, disease theory/health determinants and the changing roles of women and their effects on the domestic kitchen. Interpretations were needed to piece together the big picture created by different disciplines perspectives of this topic. A research design model was created to guide the researcher as interpretations were recorded.
SUMMARY

The Industrial Revolution brought to the city, not only an endless stream of technological advances, but the unsanitary living conditions leading to frequent outbreaks of infectious diseases (Markel, 2003). Disease theories sought to give guidance against disease transmission. The public became obsessed with a fear of germs and germ carriers (Muck and Brass, 2004). The middle class housewife was an important influence on protecting the health of the family and thus the health of the society (Wright, 1975).

As the role of the housewife changed from supervising domestic servants to performing household tasks, so changed the work setting of the home, especially the kitchen. A scientific approach was applied to kitchen design and use (Wright, 1975). The new technology of electrical appliances was marketed as the housewife’s new servant (Cieraad, 2002). The growing awareness of germs and sanitation, alongside the technological advances of industrialism, transformed the kitchen. The room went from a large, open space; sparsely furnished (Bock, 2000), to a small efficient assembly line complete with a work-triangle, electrical appliances, cabinets with counters and sinks with integrated drain boards (Wright, 1975). These changes contributed to improved health of the family and in turn improved health of the community.

REFERENCES

The Evolution of Domestic Kitchen Design: 
Influence of the Social Determinants of Health 
During the Industrial Revolution

PURPOSE

To understand the history of domestic kitchen design, one must have a firm understanding of the social issues occurring during the studied time-period. Design history is often viewed only through the eyes of the architect or designer, but looking at the evolution of design through the perspective of other disciplines gives insight into why design concepts evolve. This interdisciplinary study analyzed the history of domestic kitchens by documenting the effects of social and health determinants during the Industrial Revolution on kitchens. Historical views found in the disciplines of education, health, home economics, nutrition and women’s studies were added to those of architecture and design. Each discipline’s perspective was put together like pieces of a puzzle to create a new picture of the history of kitchen design during this time period. Educators concerned with conveying to students the importance of a comprehensive design perspective will find the approach of this study a beneficial example.

CONTEXT

The context of this historical study is firmly grounded in the social aspects of the Industrial Revolution. The evolution of kitchen design was heavily influenced by industrialization/technological advancements, disease theories/ health determinants and changing roles of women. Industrialization and technological advancements were reviewed to, not only look at new products being brought into the home, but also for the social effects and ramifications on society as a whole. Unsanitary conditions due to urban crowding led to widespread disease. Disease theories tried to explain the cause of health epidemics and define solutions. This time-period also marked a major shift in the role of women. With the shortage of adequate household servants, the housewife reluctantly took her place in the kitchen with an emphasis on creating a healthy home environment.
REVIEW OF LITERATURE

Preparation for this study required a background review of literature in four areas. These included: the Industrial Revolution; disease theory and social determinants of health; changing roles of women and servants; and kitchen design. Many studies on the evolution of kitchen design were found, but no studies were found focusing on social determinants of health during the Industrial Revolution.

The Industrial Revolution was distinguished by a strong pride in technical advancements and industry-developed products; efficiency of factory assembly lines; and new job opportunities. Items, once only available to the elite, became more affordable to people of all classes (Tate & Smith, 1986). But with industrialization came dramatic difficulties in social and health concerns. Overcrowding forced laboring classes to live in unsanitary housing, drink polluted water and milk and have limited access to food (Lee & Estes, 2003; Bryant, 2003). Pollution from dirt, noise, rotting food and human/animal waste abounded resulting in frequent epidemics, a low life expectancy and high infant mortality rates (Markel, 2003).

The “Miasmatic Theory”, a belief that the stench of a polluted environment caused illness, dominated as the primary cause of disease (Cutler & Miller, 2005; Mosby’s, 1998). This theory led to the promotion of improved domestic sanitation to fight epidemics. In the 1870’s Germ Theory gained in popularity leading to an obsession with the danger of germs (Muck and Brass, 2004). Rigid standards for domestic cleanliness were created for guidance against disease transmission. These beliefs produced a fear of outsiders bringing germs into the household and led to a prejudice against immigrants who worked as domestic help and often lived in the polluted slums. (Wright, 1975; Handlin, 1973).

In middle and upper class homes, the kitchen was considered the domain of servants. Kitchens were large, bare, open workrooms equipped with a cooking stove, a worktable, and possibly a sink (Bock, 2000) or drysink (Cotton, 1986). Most did not have refrigeration or cabinets for storage; therefore many foods were kept in the cellar. The only cabinet, a pantry dresser, was found in a “butler’s” pantry between the kitchen and the dining room (Bock, 2000).

Domestic kitchens were believed to contribute to illness (Adams, 1996). The potential for harmful germs entering the home through the kitchen came from possible
contaminated food, water and/or milk, as well as from those servants who handled these substances. The public confused common dust with infectious germs. Public health sought to rid the kitchen of surfaces that might be porous or collect dust and germs (Plante, 1995).

