IDE C

2006

Innovation and Technology in Design

Scottsdale, AZ
March 28 – April 2, 2006

2006 Conference Proceedings

Conference Chair: Diane Bender, ASU
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PAPER
A paper is formal in structure and format. The goal may be to present a question or issue that is structured as conceptual, analytical, empirical research, or applied research and is grounded in a systematic process. The question or issue may be descriptive and/or prescriptive in analysis and involve interior issues of theory, education, pedagogy, or practice related to the built environment. The author will present issues or topics derived from a critical question or speculative subject matter, such as theoretical models, with the intention of advancing a treatise, position, or state of the interior design discipline or practice. Papers may be finite and conclusive, providing descriptive and/or conditional findings to the audience. Or, the paper may be directed toward a public discourse that provides critique and feedback, to think reflectively and refine the work. Accepted enabling the author papers must post a “Billboard” for their session during the meeting. Details can be found in the last section of the Call for Abstracts.

PANEL
Panels are interactive and less formal in structure and format. The goal is to stimulate interaction on a relevant topic or issue of interior design pedagogy, practice, theory, history, and/or criticism. The author develops the background and framework to engage panel members and the audience in discussion and exchange, to stimulate creative thinking, and to garner additional insight and reflection by participants. Subjects that are innovative or creative or controversial in approach either as application or conceptual development of current issues or topics in interior-design education, pedagogy, professional practice, as well as theory, or criticism are appropriate as presentations.

POSTER
A poster strives to foster exchange between members through visual images, text, and/or diagrams. This format offers experiential interaction and directs audience/author engagement or allows independent viewing. The author(s) develops visual information that expresses ideas or tracks a process relevant to interior design teaching, pedagogy, method/process, theory, practice, history, or criticism. The audience comments, questions, or seeks dialogue about the content or interpretation of the topic with the author(s) to advance the idea or further apply the process.

TIME FRAMES
Papers are allotted a total of 45 minutes; allow 30 minutes for delivery and 15 minutes for questions and discussion. Panels may use the entire time. Posters will be presented simultaneously throughout one day, and authors must be present during the assigned Poster Session.
Tomorrow’s Educators and C2C

Lisa Tucker,
Radford University

Purpose

The purpose of this paper is to present the findings of a study that explored the extent to which interior design educators were teaching sustainability, in general, and the cradle to cradle design paradigm, in particular. The research involved the distribution of two surveys, one in March 2005 and the other during the summer of 2005. The presentation of this research will include the results from both surveys and the discussion of possible resources and methodologies for implementing the position statement adopted at the March 2005 IDEC International Conference:

Be it resolved that IDEC supports the concept of socially responsible design including the Cradle to Cradle Design Paradigm as an integral part of interior design education.

Context

Sustainability education has recently become an important part of interior design curricula. While some educators have been teaching about green design for some time, many have not. According to Louise Jones’ poster presentation at the 2005 IDEC International Conference, less than one quarter of the 119 FIDER accredited interior design programs included in the study taught a course in sustainable design. (Jones, 2005.) Shortly after Jones’ study, IDEC announced its support of a motion that teaching “socially responsible design” be considered one of the foundations of an interior design education. When the 2006 FIDER standards were released in the summer of 2005, they too included several new indicators related to teaching sustainable design. (FIDER, 2005) The current study defines teaching sustainable design in broader terms than the previous study and takes the approach that sustainable design content is an integral component to many subject areas and does not have to be a stand alone course.

Review of Literature

Because the area of teaching sustainable design is relatively new to interior design education, little has been written about how this concept is being integrated. The need to incorporate sustainability into design education has been the topic of articles by William McDonough, such as the one written for the Chronicle of Higher Education in July 2004. The IDEC Cradle to Cradle Task Force documented the necessity of incorporating sustainability into interior design education during its work throughout the 2004-2005 academic year. The task force members documented an approach for incorporating sustainability in their report to the IDEC membership and board at the IDEC international conference in March 2005. (Task Force Handout, 2005) Jones poster abstract remains one of the few published pieces on the subject. (Jones, 2004.)
Methodology

This research study consisted of two phases of surveys of interior design programs. The process began with a survey of 213 IDEC member schools and FIDER accredited institutions to determine how sustainable design and the cradle to cradle design paradigm is currently being taught within interior design programs in the United States and Canada. The first survey was distributed to all members in attendance at the March 2005 IDEC international meeting. This same survey was then emailed to all IDEC member schools and FIDER accredited programs. Of the 213 surveys distributed the response rate was 30.5%. (Thirteen surveys were returned as undeliverable and there were a total of 61 responses.)

Unlike Jones’ research, the current study identified sustainability content being taught in a variety of interior design courses. The researcher found that while most schools did not have a single course devoted to green design, most were teaching this content in either studio courses or in lecture courses, and many schools were teaching the content in both formats. The most common courses for this content to occur were courses such as: materials and finishes (59.3%), textiles (35.6%), building systems (39%), and residential studio (47.5%). For this phase of the current study, the cradle to cradle design paradigm was separated from teaching sustainability in general. For example, while 59.3% of respondents said sustainability was taught in their materials and finishes courses, 35.4% said that the cradle to cradle design paradigm was taught. Thus, though the percentages were lower, many schools were teaching the cradle to cradle paradigm in their courses.

The second phase of the study was a follow-up survey sent to those respondents from the first survey who wanted to be contacted for the second phase of the study. Thirty-six of the original 61 respondents provided contact information for the follow-up survey. To date, ten of the thirty-six participants have responded (response rate 27.8%). To obtain a higher response rate, a reminder email was sent out in August when most academic programs reconvene. Participants were asked to provide bibliographic information for readings, websites, videos and other sources they recommend to students and also to submit sample project types and syllabi that can be shared with the IDEC membership. The assumption is that a particular and unique lexicon of vocabulary, source materials, project types and methodologies can be used to teach interior design students sustainable design and cradle to cradle principles.

Results

The results from the first survey, distributed to all IDEC member schools and FIDER accredited undergraduate interior design programs (213 total), resulted in 61 responses over a three month period of time. This first stage of the research clearly indicates that the majority of interior design educators who responded to the survey believe that interior design has a role in educating students about sustainable design. In response to question number two as to whether IDEC should “openly approve” a position with regard to sustainable/green design, the mean response was 4.38 on a five-point Likert scale where five is the highest degree of approval. The
overwhelming majority of the survey respondents (96.6%) indicated that environmental design, green design and/or sustainability were currently being taught within their interior design curriculum.