A societal crisis was created when many servants began to leave their jobs to work in factories (Wright, 1975). This, compounded by the fear that hiring new immigrants would bring disease into the home, led to middle class women taking charge of their kitchens (Plante, 1995). Kitchen design evolved in response to these many forces.

Methodology

This study was conducted using an interdisciplinary approach to the historical method of research. This involved studying, understanding and interpreting past events revealed through a thorough literature review including primary and secondary documents from the disciplines of architecture, education, health, home economics, interior design, nutrition and women’s studies. Primary focus was given to the topics of industrialism/technological advancements, disease theory/health determinants and the changing roles of women and their effects on the domestic kitchen. As the history of the domestic kitchen was viewed through late 19th-century social issues connected to each different discipline, interpretations were needed to piece together the big picture. This evolved into the creation of a research design model. Interpretations based on this model were recorded to better understand the interdisciplinary causes that led to the evolution of kitchen design.

Findings

As houses were believed to contribute to the spread of disease, home designs attempted to cover all aspects of disease theory – pure air, pure water, elimination of odors and high levels of sanitary personal hygiene practices. Doctors were recognized as better designers of healthy homes rather than architects (Adams, 1996). The housewife found that she had a higher calling in the battle against the filth and germs. She was now being called a “professional housewife” and needed an appropriate kitchen environment to match this new role (Wright, 1975).

New electrical appliances were marketed as more reliable and efficient “than the ever troublesome domestic servant” (Ciceraad, 2002). Kitchens grew smaller to reduce the amount of steps needed to perform tasks (Wright, 1975). Pantry dressers moved into the kitchen as the formal butler’s pantry disappeared from home designs. This slowly evolved
into the modern concept of cabinetry (Bock, 2000). Efficient arrangement of kitchen cabinets, sink, and range (Cieraad, 2002) created a self-contained assembly-line approach to performing tasks (Bock, 2000).

New finishes were brought into kitchens that emphasized cleanliness (Wright, 1975). Walls, floors, and woodwork were more sanitary and easy to keep clean if free from cracks (USDA, 1921). Walls were covered with washable materials such as tiles, oilcloth or paint covered with a coat of varnish (Wright, 1975). Wasteful ornamentation such as wall moldings and wainscotings were removed (Friedman, 1995). Moldings around doorways, windows, and niches became simpler or disappeared all together, in order to keep surfaces as smooth and dustable as possible (Wright, 1975). The ideal floor was crisp white tile. For those who could not afford tile, linoleum was the next best choice (Plante, 1995). Sanitary counter coverings included sheet metal and linoleum (Bock, 2000), while the ideal kitchen sink was cast iron or porcelain-lined (Plante, 1995). Even appliances were covered with porcelain enamel for easy sanitation (Wright, 1975). White became the prevailing color of sinks and appliances due to its association with sanitation (Cotton, 1996).

Technology was hailed as woman’s new servant as there was a rapid succession of electrical inventions aimed at helping the housewife achieve domestic cleanliness and perform her duties efficiently. Of all the new technological inventions, none had a bigger impact on the fight against dust and germs than the vacuum system. The ability to conquer dust daily enabled windows to be opened for fresh air and cross ventilation (Wright, 1975). Screens were added on kitchens to fight the health menace of flies and mosquitoes (USDA, 1921).

**SUMMARY**

The environment was a major social determinant of health contributing to the health of urban populations in the Victorian era. The Industrial Revolution brought to the city, not only an endless stream of technological advances, but the unsanitary living conditions leading to frequent outbreaks of infectious diseases. The middle class housewife was an important influence on protecting the health of the family and thus the health of the society.

As the role of the housewife changed from supervising domestic servants to performing household tasks, so changed the work setting of the home, especially the
kitchen. A scientific approach was applied to kitchen design and use. The new technology of electrical appliances was marketed as the housewife’s new servant. The growing awareness of germs and sanitation, alongside the technological advances of industrialism, transformed the kitchen. The room went from a large, open space; sparsely furnished, to a small efficient assembly line complete with a work-triangle, electrical appliances, cabinets with counters and sinks with integrated drain boards. These changes contributed to improved health of the family and in turn improved health of the community.

Kitchen design of the late-19th-century changed dramatically. The reasons were complex and required a multidisciplinary approach for understanding. This study provides design educators with an example of the value of a multidisciplinary approach to research.

REFERENCES


Mobius Kids

Nancy Clark-Brown

Abstract

NARRATIVE

Mobius Kids is an Inland Northwest discovery museum providing hands-on learning, creativity and fun for kids up to 10 years old. Previous size and access limitations precipitated the need for a new facility in downtown Spokane, Washington with the potential for increased visibility, lower operational costs and exhibit space on one level. As a non-profit entity Mobius was able to negotiate a lease for a site that was non-leaseable to most retailers and therefore affordable. The 16,000 square-foot basement location in Riverpark Square provided the context for the design team to work within.

The planning strategies were essentially derived by unique features of the site. Two major entries in prescribed locations (including an elevator pit and a major stairway already in place), major mechanical and plumbing connections, leaks from the sidewalk above, and very low ceilings defined circulation and air and plumbing distribution paths. In addition, generous offers of linoleum, textiles, and stainless steel and a budget of $550,000 had to be incorporated into the design solution to craft a vision of fun and energy to support exhibits, play areas, programs and events.

Modeling the method of learning promoted by Mobius, the design team and members of the Mobius community participated in a hands-on charrette to begin the design work. Ideas were explored very rapidly saving the client design fees and maximized the exploration process. Outcomes of the charrette included design strategies for the use of color, form and modularity as a way of achieving visual impact, and the development of important goals to focus the design planning. Objectives of openness (due to low ceiling heights), adequate site lines for staff (due to two access points) and flexibility for daily, monthly and annual exhibit transformations emerged as important planning objectives.

The design solution, inspired by the design elements of color and form, particularly
attractive to children, color and form, unify the interior. Large circles reinforced by the
linoleum or ceiling planes above, and a rainbow of contemporary colors (a deep indigo is
used for the ceiling color to hide the insulating foam) applied to MDF panels are used
throughout the space to reinforce wayfinding by defining spatial boundaries and important
destinations like the retail store, guest services and the beloved backhoe on the museum
exhibit floor. Stainless steel panels were used to provide flexibility in a playful way. Magnetic
letters on suspended steel panels provide exhibit signage, wall mounted steel panels are used
to display children’s artwork and provide space for posting future events. Stainless surfaces
in the art room provide staff easy to clean and hard to destroy creative space.

The most exciting outcome of the project is that Mobius Kids is succeeding beyond
expectations. Over the past year visitations have tripled along and annual memberships have
almost doubled, the interior inspired the color strategy for the redesign of the logo and the
website (www.mobiusspokane.org) and the gifted donations by the community became
inspired elements in the design approach for a treasured children’s place.
The room at the center of the exhibit area corresponds to the children's development. As you move along, the exhibit area moves advanced as other kids get older.
MOBIUS DESIGN & CONSTRUCTION TEAM

ALSC ARCHITECTS
Architectural & Interior Design
- Jeff Warner, Principal-in-Charge
- Eric Owens, Design/Production
- Todd Ovnicek, Design/Production
- Amy Green, Interior Designer

NANCY CLARK BROWN
Design Consultant

L&S ENGINEERING
Mechanical & Electrical Engineering

GOEBEL CONSTRUCTION
General Contractor
Mountain Island Branch Library

Jeanne Mercer-Ballard

Abstract

PROGRAM

Mountain Island Branch Library is a new 16,000 sq. ft. freestanding public library building in a small mixed-use commercial development featuring an impressive collection of books, periodicals and electronic media, computers and a variety of programs for children, teens and adults. The library spaces include the following areas: collections, reference, circulation, service, offices, sorting, restrooms, computer rooms and a meeting or community room. I was the interior designer on the project team.

OBJECTIVES

The Library asked the design team to use Mountain Island Lake on the Catawba River as inspiration for the design. The lake is the water source for a large metropolitan county and represents environmental stewardship and sensitivity to the natural landscape. They desired creation of interior spaces that are warm, inviting and take advantage of natural light. They also asked that the facility be distinctive and expressive to indicate its permanence and the importance of the public library to the life of the community.

DESIGN CONCEPT

The Library design meets the programmatic goals for function and flow and the design goals through the execution of its concept. The space expresses a monumental feel with a high ceiling, conveying a sense of permanence. A sweeping expanse of glass on the Library's southern face forms a strong connection to the outdoors and allows for abundant energy-saving natural light, a concept reinforced by the clerestory window spanning the length of the Library.
The floor plan features a large open space with generous circulation paths which accommodates the client’s desire for flexibility as the needs and demands of the service area change. The plan allows for easy flow between the various collections while providing clear sight lines for staff. A meeting or community room is located near the front entrance for easy access.

The design concept abstracts the forms and elements of books: the spine, binding, cover and the end of a book where the pages form a pattern of lines. These linear and curvilinear forms inspire the design and geometry of the plan, floors, walls, ceilings, millwork and furnishings. This abstraction seeks to inspire the visitor’s imagination, thus reinforcing the Library’s philosophy of inspiring creativity and learning. The main floor pattern features a bold linear pattern of environmentally-friendly carpet tiles. The pattern leads the visitor into the space and delineates the main circulation path. The adjacent wall undulates as a curvilinear feature. Millwork and furnishings reinforce these forms and patterns at a smaller scale.