The second phase of surveys explored instructors’ use of terminology and was used to collect resources for IDEC educators to reference in developing their own sustainable design courses. The results, thus far, indicate that the two words preferred to describe this area of design focus are “sustainable design” (25.4%) and “green design” (24.2%). Respondents chose Cradle to Cradle as the top ranking book on sustainability issues (34.1%).

Summary

This paper presentation will provide all the results from both surveys and will discuss possible resources for bringing green design into the interior design classroom. While 213 surveys were distributed as a part of this research study, future studies would, ideally, include more that 61 participating programs. The vote taken at the March 2005 IDEC meeting would indicate support for this research, but without more program participation in the survey process this correlation cannot be verified with complete certainty.

References


Light Induced Changes in ADHD Behaviors and Blood Chemistry

*Melinda LaGarce,*
*Southern Illinois University*
*L.Debeljuk, S. Smaga*

**Purpose**

The purpose of this pilot study segment was to 1) test methodologies for determining if specific wavelengths of ambient light in an experimental environmental can affect behaviors common to those with Attention Deficit/Hyperactive Disorder (ADHD) and affect changes in ADHD participant blood chemistry. If the methodologies do work, then 2) determine which wavelengths of ambient light have particular effects on specific behaviors and blood chemistry levels and changes in blood chemistry levels? The issue is: if behaviors of the ADHD type increase or are intensified by specific wavelengths of ambient light, then those specific wavelengths of light could be eliminated from the ambient light in environments for those with ADHD. Conversely, if specific wavelengths of light are found to decrease negative behaviors common to those with ADHD, then therapeutic application of those specific colors of ambient light could be prescribed to help relieve those negative behaviors.

**Theory and Review of the Literature**

The hypothesis is: specific ambient wavelengths of light (blue, red, green, and yellow) and white light have different effects on behaviors of the ADHD type and on blood chemistry of research participants.

Lighting is known to affect hormonal and metabolic balance (Brainard, 1994; Fellman, 1985; Klein, 1986; Reiter, 1986; Reiter and Karasek, 1986; Wurtman, et al., 1985). The photobiological impact of light on the human body is dependent on wavelengths from the electromagnetic spectrum both visible and invisible, striking the retina of the eye. This, in turn influences the production of several neurotransmitters in the brain that are believed to affect the entire nervous system (Waxler, et al., 1992; Rea, et al., 2002; Thapan, et al., 2001; Hut, et al., 2002; Wright and Lack, 2002), have neuroprotective effects (Savaskan, et al., 2002), behavioral consequences (Reiter, 1990), affect mood disorders in adults, adolescents, and children (Wetterberg, et al., 1990; Shafii, et al., 1990; Mayeda, et al., 1990; James, 1990), and affect agitated behaviors in dementia patients (LaGarce, 2004; LaGarce, 2002; Lyketsos et al., 1999). This production process can be greatly influenced by the frequency, duration, and intensity of environmental light (Feierman, 1982; Reiter, 1990; McIntyre, 1990; Wetterberg, 1997). Manipulation of environmental lighting then becomes a distinct possibility for stimulating increased or decreased production of neurotransmitters in the brain that in turn stimulate the production of enzymes and hormones that affect human behaviors and psychological feelings (Sorensen and Brunnstrom, 1995; Rubin, 1997; Schulmeister, 2002).
Methodology

The research project was approved by the Human Subjects Committee of the University. Eight research participants were individually exposed to five different wavelengths of electric light in a windowless environment for a period of three hours for each of the five different light exposures. Participants were screened as normal healthy subjects with no extraordinary eye, vision or colorblindness conditions. Alzheimer’s participants either had a physician’s diagnosis of probable Alzheimer’s disease or were given standard screening protocol for determining probable Alzheimer’s disease. The ADHD participant had a physician’s diagnosis of ADHD and the non-ADHD participant was screened by a clinical psychologist as not having ADHD. ADHD behaviors to be assessed were determined by the Diagnostic and Statistical Manual of Mental Disorders-IV-TR (American Psychiatric Association, 2000) and from parents’ observations. Findings regarding the ADHD/non-ADHD participants are the focus of this paper.

All participants were videotaped for the entirety of the five three-hour sessions in order to assess behaviors by systematic behavior observation protocols performed by trained observers. Blood samples were drawn from all participants before entering the experimental environment and at the end of each three-hour session. Radiological plasma assays were then performed to determine the presence of particular enzymes/hormones/neurotransmitters known to affect human behaviors.

Summary of Results

Methodologies for this pilot study were found to be effective for determining if specific wavelengths of ambient light in an experimental environmental can affect behaviors common to those with Attention Deficit/Hyperactive Disorder (ADHD) and affect changes in ADHD participant blood chemistry. Additionally, systematic behavior observations of ADHD behaviors found that light wavelengths at 440 nm (blue) produced the most passive behaviors, and light at 680nm (red) produced intensely hyperactive and defiant behaviors with no self-control. Analysis of plasma assays found the highest level of particular enzymes/hormones/neurotransmitters known to affect human behaviors in samples collected after three hours of exposure to 580nm of yellow light, and the lowest level in samples collected after three hours of exposure to 440nm (blue). Percentage of change in plasma chemistry from ADHD samples found the greatest change to be after the prescribed exposure to 440nm and the least change after the prescribed exposure to 680nm. Preliminary analysis for this small pilot study sampling indicates the possibility that normally anticipated behavioral effects from particular enzyme/hormone/neurotransmitter levels and changes in those particular levels (Wetterberg, 1997) may have contra-indications for those with ADHD.

References


The Use of Virtual Environment as a Tool for Wayfinding Research in the Built Environment: A Comparison of Virtual and Real Environments

Adetania Pramani,
Texas Tech University
S. Hag, Z. Curry

Purpose

The purpose of this study was to examine the appropriateness of the use of virtual environment (VE) as a tool for wayfinding research and to compare the outcomes in a VE and a real environment. In order to complete this study, a simulation technique was used, where a VE was created from an actual setting in which a wayfinding experiment was done.