The interior features rich, warm colors, artwork, materials, finishes and furnishings that harmonize with the Library’s surroundings complementing the large expanse of window wall. This connection to the exterior encourages visitors to learn about the natural environment and context. The nearby lake, animals and plants provided inspiration for the palette which include peach, light peach, bone, bronze, natural cherry, with accents of apple green, rich red and saturated blue. The palette is fresh and reinforces the natural light filled environment, encouraging visitors to stay. Accent colors are used on furnishings and on elevations as wayfinding devices. Material selection throughout is environmentally friendly, resilient, and durable. Millwork is geometrically designed and constructed from exposed Baltic birch plywood, with planes revealing the linear pattern on the end grain of the material. Countertops and desktops are environmentally-friendly linoleum creating a gentle writing surface. Children’s seating features recycled seatbelt webbing. Restrooms include ceramic tile and recycled solid surfaced. An angled, curving half-wall defines the Children’s Area. The colorful mural features the plants and animals which are native to the Mountain Island Lake area and encourages knowledge and exploration.
Mountain Island Branch Library
Interior Design by Jeanne Mercer-Ballard, Envi Studio Inc.
Architecture by Jenkins Peer Architects
Photographs by Tim Buchman
Mountain Island Branch Library
Interior Design by Jeanne Mercer-Ballard, Envi Studio Inc.
Architecture by Jenkins Peer Architects
Photographs by Tim Buchman
Homeless Shelter Design: A Psychologically Recuperative Approach

Jill Pable

Abstract

Purpose

Persons who are homeless are often victims of life crises that can result in emotional disorientation. It follows that homeless shelters should possess an architectural design that fosters a counterbalancing sense of healing and refuge from this distress of life on the streets. Perhaps among the most impactful aspects of environments for the homeless are psychological ramifications that encompass issues of personal space, territoriality and the spatial nature of human social interaction.

Unfortunately, restricted building funds coupled with shelter organizations’ minimal staffing and time often make creating a homeless shelter design that is fully functional, safe, and restorative difficult to achieve. Unintentionally, this can create environments that do not fully address social damage inflicted by street life or successfully coax homeless persons to commit to programs that can promote healing.

This creative submission proposes that assistance in planning recuperative shelter environments may be found in Abraham Maslow’s self-actualization theory, a psychological construct often referenced by social scientists engaged in studies of the homeless. This humanistic personality theory may facilitate a flexible, user-centered approach to design. Maslow’s self-actualization theory moves beyond his well-known ‘hierarchy of needs’ and provides pragmatic, detailed descriptions of optimal human psychological adjustment. These characteristics are focused and yet general in nature. A review of these characteristics brings to mind qualities many would use to describe a good friend. For example, an self-actualized person

- is realistically oriented;
- is accepting of him/herself and others;
- is focused on problems outside him/herself;
- believes in the basic good of life and approaches people without stereotype;
• is philosophical and possesses a non-hostile sense of humor; and,
• can discriminate between good and evil and maintains a personal moral code (Maslow, 1968).

Many of Maslow’s concepts might be interpreted and supported through architectural form, and may be particularly applicable to facilities that serve persons in crisis. When coupled with relevant architectural concepts from Alexander’s pattern theory (Alexander, et. al, 1977) and CPTED (Crime Prevention through Environmental Design) (Poyner, 1983), a theory-to-practice grid emerges that may facilitate a practical, empathetic approach to homeless shelter design. Further, because Maslow theorizes that few people ever attain full self-actualization, the grid may suit the needs of both the shelter staff members and vulnerable homeless clients. The theory-to-practice grid is envisioned as a living, changing framework that will grow and evolve to include other aspects of human experience such as universal design, sustainability, and further treatment of social justice issues. Therefore, dissemination of the grid to others for their feedback is an important aspect of its positive transformation, and this is the hope for this presentation proposal.

Designing from a psychological personality theory starting point is perhaps particularly important in the case of ‘first-contact’ spaces, such as an preadmittance area of a shelter where homeless persons make application for food, shelter and rehabilitative programs. This is because first impressions may be a contributing factor in a homeless person’s decision to commit or continue to reject reintegration with society (Davis, 2004). To explore this idea, this creative project theoretically applies the Maslow theory-to-practice grid to a real homeless shelter’s pre-admittance area. Images of this project are provided here. If accepted for presentation, an animated walk-through movie of this solution will also be shown.
Silo Café

Jinbae Park

Abstract

PURPOSE

From New York sophistication to the rolling plains of the Midwest, this unique and eclectic blend of city meets country is celebrated in the essence of Silo Café. It provides a space to gather and enjoy the simplistic environment of the country intertwined with the modernity and sleek city lifestyle. The main concept of this café can be described as ‘urban harvest.’ This space was brought to life through the contrast of urban sophistication and country rustic. Several things were done to the space in order for these concepts to work in unity with each other. To achieve the sleek style of the city, many modern materials such as stainless steel and a painted concrete floor were incorporated, as well as brand new espresso machines and equipment. The artwork has a modern edge that is both vibrant and colorful. With the digitization of several ingredients into 2D art and the collection of collages that portray city meets country, the unification of these two concepts within the artwork elevates the sophistication. The use of textural wall treatments, restored antique furniture, and the warm harvest colors used for detailing all enhance the space for a more natural setting. Silo Café integrates a unifying color palette to extend the concept of urban harvest. The use of color is one way to define a connection of the physical aspects of the world today with the non-physical. A strong association between the physical, non physical, city, as well as the country is symbolized in the four main colors of Silo Café.

<table>
<thead>
<tr>
<th>COLOR</th>
<th>PHYSICAL</th>
<th>NON PHYSICAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Saffron</td>
<td>Light</td>
<td>Energy</td>
</tr>
<tr>
<td>Mocha</td>
<td>Earth</td>
<td>Nutrition</td>
</tr>
<tr>
<td>Wasabi</td>
<td>Food</td>
<td>Culture</td>
</tr>
<tr>
<td>Oxford</td>
<td>Blue City</td>
<td>Intelligence</td>
</tr>
</tbody>
</table>
Together, Silo Café embodies the “City raised, Country fed” slogan not only from the quality of food, but through the graphics, interior design, and overall aesthetics of the space.
Entry Table Series
*steel, aluminum, mirror, stone (varies per piece)*

Tim Cozzens

**Abstract**

The work intended to be presented will be representative of my efforts over the last 15 years in my Entry Table series. This series began, although not consciously as a grouping, in 1989 as an exercise in graduate school. This work derives from the interaction of the worlds of furniture and architecture, the interstitial space that is neither free-standing (like the majority of “furniture”), or wall-mounted; it is both. I am drawn to this typology mostly because of it’s limited, though specific, utilitarian nature. It does not support dining, for example, or the human body. It acts as an ancillary piece to day-to-day life; it supports mail, keys, a wallet. I am drawn to this intersection because of my background as both an Interior Designer and a Furniture Designer/Maker.

I have often derived new pieces from the works directly preceding (chronologically). The pieces are often very divergent in character, primarily because the time between the pieces is significant…sometimes as much as a year. The individual works are sometimes informed by professional work happening in my studio simultaneously; sometimes they are unto themselves.

I have included for review images of two of the pieces from the series. Entry Table #10, the most recent, is a direct result of a call for entries for the “Form Follows Form: Architecturally Inspired Furniture”, currently showing at the Paul Galvin Library of the Illinois Institute of Technology. Entry Table #10’s overriding concept was inspired by an architectural work of the Swiss firm, Herzog + deMeuron. The specific building, the Dominus Winery, is situated in Yountville, California, approximately 1 hour north of San Francisco. It utilizes, as its primary material, the gabion. This process is typically used in the slowing of waterways in civil engineering projects. It is, in effect, a bundled collection of rocks. It’s visual and physical texture, along with the parent unconventional method of creating architectural mass inspired this piece to act as “skin, rather than traditional...
masonry” (HdeM, 1997). The simple rectilinear form of the table, echoing that of the winery, allows the viewer to interact with the textures and detailing upon approach and use.

The second piece, Entry Table #7, consists of a sweeping curve of aluminum tube, intersecting a steel plate assembly. A beveled mirror, attached directly to the wall behind, completes the “table”. Once again, the viewer/user is rewarded for closer inspection. The detailing of both pieces, and their tactile qualities, enhance the use.

In both cases, I was entirely responsible for the fabrication. All pieces intended to be presented will be shown with developmental drawings (both digital and manual), and supporting imagery.
Arrived Perfect

*Stick-Horse – cherry wood, metal springs; Case – maple, pine, plexiglas, metal springs*

Tad Gloeckler

Abstract

Arrived Perfect addresses animal stewardship issues, and the lost reality of society’s daily dependence and relationship with a specific animal.

First, you experience an easily transportable case. The case symbolizes important contents and the need or desire to keep the contents with you at all times. Closer examination reveals a pattern of holes near the case handle, although the inside contents are still unknown, the patterned holes suggest openings for breathing and the possibility of something living inside the case. When the case is opened, the title, “Arrived Perfect – Some Assembly Required”, is clearly presented, but the object and purpose still remains illusive. The maple wood and pine compartment snuggly cradles the contrasting cherry wood object, suggesting the precious nature of the contents. Just below the title is a small lid that lifts up to display a set of assembly instructions.

Now the wood assemblage can be carefully removed from the molded, womb-like compartment, and gently trained into its final Stick-Horse form with a series of rotations and manipulations described in the assembly instructions. The initial image of a compact, folded wood assemblage is analogous to a newborn foal. A new foal deliberately untangles its head, body, and legs; then struggles to stand. Likewise, the owner of Arrived Perfect gently trains or transforms the folded wood assemblage, through deliberate manipulations, into a functional stick-horse form. The same care and patience is required to disassemble the horse and replace it snugly in its compartment.

Arrived Perfect is about a love of having and caring for horses. There are two identical horses and cases, twins, so that two people can enjoy the experience simultaneously. The Stick-Horse handle and height is ergonomically designed for a small adult, and weighted, or balanced, appropriately for comfortable riding.
This project was created shortly after circumstances required the artist and family to sell their only horse.
Vestigial Architecture Gallery

virtual gallery installation

Mark Nelson

Abstract

OVERVIEW

This installation is part of a body of work that examines the relationship between architecture and the human body, searching for a common lineage that seems to have been broken by Modern Architecture. The reflections multiply the art pieces installed, and also place human visitors in the same plane as the architecture, making them something to be looked at.