Context

VE is defined as “…a high-end user-computer interface that involves real-time simulation and interactions through multiple sensorial channels…” (Burdea & Coiffet, 2003) This definition addresses four important elements that work interchangeably in a VE: artificial environment, sense of being in the environment, user-computer interface, and interaction (Sherman & Craig, 2003). These elements allow humans to directly and actively interact with the environment and carry out such behavior as walking, opening doors, and much more. Thus, VE has more attributes than just viewing a walkthrough animation, where the movement through an environment has been set up by an operator or designer.

Wayfinding has been described as an act of information processing, decision-making, and decision execution in order to reach a destination, whether in a familiar or an unfamiliar environment (Arthur & Passini, 1992). This process is important in everyday life because failing to find one’s way can cause a loss time and create stress. One problem that seems to persist in conducting wayfinding research is that the experiments are usually done in the real settings, in which there is difficulty in controlling extraneous variables.

A simulation technique such as VE is one way to create a controlled environment in a wayfinding study while allowing individuals to move freely as well as letting researchers to record the desired information. However, the limitations of present technology hinder the ability to create the exact same experiences as in the real environment. De Kort, Ijsselsteijn, Kooijman, and Schuermans (2003) noted several differences between VE and real environment such as the absence of physical body in VE and the limitation of VE representation that may present different information than one in the real environment. Studies are needed to investigate whether or not these differences present different outcomes in environmental behavior research.
Review of Literature

De Kort et al. (2003) reported that VE could be a prospective tool for environmental behavior studies. Bartella, Marchi, and Riva (2001) and Riecke, van Veen, and Bülthoff (2002) demonstrated that VE has been used for environmental behavior research with a focus on investigating individuals’ orientation and wayfinding abilities. It is reasonable to anticipate the use of VE for environmental behavior research with a focus on the environment variable.

A number of studies attempted to investigate the applicability of VE in environmental behavior research by comparing individuals’ behaviors between the two environments. According to deKort et al (2003), if individuals’ behaviors in a VE is comparable to that in the real environment then VE will be a helpful tool for research as it may replace the real environment. Lindsay and McLain-Kark (1998), Waller, Beal, and Loomis (2003), and Rohrmann and Bishop (2002) found that there were similar perceptions and knowledge in both environments. However, Satalich (n.d.) and DeKort et al. (2003) found that participants in VE performed equally or worse than in the real environment. These diverse results have led to the need for additional studies to validate the use of VE in environmental behavior research.

In wayfinding research, there has not been conformity regarding which environmental elements are important. One possible reason is that most studies (Weisman, 1981; Abu-Ghazzeh, 1996; Passsini et al., 2000) relied on subjective measurements of the environment. Subjective measurements are difficult to repeat and test in subsequent studies that use different situations and different populations. Peponis, Zimring, and Choi (1990) proposed a way to measure floor plan configuration, as one of environmental variables, objectively. This method of measurement was also done by Haq and Zimring (2003). Haq and Zimring’s study confirmed the strong relationship between floor plan configuration and the wayfinding process as reported in Peponis et al. study. By repeating a previous study, Haq and Zimring have confirmed the reliability of this type of measurement for wayfinding research.

However, Haq and Zimring (2003) noted the results of his study might also be influenced by extraneous variables such as light and color variations. Peponis et al. (1990) acknowledged that a populated space appears more attractive to individuals when performing wayfinding task. Haq and Zimring stated that one way to investigate the role of a particular environmental variable in the wayfinding process is to control other environmental variables. This study investigated the use of VE as a technique to provide a controlled environment in wayfinding research.

Methodology

A VE experiment was created by replicating a real environment experiment from a previous wayfinding study (Haq & Zimring, 2003). The corridors from a real hospital used in Haq and Zimring’s study were replicated in VE (Figure 1). The corridors were created as simple as possible to limit any extraneous environmental variables such as signage, color, lighting, and furniture (Figure 2).

Thirty-two college students participated in the experiment. In the experiment, two tasks were assigned based on those carried out in Haq and Zimring’s study (2003). They were
exploration search and finding destinations. The data collected as the measurement for this study were: the percentage of subjects who were successful in completing the experiment, the similarities found in the number corridors used for exploratory search in Haq and Zimring’s study and in VE, and the similarities found in the subjects’ success in finding destinations.

Findings

Ninety percent of the participants were able to complete the experimental tasks. Three participants (10%) were not able to complete all of the tasks. They had to stop in the middle of experiment because they experienced severe discomfort such as headache and nausea. The expected percentage of dropouts in any area that use VE is between 5 to 30% (Stanney & Salvendy, 1998). From this point of view, 10% dropout in this experiment was not unreasonable.

There were 24 corridors in the building. The data was gathered by looking at how many time each corridors were used by 42 participants in the real environment and 32 in the VE. In general, the average use of the corridors in both environments demonstrated a similar pattern (Figure 3). A small number of corridors revealed some differences. These differences were explained by the possibility that the participants in the VE were traveling passed these corridors because of failing to see them at the intersection. This phenomenon was explained by the limited field of view (FOV) of the projection screen and the exclusion of other variables such as different lighting level and the presence of other people in the VE.

Four destinations were used as both origins and destinations. This provided twelve search combinations (Figure 4). The average percentages of participants’ wayfinding success were 79% in the real environment and 76% in the VE with some variations in individual searches. In the real environment, there were six search combinations into two destinations with high wayfinding success (90-100%) and two search combinations into one destination with low wayfinding success (below 50%). In the VE, most combinations had an equal to above median wayfinding success (50-80%). These results demonstrated that when the environment variable was constrained to only building layout in VE, the ability to find destinations was equally easy or hard. This is supported by the evidence regarding the role of signage found in the real hospital.

Summary

This exploratory study found that there were general similarities between the wayfinding experiments conducted in VE and real environment. The high success rate of participants’ completing all the experimental phases in the VE demonstrated the ability of this technology to replicate a previous wayfinding experiment in the real environment. The movement of participants in the exploratory task indicated similar traveling pattern in both the VE and the real environment. The overall averages of wayfinding success in both environments were also similar.