All of the pieces in the gallery are hybrid human/architectural elements that correspond with tongues, nipples and hair. Just as vestigial organs such as tails occasionally appear in humans and suggest that animals and humans share a common ancestry, these vestigial body parts on buildings suggest that humans and buildings share a common ancestry as well. As with humans, the piercings and other customizations are a statement that we do not have to accept what nature gave us and that we can make ourselves into something different from where we started.

Process

I have been adding body customization and enhancement to architectural illustrations of actual buildings for many years, but find that for many people, the customization blended in so well with the architecture that they could not really focus on the body pieces. This seemed similar to what happens when many people listen to music; they hear all the parts as one entity rather than hearing each individual instrument. I had previously taught music at a private music school after majoring in music in college, and one of the things I would do for students was play the individual parts by themselves, one at a time. This project takes a similar approach, letting each element stand on its own so that it can be looked at and thought about. I blended my skills as an artist with those as a designer, and tried to create an environment that would complement the artwork. I modeled
everything in AutoCAD and used AccuRender to do all of the rendering. In addition to these still images, I also created an interactive panorama network that has been projected in a gallery show and that is also on the Web.

One of the challenges was taking the same elements and working with them at different scales. Even though the final output is digital, I did mock ups of larger elements such as the tongues so that I would have a feel for what it would be like to stand next to them. In the future, I would like to install the space in one of the 3D immersive environments that are becoming more common, so that people can really move around in the space.

**DISCUSSION OF SELECTED PIECES**

*Architectural Taste Wall:* The tongue is a way to learn about the world around us, and I have always found it interesting that the senses of taste and smell overlap. This wall is reaching out to taste, but also reminds me of a horse reaching out for sugar cubes, asking for a treat from visitors. Many pets use their tongues to communicate as well as find out about the world.

*Vestigial Nipple Wall:* The vestigial nipple wall may represent the nurturing side of architecture, but at the same time it is not clear whether the nipples are gendered or not. Vestigial nipples are relatively common in humans, and the repeating pattern is reminiscent of many mammals. Nipples are one of the things that tie most mammals together.

*Double Flowery Tongue Bench:* This is a bit different from most of my pieces, as it does not connect directly to the architecture. It juxtaposes the tongue with a flowery velveteen fabric, which is not something we would normally think of doing. Sitting on a tongue may also seem strange, but there are many associations with the tongue as protective and comforting, as when cats or dogs lick off their babies. The double nature of this tongue suggests that it might not exactly be telling the truth, or might give one message one day and another message the next. Ideally, the piercing jewelry would be changeable, so that you could change them around for different seasons or perhaps to match your own.
Renoir’s Lunch

fabric, wire, mural

Maura Schaffer

Abstract

This permanent installation combines sculptural forms and a painted background to create a wall relief which challenges the viewer’s perception of space. The sculpture is located in a corporate dining center and is recessed into three wall niches. My interest in human daily activities like eating, moving, resting, and communicating with one another, inspired the creation of this installation. For the past year I have been working on a series of sculptures focusing on the dinner table as a vehicle for expression and the dining center was a perfect place to present these ideas. In Renoir’s Lunch the sculptures, inspired by Renoir’s impressionistic paintings, The luncheon of the Boating Party, Rower’s Lunch, and La Dejenner, translate these recognizable images three-dimensionally. The use of these historic paintings gives an artistic reference point to the viewer. The scenes are abstracted so that the chairs, tables, place-settings and food all allude to human actions without the presence of the human figures that existed in the original paintings. The scene presents a residual of the conversation and mood of the members of luncheon, the relationships that took place during the meals, the act of eating, the basic need for sustenance, and the things that were eaten. The wire structure and translucent white hand-stitched fabric in these pieces gives them a ghost-like presence and a purity that invites one to investigate the actions and interactions of the furniture. The colorfully painted background, impressionistic in feel, acts as a backdrop for the luncheons while the bright lighting overhead creates deep shadows that give the illusion of much greater depth.
The Lovers

fabric, wire

Maura Schaffer

Abstract

For the past few years I have been working on a series of life-sized sculptures focusing on tables and chairs as a vehicle for expression. The wire structure and translucent white hand-stitched fabric, materials used in these pieces, gives them a ghost-like presence and a purity that forces you to investigate the action the furniture is involved in. These anthropomorphic pieces of furniture are caught in the act of fighting, dancing, dining, and love-making. In the dinner table series, I am focusing on the everyday activities of the family meal, dining and drinking with friends, and the group dynamics of these gatherings. Within this idea is the relationship that takes place during meals, the act of eating, the basic need for sustenance, and the things we eat and what that says about us. The chairs, tables, place-settings and food all allude to the human actions without the presence of the human figures. For instance the chairs in The Lovers are leaning in to each other as closely as possible so that even the table must give way under the pressure of this seemingly new and romantic tryst. At the same time both are dangerously close to being burned by the candle between them which lends a more cynical view of the relationship. The fact that they are sharing dessert suggests the closeness of the couple and the sweet seduction of the relationship that they are involved in. The possibility of the coffee being spilled on the other hand is another symbol of the instability of the relationship.
INDEX