A number of technological limitations were noted. Three participants could not continue the experiment because they were experiencing headache and nausea, which are known as motion sickness (Stanney & Salvendy, 1998). Even though a 10% drop out was expected in this type of experiment, further study is needed to eliminate motion sickness in VE. Limited FOV of the
projection screen had caused the participants to travel pass some corridors, which might not occur in the real environment. An improved VE technology with the ability to increase individuals’ FOV (i.e. approximately 200 degrees) would provide a promising wayfinding research tool by offering viewing experience similar to the real environment.

Many variables that existed in the real environment (i.e. different lighting levels, presence of people, and signage) were spotted as another possible reason for the varying results found between the VE and the real environment experiments. This finding indicates that extraneous variables do affect wayfinding study in the real environment and a VE could be a valuable tool for controlling and investigating each environmental variable in the wayfinding process.

References


Figure 1. Floor plan with the Corridors Replicated in This Study
Figure 2. Simple corridors in the VE in comparison with corridors in the real environment
Figure 3. Average Use Corridors in Exploration Search
Figure 4. Percentage Average of Wayfinding Success
Interactive Multimedia as a Teaching and Learning Tool in Interior Design Education

Aditi Hirami,
North Dakota State University

Statement of purpose

In the information age, due to greater stimulus via the Internet, students are more inclined to explore the Internet for information than look at books or other printed resources. How feasible is it to assume that the traditional methods of slides and lecture are just as effective in teaching as compared to the media rich resources available to students today? Tomas & Sullivan (1998) indicate that when technology is integral to and embedded into the curriculum, it can be an effective tool for students to achieve higher levels of proficiency and recall.

Preliminary literature reviews revealed that there is a dearth of research with respect to integrating technology in the field of interior design education. However, the advances in technology and education theories cannot be ignored; especially with the fast diminishing geographical boundaries through distance education. This study focuses on assessing the effectiveness of an Interactive Multimedia CD-ROM, titled “Design Principles” used as an educational tool in an introductory interior design class. The objective of the CD-ROM is to present design principles in the context of art, architecture, and interior design and to enable students to make connections between the design principles and the resulting creation.

Theory of context or framework

Kolb (1984) stated that learning styles differ in professions that are multidisciplinary, among them interior design. Kolb notes that humans use a combination of learning abilities to process information. This author states that ideal instruction should address all styles to “create well-rounded learning to allow students opportunities for exploration and incorporation of other skills and learning abilities” (p. 203).

The learning theory of constructivism states that the “learner’s basis of meaning is found in his or her own direct experience with the dynamic and responsive world” (Davis, Sumara, & Luce-Kapler, 2000, p.65). As a result the student’s ability to realize his/her own objectives becomes the focus of learning. Constructivism holds that knowledge is only measurable through observation, dialogue, and interpretation by the learner’s action. A learner’s action is a reaction to what he/she has learned in that activity and not an inert reaction like rote memorization. Interior design curriculum typically based on a studio culture serves as an ideal medium to apply the theory of constructivism. The main concern in constructivist teaching is the provision for a wide variety of rich activities to be interpreted by the learner. These activities emphasize the process of learning where interaction is key with the instructor taking a secondary role in the learning situation, and where the learner is of prime importance.
Multimedia has the ability to cater to different learning styles because audio-visual presentations combined with textual information appeal to aural, visual, and read-write learners. Combined with the theory of constructivism, multimedia transforms into Interactive Multimedia (IMM) where students “do” to learn; appealing to kinesthetic learners who desire more hands-on experience to learn. However, it is important to understand the relation between learning and using the computer as a teaching tool.

Review of literature

Yopp, Kitchel and Allen (1996) state that “people generally remember 10% of what they read, 20% of what they hear, 30% of what they see, and 50% of what they hear and see. However, they retain 80% of what they see, hear, and do simultaneously” (p. 2). Senses are the primary information-gathering tools that learners use to interact with the environment, negotiate with other learners and the instructor, and satisfy their curiosity.

Multimedia is often described as the “integration of media, such as text, sound, graphics, animation, video, imaging, and spatial modeling into a computer system” (von Wodtke, 1993, p. 8). An enhancement of multimedia that integrates constructivism leads to interactive multimedia. “Interactive multimedia is a technology with the potential to change the way we learn, the way we acquire information, and the way we entertain ourselves” (Phillips, 1997, p. 1). The appeal of interactive multimedia lies in its ability to accommodate mixed media and emphasize learner control through simulation, visualization, and various learning styles.

Laurillard (1994) suggests that to increase the teaching efficiency of an interactive tool, the content will have to be divided into successive fragments of information or a series of hypotheses for the student to explore. Each of these fragments should present the relevant matter and activities to students that would enable them to review or investigate the information. The media should ideally provide a suitable environment for exploration and investigation of information presented.

Process

Design of the CD-ROM:

Design principles are taught as part of the formative design courses in interior design programs, therefore this CD-ROM is targeted at the first-year design students. To establish the basic structure of the CD-ROM “Design Principles,” Architecture Form, Space and Order by Francis D. Ching and Design Through Discovery Design Through Discovery by Marjorie Elliott Bevlin served as the two primary reference texts for this project. Based on these two books, five main design principles were selected for inclusion in the CD-ROM: balance and emphasis, unity and variety, proportion and scale, rhythm, and axis. These served as information fragments that have been suggested by Laurillard (1994) as integral to an interactive multimedia educational tool. These main headings are arranged into a hierarchical navigational structure.

The navigational structure includes three menus; with links to the design principles, to the detailed information on each design principle and to the other links such as the introduction, the conclusion, the bibliography, and the interface demo (Figure 1). For each design principle there are four sections to explore each focusing on a specific aspect of the presentation.
namely: overview, review, view, and sources. The section overview presents the basic information on the design principles. The view presents a three-dimensional model of an example of the principle discussed. A review section presents a short interactive exercise that the student can engage in to improve the understanding of the concept presented. In case the student answers incorrectly, further explanation and clarification is available to the student.

Each section opens another window within the interface that has the information presented by way of text, two-dimensional images, three-dimensional model, and animations (Figures 2 through 5). In addition, sound forms an important component of “Design Principles” making the presentation more immersive. Since it is not feasible to include all the text on the screen, the audio helps by way of narration and helps achieve an additional goal of developing student design vocabulary.

The CD-ROM will be presented as an alternative to the assigned reading to an interior design class in a university setting. The class will be divided into two groups, one group will read the assigned reading and the other group will use the CD-ROM. Both the groups will be tested on the content to ascertain the effectiveness of the CD-ROM. In addition to the test, students will complete a heuristic evaluation in the form of a questionnaire to assess the design and functionality of the CD-ROM as a learning tool.

Discussion

Technology used in education should promote different approaches to learning, thinking, and questioning, whether in science, language, or history. For this reason, it is important not to “overestimate positive effects on learning from the use of multimedia” (Yeager & Morris, 1995, p. 281). Conversely, the potential of this method of learning should not be underestimated, especially among students, because of their familiarity and comfort in using computers.

Interaction with the teacher is an integral part of the learning process and the CD-ROM is not meant as a replacement for teacher interaction. A tool such as “Design Principles” would enhance the information presented in the books by reinforcing the information through the use of sound, animations, and interactive exercises. The CD-ROM could be used more as a preparatory tool for the class instead of a learning tool in place of class, which would enable the instructor to expect a common understanding from the class. In essence, the CD-ROM will not create the student’s knowledge; instead, the CD-ROM would set the stage for interaction and discussion by providing a specific framework created by the teacher for student exploration in a classroom setting.

Conclusion

Educational and instructional technology research suggests that additional efforts should be undertaken to clearly understand the implications of integrating computers into the curriculum. According to Boyle (1997), the challenge of incorporating technology in education lies in providing “expert guidance without undermining the creative initiative of the
learner” (p. 45). There is not enough evidence to prove if machine guidance fosters and influences learning, or to suggest the type and quantity technology effective in the teaching process.

In attempting to use technology in design education, one needs to remember that the student has to be in control of the learning process and not the technology. In addition, the instructor should be the judge of whether he/she needs to use technology in his teaching. The presence of the technology does not validate its advantages in education. Although some peripheral advantages have been pointed out by earlier research, there is still a need for extended research. This extended research needs to bring out specific findings about the advantages and disadvantages of using technology in design education.

References


Figure 1. The interface of the CD-ROM.
Figure 2. The overview section for axis.
Figure 3. The view section for axis.
Figure 4. Images of the building for axis.
Figure 5. The review section for axis.
Towards An Empathetic Language: Bridging the Schism Between People with Mobility Disabilities and Designers and Managers of the Built Environment

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University of Idaho
J. Asher Thompson, Ph.D

Statement of Purpose

Conflict between building owners, designers, managers, and people with disabilities is often an issue to be dealt with in public space. Even with the implementation of the ADA, people with disabilities often find inaccessible design in new construction and feel discriminated against. Why designers and managers continue to design and maintain spaces that discriminate against a growing user group is a troubling problem, the result of which is increased social stratification and discrimination in the built environment. This study attempts to clarify the reasons behind the apparent disconnect between users with a disability and designers and managers of the built environment. It is suggested that by addressing this question in a systematic way, a contribution can be made toward the development of an inclusive built environment. The goal of this study was to increase our understanding of the symbols, meaning, and preferences people with mobility disabilities and designers/facility managers assign to our built environment.

Review of Literature

One’s rank in a social hierarchy reflects cultural values, therefore status is determined by the possession of what society considers valuable. Amos Rapoport (1969, p. 2) states, “The ‘ideal’ environment of a society is expressed in its buildings and settlements,” and that the built environment, “. . . is a direct and unselfconscious translation into physical form of a culture, its needs and values as well as the desires, dreams and passion of a people,” (p. 2). If one’s status in a society is determined by what is viewed as having value, and if that society or culture values its built environment as Rapoport suggests, the question becomes, “What messages are being sent to the segment of a population that cannot fully interact with the built environment; i.e., people with mobility disabilities?”

The following quote by Moore (1996, pp. 3-4), eloquently describes the intersection of space and society, “It is now commonplace to say that the organization of space may be analyzed as a communication system or symbolic code analogous to language . . . Space is often analyzed as a reflection of social categories and systems of classification. The meanings assigned to elements of the spatial order in this kind of analysis are given and fixed by virtue of the relationship with the total cultural order.” Moore continues her discussion by connecting the concepts of space and discourse, “. . . if space can embody social meaning, then it can be treated as a kind of a language.”

The idea that social and cultural phenomena can be interpreted as systems of signification was developed by the cultural critic and theorist, Roland Barthes, and is embraced by environmental designers today (Barthes, 1977 and Baird, 1995). In using semiotics to analyze
interior spaces we can create spatial and linguistic metaphors that help us to understand not only how we use space, but what it means and how that meaning begins to classify and structure our lives.

Methodology

Participants
A total of 18 participants were included in the study. These participants were divided into two groups: 1) people with mobility disabilities and 2) facility managers and design practitioners (See Tables 1 and 2).

Procedures
Data were collected using the following tools and techniques: 1) Autophotography Exercise and 2) Personal Focused Interviews.

A one-time-use camera with 27 exposures was given to each participant with instructions to photograph their daily environments for approximately 3 weeks. The participants were asked to complete an autophotography journal that showed interior environments they liked and worked well for them, along with environments that had a contrasting effect. After the film was developed each photograph in the journal was numbered and sorted according to type of environment (home, retail, church, etc.). The photographs were then analyzed for content that could be expanded and clarified on during the interview phase.

The participants were then asked why they photographed each environment and to expand on their answers as necessary. The total of 402 photographs and corresponding narratives provided a structural foundation for data analysis. The data were analyzed and sorted into Windley and Scheidt’s (1980) taxonomy of environmental attributes (See Table 3).

After the photographs and narratives were sorted into the attribute categories the data was further analyzed for emerging themes according to Glaser and Strauss’s (1967) grounded theory method.

Discussion

One overarching emergent theme, quality of life, was identified from the analysis of the photographs and corresponding participant interviews. Five sub-themes, all related to the major theme of quality of life, were further identified. The five sub-themes were: 1) Functional considerations, 2) Control and personal choice, 3) Aesthetic sensibilities, 4) Environmental meaning, and 5) Perceptual versus associational similarities. For the purpose of this narrative, sub-themes 1) Functional considerations and 3) Aesthetic sensibilities will be addressed. If the paper is chosen for presentation all sub-themes will be discussed during the session.