Computers
Posts
- The Online Learning Community in Interior Design Education

Creative Process
Papers
- Challenging Residential in a Second-Year Design Studio: A Case Study
- Student Perspectives on Design, Learning, and Interior Design Education
- Quick Three-Dimensional Sketches: Educator and Practitioners’ Use, Personal Competency, and Perceptions of Interior Design Student Preparedness

Teaching Forums
- Presentation Inspired by Installation Art
- Smart and Sardonic: An Artist's Work Helps Students Rethink Design Process
- Seeing and Thinking Volumetrically

Criticism
Papers
- Typology of the Workplace

Current Issues
Papers
- An Investigation of Non-Western Perspectives in Interior Design Curriculum
- Creating a PhD Program in Design Environments
- Educators’ Opportunity to Determine What Happens Next to the Body of Knowledge!
- Empirical Design Research: Faculty Definitions, Perceptions, and Values
- Homes as Sacred Places – Difficulties Endured by Minnesota’s Hmong and Somali Refugees
- No Unimportant Folk: Lessons from the Social Justice Agenda of Martha Van Rensselaer
- Post-Graduate Design Education: A Feasibility Study of the Related Design Disciplines
- Recognizing, Understanding, and Implementing Crime Prevention and Design Strategies within Retail Settings
- Sexism, Femininity, and the Language of Interior Design

Posters
- Single Family Room (SFR) Neonatal Intensive Care Unit (NICU) Design: Testing Space Allocations for the Redesign of Existing NICUs for the SFR Configuration

Teaching Forums
- An Interdisciplinary Approach to Sustainable Design
- Cultivating Culturally Literate Designers: Experiential Learning of Chinese Feng Shui and Its Application to Design
- Healthy Homes - Designing for Low Cost Housing
- Living in Complexity: Building Human Issues into Design Studio Experiences

Curricular Development
Papers
- Creating a PhD Program in Design Environments
- Online Interior Design Studio: Access and Student Experience
- Post-Graduate Design Education: A Feasibility Study of the Related Design Disciplines
- Student Perspectives on Design, Learning, and Interior Design Education

Posters
- The Online Learning Community in Interior Design Education

Teaching Forums
- Construction Through Design: A Three-Dimensional Project Experience
- Instructions on Building Codes: Compliance with IBC 2006
- People Learn by Doing: Introducing Lighting Design Problem Solving in a Lecture Class
The Quilt Project: Stitching Together Material Culture, Motifs, and Meaning .........................432

Design Specialties

Papers
- Creating a PhD Program in Design Environments.................................................................68
- Flooring in Patient Units: Testing Carpet Tile Seam Integrity for the Impediment of Microbial Contamination and Moisture to the Backing and Subfloor .......................................................174
- Recognizing, Understanding, and Implementing Crime Prevention and Design Strategies within Retail Settings ..............................................................................................................124

Posters
- Single Family Room (SFR) Neonatal Intensive Care Unit (NICU) Design: Testing Space Allocations for the Redesign of Existing NICUs for the SFR Configuration ........................................460

Diversity

Papers
- Examining Cooking Patterns by People in Wheelchairs .........................................................148
- Fortifying African American Identity: Designing a Theme Park Environment .........................344
- Homes as Sacred Places – Difficulties Endured by Minnesota’s Hmong and Somali Refugees ..165
- Participation as Learning-by-Doing in Habitat for Humanity ..................................................335
- Team Diversity: Building Strong Collaboration ......................................................................82

Teaching Forums
- Disability Ability: Providing Experiential Learning Experiences in a Large Lecture Format .....365

Environmental Quality

Papers
- Creating a PhD Program in Design Environments.................................................................68
- Flooring in Patient Units: Testing Carpet Tile Seam Integrity for the Impediment of Microbial Contamination and Moisture to the Backing and Subfloor .......................................................174

Teaching Forums
- An Interdisciplinary Approach to Sustainable Design .............................................................386
- Healthy Homes - Designing for Low Cost Housing .................................................................442
- Living in Complexity: Building Human Issues into Design Studio Experiences .....................415

Gender Issues

Papers
- Gender, Interiority and Status in Architectural Theory: A Pattern of Downgrading the Feminine .................................................................................................................................262
- No Unimportant Folk: Lessons from the Social Justice Agenda of Martha Van Rensselaer ......107
- Sexism, Femininity, and the Language of Interior Design .........................................................241

Global Issues

Papers
- An Investigation of non-Western Perspectives in Interior Design Curriculum .......................38
- Creating a PhD Program in Design Environments.................................................................68
- Global Cultural Experience through Mediators .......................................................................48

Teaching Forums
- Cultivating Culturally Literate Designers: Experiential Learning of Chinese Feng Shui and Its Application to Design ........................................................................................................384

Green Design

Papers
- Sustainability: An Exploration of Process and Project ............................................................75
- Sustainable Characteristics of Earthbag Housing .......................................................................99

Posters
- Implementing Green Design and Sustainability: A Prototypical House of the Future .............452
### Teaching Forums
- An Interdisciplinary Approach to Sustainable Design .......................................................... 386
- Healthy Homes - Designing for Low Cost Housing ............................................................... 442
- Living in Complexity: Building Human Issues into Design Studio Experiences .................. 415

### History Papers
- An Investigation of Non-Western Perspectives in Interior Design Curriculum ...................... 38
- Nancy Vincent McClelland: Advancing the Interior Design Profession in the Early 20th Century ................................................................................................................................. 249
- No Unimportant Folk: Lessons from the Social Justice Agenda of Martha Van Rensselaer ...... 107
- Technology vs Domesticity in the Farnsworth and Johnson Glass Houses ............................ 155
- Typology of the Workplace .................................................................................................... 291

### Posters
- The Evolution of Domestic Kitchen Design: Influence of the Social Determinants of Health During the Industrial Revolution .......................................................................................... 471

### Teaching Forums
- Bringing History in to the Design Studio: Developing Historical Studio Projects as Educational Tools ................................................................................................................................................. 425
- Smart and Sardonic: An Artist's Work Helps Students Rethink Design Process .................... 413

### Human Behavior Papers
- Employee Satisfaction, Perceived Organizational Support, and Organizational Commitment in Alternative Office ........................................................................................................................................ 216
- Environmental Stimuli: Enhancing Perception and Cognition Among Infants and Toddlers ... 209
- Homes as Sacred Places – Difficulties Endured by Minnesota's Hmong and Somali Refugees . 165
- Infusing Third Place Theory into a Studio Environment: A Qualitative Inquiry ................ 138
- Online Interior Design Studio: Access and Student Experience ........................................... 327
- Participation as Learning-by-Doing in Habitat for Humanity ................................................ 335
- Recognizing, Understanding, and Implementing Crime Prevention and Design Strategies within Retail Settings ................................................................................................................ 124

### Teaching Forums
- Living in Complexity: Building Human Issues into Design Studio Experiences .................. 415

### Lighting Papers
- Effect of Light Source and Direction on the Cognitive Performance of College Students with ADHD ............................................................................................................................................... 282

### Teaching Forums
- People Learn by Doing: Introducing Lighting Design Problem Solving in a Lecture Class ........ 395

### Materials and Fabrication Papers
- Flooring in Patient Units: Testing Carpet Tile Seam Integrity for the Impediment of Microbial Contamination and Moisture to the Backing and Subfloor ......................................................... 174

### Teaching Forums
- An Interdisciplinary Approach to Sustainable Design .......................................................... 386
- Healthy Homes - Designing for Low Cost Housing ............................................................... 442
- Smart and Sardonic: An Artist's Work Helps Students Rethink Design Process .................... 413

### Research Methods Papers
- Integrating the Use of Research into the Design Process Experience ...................................... 57

521
- Typology of the Workplace ..........................................................................................................291

Teaching Forums
- Healthy Homes - Designing for Low Cost Housing .............................................................442

Special Populations
Papers
- An Analysis of Resident Room Design in the Changing Culture of Long-term Care: Examining the Design of Spaces that Promote Resident Autonomy ........................................183
- Design of Assisted Living Based on Perceptions of Older Adults and Family Members ........226
- Environmental Stimuli: Enhancing Perception and Cognition Among Infants and Toddlers ...209
- Examining Cooking Patterns by People in Wheelchairs .........................................................148
- Flooring in Patient Units: Testing Carpet Tile Seam Integrity for the Impediment of Microbial Contamination and Moisture to the Backing and Subfloor ................................................174
- Homes as Sacred Places – Difficulties Endured by Minnesota’s Hmong and Somali Refugees .165
- Online Interior Design Studio: Access and Student Experience ................................................327
- Participation as Learning-by-Doing in Habitat for Humanity ....................................................335
- Rethinking Nursing Home Architecture: Why Skilled Care Environments Don’t Really Feel Like Home (and What We can do About It) .................................................................196

Posters
- Single Family Room (SFR) Neonatal Intensive Care Unit (NICU) Design: Testing Space Allocations for the Redesign of Existing NICUs for the SFR Configuration .............................460

Teaching Forums
- Disability Ability: Providing Experiential Learning Experiences in a Large Lecture Format ....365
- Living in Complexity: Building Human Issues into Design Studio Experiences .....................415

Theoretical and Conceptual Development
Papers
- Challenging Residential in a Second-Year Design Studio: A Case Study .................................18
- Interior Design’s Social Compact: The Missing Aspect of Our Quest for Professional Legitimacy .........................................................................................................................91
- Online Interior Design Studio: Access and Student Experience .............................................327
- Rethinking Nursing Home Architecture: Why Skilled Care Environments Don’t Really Feel Like Home (and What We can do About It) .................................................................196
- Sexism, Femininity, and the Language of Interior Design .......................................................241
- The Poché: The Intersection between Ethics and Design .........................................................315

Teaching Forums
- Seeing and Thinking Volumetrically .....................................................................................422
- Smart and Sardonic: An Artist’s Work Helps Students Rethink Design Process .................413