Quality of Life: Functional Considerations

All participants took photographs of environments that either functioned well for them, thereby enhancing their quality of life, or environments that did not function for them, thereby lessening their quality of life. However, the effects of inaccessibility on participants in Group 1 proved to be exclusionary in nature and limited major life activities.
The primary difference between Group 1 and Group 2 was the environmental characteristics that each group identified as facilitating performance of a task. Group 1 commonly identified accessibility issues that focused on pathways of travel that severely limited their ability to interact with others or to complete a necessary bodily function such as going to the restroom (See Figure 1 with corresponding narratives). In contrast, participants from Group 2 identified general issues of function that were inconvenient, but did not hinder their performance.  

Quality of Life: Aesthetic Sensibilities

Although Group 1 participants did not photograph environments that focused on sensory elements, they spoke about sensory elements in their narratives—especially when describing their favorite and least favorite environments. Group 2 participants, on the other hand, spoke often about aesthetic and sensory elements in their environments. They photographed spaces that often included natural plants, good friends and family, and attention to design detail. Such things as sound, smell, light quality, and the ‘look’ of the space are all evident in the photographs and narratives of Group 2; yet nearly non-existent in those from Group 1.

The aesthetic sensibilities theme was further evidenced by Group 2 participants when they expressed strong negative reactions to poorly maintained areas, clutter, dark spaces, and spaces that felt ‘dead’ or lacked stimulation in terms of color, lighting, etc. (See Figure 2 with corresponding narratives). Although the emergence of this theme was not unexpected, the magnitude of the difference between a focus on aesthetics for Group 1 and the lack of any such focus for Group 2 was unanticipated.

Conclusions

This study compares and contrasts symbols and meaning in the built environment for two groups of people; i.e., designers and facility managers and individuals with mobility disabilities. Contrasting perceptions of symbolism and meaning in the built environment between the two groups were documented throughout the study. The results suggest that this perceptual disparity is more intense between individuals with disabilities and designers and managers of the built environment—creating a schism between the two groups. The most disturbing result was the level of intensity with which individuals with disabilities expressed their feelings of discrimination in the built environment and the negative impact these feelings had on the quality of their lives. It is suggested that—if left unaddressed—the schism will serve to perpetuate the creation of discriminatory built environments.

Bridging the Schism

It is suggested that the findings of this study can help bridge the schism between designers and facility managers and individuals with disabilities by sensitizing the professional design and facilities management communities to the reality of the disconnect. Perhaps a first step toward the creation of inclusive environments lies in the creation of a common, more empathetic language. Such a language would serve as a bridge between the disabled community and the professional design communities toward achieving the goal of more inclusive built environments.

An important step in initiating the development of an empathetic language and bridging the schism would be to address the issue of changing lifestyles and abilities early in the design
process during the conceptual and schematic stages. This could be accomplished with continuing educational opportunities for practicing design and management professionals and curriculum changes in design programs.

References


Supplementary Graphics

Table 1

**Table 1: Demographic Analysis of Group 1** (users who are disabled or are disability advocates)

- 7 participants
- 3 females, 4 males
- 39-57 years of age
- Household income ranges from 0-$9,000 to $50,001 and above;
- 57% below $50,001
- 5 out of 7 are employed
- All are high school graduates with 3 earning Masters Degrees
Table 2: Demographic Analysis of Group 2 (design practitioners and facility managers)

- 11 participants
- 6 females, 5 males
- 28 - 53 years of age
- Household income ranges from $25,000-35,000 to $50,001 and above; 54.4% below $50,001 with $25,001 - 35,000 as the lowest range
- All are employed
- 10 are college graduates with 2 earning Masters Degrees
Table 3

Table 3: Windley and Scheidt’s Taxonomy of Environmental Attributes

**SENSORY STIMULATION:**
Quality and intensity of stimulation as experienced by the various sensory modalities.

**COMFORT:**
Extent to which an environment provides sensory and anthropometric “fit” and facilitates task performance.

**ACTIVITY:**
Perceived intensity of ongoing behavior within an environment.

**CROWDEDNESS:**
Perceived density level within an environment.

**SOCIALITY:**
Degree to which an environment facilitates or inhibits social contact among people.

**PRIVACY:**
Ability to monitor flow of visual and auditory information to an from others within an environment.

**CONTROL:**
Extent to which an environment facilitates personalization and conveys territorial claims to space.

**ACCESSIBILITY:**
Ease in locomotion through and use of an environment.

**ADAPTABILITY:**
Extent to which an environment facilitates personalization and conveys territorial claims to space.

**LEGIBILITY:**
Ease with which people can conceptualize key elements and spatial relationships within an environment and effectively find their way.

**MEANING:**
The extent to which an environment holds individual or cultural meaning(s) for people (e.g., attachment, challenge, beauty).
### Figure 1: Examples of Quality of Life: Functional Considerations Sub theme

<table>
<thead>
<tr>
<th>Image</th>
<th>Narrative</th>
</tr>
</thead>
</table>
| ![Image](image1.png) | “The front entrance to Phil Wongs. Well I can’t get in, I mean there is a 6 inch rise to each entrance and there is no way I can enter that facility unless I get off my scooter and walk in with canes. I’ve lodged a complaint with the Mayor’s Committee and if nothing happens soon I am going to lodge a complaint with the ADA coordinator. And what I understand she usually sends a letter to the agencies to say, ‘what’s the problem?’ I don’t know if anything happens, but...”  
-Bob; participant with a mobility disability |
| ![Image](image2.png) | “This is a store out in the mall. It is so jam packed there is no way I could wheel down that store. That picture doesn’t really show how tight it is, but my husband said it is so tight he could hardly walk through there.”  
-Brenda; participant with a disability |
| ![Image](image3.png) | “This is the bathroom at a sporting goods store over in Moorhead. There are no grab bars, the sink is really high, the mirrors are really high.”  
-Brenda; participant with a disability |
| ![Image](image4.png) | “This is Wal-Mart... Wal-Mart can get into the habit of especially in their clothing department... you can’t go between the racks. Many time(s) when you go down the aisles they have these load bearing poles.”  
-Andrew; participant with a disability |
**Figure 2: Examples of Quality of Life: Aesthetic Sensibilities**

<table>
<thead>
<tr>
<th>Image</th>
<th>Narrative</th>
</tr>
</thead>
</table>
| ![Image](image1) | “Here we made this coat rack. The lower ones are quite accessible, but it doesn’t look institutional. This is something that my clever little wife came up with.”
Nate; participant with mobility disability |
| ![Image](image2) | “It is our kitchenette in our office. This space I’m not real enthused about. As a kitchenette is should be a statement of cleanliness and it usually isn’t. Because it is used by the entire office, it just doesn’t stay clean. There is coffee spilled everywhere and people are throwing their garbage, and that’s maybe part of the problem too, is that they have the garbage right front and center and people don’t pay much attention to the garbage falling all over the place. And it’s a place where you’re getting food for lunch. And the other thing, they store vacuums and more utility items in a place where your kitchen is at and you are getting food.”
Susan; architect |
| ![Image](image3) | “It is the fountain area at Mexican Village. My wife always asks for a booth somewhere over here near the fountain when we go there and it’s hum from the water fountain, it’s a small matter, but it kinda has a background noise from the screaming kids and feels as though you can have a private conversation in the booths. . . A little bit of natural light both from the atrium sun porch on the north and also a sky light in the middle. Seems like thoughtfully chosen materials, obviously, it was driven by a Mexican theme, but the painted tiles, they really aren’t that hokey, they are sorta nice. Legitimate, a real kind of environment, sort of.”
Steve; architect |
Creative Work and Play in a Workspace Designed for Fun

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University of Florida
A. Miller

Purpose

The physical and psycho-social aspects of office design, creativity, and job satisfaction relating to a fun work environment was examined at PUSH, a leading advertising agency. The award-winning agency explicitly cited workplace fun as a core organizational value and had an office space recognized as innovative in its design. The experience of workplace fun was captured through the narrative method reflecting employee perspectives.

Methodology

Data collection involved employees (n = 35) who completed a standardized test of creativity (KEYS: Assessing the Climate for Creativity) and job satisfaction (Job in General). The results represented an 83% response rate of the forty two employees at PUSH. To capture specific instances of fun in the workplace, on-site observations and interviews were conducted with selected employees and management.

Summary of Results

The physical work setting, worker characteristics, and management style all appeared to contribute to a fun work environment. The workplace under study appeared supportive of creativity across KEYS subscales with a mean job satisfaction level registering high on the JIG. Complementing the quantitative findings, a narrative was developed for this study to illustrate fun at PUSH. The narrative centered on the process of preparing and delivering a major presentation with a large prospective client and illustrated how physical design attributes as well as psycho-social factors appeared to influence fun in the workplace.

The employees interviewed described the place in which they worked as vibrant, chaotic, exciting, passionate, and lively as well as fun, creative, and stressful. Perceived benefits of a fun work environment appeared to be increased productivity, higher job satisfaction, and lower stress levels. The interviews supported categories of workplace fun defined by Ford and his colleagues (2003) as games, social events, and public celebrations of professional achievement, humor, stress release activities, and recognition of personal milestones. At PUSH, these fun activities took place in the offices as well as in the hallways, kitchen area, break room, and off-site. The physical environment at PUSH was imbued with design symbolism and meaning, beginning with the revolving door at the main entry of the building that is always pushed and never pulled. The findings linked workplace fun with worker characteristics, the physical setting, creativity, job
satisfaction, stress, and client relations. As these multi-faceted themes integrate into a true narrative, a holistic image of fun in the workplace emerges with implications for design.

References


The State of Environmentally Sustainable Interior Design Practice

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Oklahoma State University 
D. Guerin

Purpose
While some interior designers are using environmentally sustainable design criteria in their design solutions, research that investigates how they apply it as a component for design problems has not been done. It is important to know how frequently and why it is practiced. Therefore, the purpose of this study was to examine the state of environmentally sustainable interior design practice.

Framework
Sustainable development requires the integration of environmental, economic, and social considerations into all decision making. The three-part model of sustainable development can be traced to Firey (1960). He suggested that best way for resource planning to proceed —what we would today refer to as sustainability is to look for ways of balancing the criteria used in optimizing each of these three categories. Sustainability is about living and working in ways that meet and balance existing environmental, economic, and social needs without compromising the well-being of future generations. To achieve sustainable interior design, an awareness of environmentally issues is important because they have not been significant criteria.

Review of Literature
Among environmental issues, indoor environmental quality and interior materials are the topics especially related to interior design. Many buildings provide unhealthy and potentially dangerous interior environments for their occupants. People in the U.S. spend 90% of their time in indoor spaces, and indoor air quality can be two to five times worse than outdoor air quality (U.S. Environmental Protection Agency, 2003). Healthy indoor environments can improve employee health and productivity, which have a tremendous effect on overall costs, as workers are the largest expense for most companies (Fisk & Rosenfeld, 1998). Improved indoor environments affect not only workers’ productivity, but also students’. Student performance is better in schools built according to sustainable design principles (Nicklas & Bailey, 1996).

The interiors of buildings use significant quantities of natural resources and materials. Design strategies to use sustainable interior materials promote conservation of nonrenewable resources. Additionally, integrating sustainable building materials into projects can help reduce environmental impacts associated with extraction, transport, processing, fabrication, manufacture, installation, use, reuse, recycling, and disposal of those materials (California Integrated Waste Management Board, 2002).

In summary, a sustainable interior design approach emphasizes environmental issues, but these issues have not been significant design criteria in interior design process. Environmentally sustainable interior design implies working toward the promotion of indoor environmental quality by improving indoor air quality and human comfort and of using sustainable interior materials.
Methodology

The population was U.S. interior design practitioners in the American Society of Interior Designers. The sample size was determined based on a sample size formula, considering the response rate. The individuals were randomly selected using a random number table. A survey was conducted for the data collection procedure.

The questionnaire, a series of 35 written questions was developed. Questions were divided into two sections. The first section included factual multiple-choice questions relating to respondent’s personal characteristics and professional credentials. The second section focused on environmentally sustainable interior design practice. A series of statements were developed based on characteristics of global sustainable interior design, indoor environmental quality, and interior materials. For each statement, respondents were asked to rate it according to a Likert-type scale in three categories: frequency of application, importance to designer’s firm, and importance to designer.

The first draft of the questionnaire was pre-tested on 20 interior designers to reduce ambiguity. They were excluded from the final sample. The questionnaire was revised in accordance with the results. The email was sent to respondents and asked them to visit a specified Website to complete the questionnaire. To obtain a high response rate, an initial email, a second email after two weeks, and a third email as a reminder were sent. Descriptive statistics were used for the data analysis of this study.

Results and Discussion

The overall response rate was 7.66% with 323 usable responses. This is an acceptable rate for an Internet-based survey. Although the sample was randomly selected to represent the population, interior designers more familiar with sustainable design might have been more interested in responding to the questionnaire.

Every statement showed the highest mean score in the category of importance to designer and the lowest mean score in the category of frequency of application. Important to designer’s firm ratings were always between these two extremes. This pattern occurred both in global statements and in more specific statements for indoor environmental quality and interior materials (see Table1).
Table 1. Environmentally Sustainable Interior Design Practice

<table>
<thead>
<tr>
<th>Environmentally Sustainable Interior Design Practice</th>
<th>Frequency of Application (Mean)</th>
<th>Importance to Designer’s Firm (Mean)</th>
<th>Importance to Designer (Mean)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Global</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sustainable Interior Design</td>
<td>2.48</td>
<td>2.67</td>
<td>3.15</td>
</tr>
<tr>
<td>Indoor Environmental Quality</td>
<td>3.29</td>
<td>3.31</td>
<td>3.60</td>
</tr>
<tr>
<td>Interior Materials</td>
<td>2.47</td>
<td>2.70</td>
<td>3.18</td>
</tr>
<tr>
<td>Indoor Air Quality</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Minimum IAQ Performance</td>
<td>2.82</td>
<td>2.95</td>
<td>3.28</td>
</tr>
<tr>
<td>Environmental Tobacco Smoke (ETS) Control</td>
<td>2.88</td>
<td>3.24</td>
<td>3.47</td>
</tr>
<tr>
<td>Construction IAQ Management Plan</td>
<td>2.82</td>
<td>3.04</td>
<td>3.31</td>
</tr>
<tr>
<td>Low-Emitting Materials</td>
<td>2.62</td>
<td>2.81</td>
<td>3.16</td>
</tr>
<tr>
<td>Indoor Environmental Quality</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Controllability of Systems</td>
<td>2.69</td>
<td>2.85</td>
<td>3.15</td>
</tr>
<tr>
<td>Thermal Comfort</td>
<td>2.84</td>
<td>2.94</td>
<td>3.17</td>
</tr>
<tr>
<td>Access to Daylight and Views</td>
<td>3.36</td>
<td>3.45</td>
<td>3.72</td>
</tr>
<tr>
<td>Effective Lighting</td>
<td>3.19</td>
<td>3.31</td>
<td>3.57</td>
</tr>
<tr>
<td>Appropriate Acoustic Control</td>
<td>3.05</td>
<td>3.20</td>
<td>3.44</td>
</tr>
<tr>
<td>Human Comfort</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reduced Material Use</td>
<td>2.46</td>
<td>2.61</td>
<td>2.87</td>
</tr>
<tr>
<td>Disassembly</td>
<td>2.19</td>
<td>2.46</td>
<td>2.88</td>
</tr>
<tr>
<td>Resource Reuse</td>
<td>2.16</td>
<td>2.31</td>
<td>2.70</td>
</tr>
<tr>
<td>Interior Material</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Construction Waste Management</td>
<td>1.74</td>
<td>2.12</td>
<td>2.42</td>
</tr>
<tr>
<td>Packaging Waste Management</td>
<td>2.33</td>
<td>2.53</td>
<td>3.04</td>
</tr>
<tr>
<td>Storage and Collection of Recyclable</td>
<td>2.44</td>
<td>2.63</td>
<td>3.03</td>
</tr>
<tr>
<td>Hazardous Waste Reduction and Disposal</td>
<td>2.68</td>
<td>3.00</td>
<td>3.21</td>
</tr>
<tr>
<td>Life Cycle Design</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Recycled Content Materials</td>
<td>2.16</td>
<td>2.40</td>
<td>2.75</td>
</tr>
<tr>
<td>Local/Regional Materials</td>
<td>2.63</td>
<td>2.75</td>
<td>3.01</td>
</tr>
<tr>
<td>Rapidly Renewable Materials</td>
<td>2.33</td>
<td>2.53</td>
<td>2.88</td>
</tr>
<tr>
<td>Certified Wood</td>
<td>2.35</td>
<td>2.58</td>
<td>2.92</td>
</tr>
<tr>
<td>Durable Materials</td>
<td>3.41</td>
<td>3.44</td>
<td>3.62</td>
</tr>
<tr>
<td>Reusable, Recyclable or Biodegradable Materials</td>
<td>2.33</td>
<td>2.61</td>
<td>3.03</td>
</tr>
<tr>
<td>Materials with Low Life Cycle Impact</td>
<td>2.13</td>
<td>2.42</td>
<td>2.72</td>
</tr>
</tbody>
</table>
The statements showed similar distributions in three categories. To describe how sustainable interior design components are really applied to interior design projects, the frequency of application was compared among the statements. While interior designers responded that they have generally applied environmentally sustainable interior design, specific characteristics were usually less frequently applied. Generally, the global statements received stronger support than did the specific statements. For example, the mean of indoor environmental quality (3.29) for the global statement was higher than the specific characteristics of indoor environmental quality except access to daylight and views (3.36). It is assumed that interior designers need an understanding of the specific characteristics of sustainable interior design to put it into application.

Statements of indoor environmental quality included indoor air quality and human comfort. Among four statements about indoor air quality, environmental tobacco smoke control (2.88), which has been supported by law, showed the highest mean score, while low-emitting materials (2.62) showed the lowest mean score.

Within human comfort, access to daylight and views (3.36), effective lighting (3.19), appropriate acoustic conditions (3.05), and thermal comfort (2.84) showed high mean scores. The most frequently applied characteristic within human comfort was access to daylight and views. It has been considered in interior designs for function and aesthetics. Therefore, the access to daylight and views characteristic may have been applied without awareness of environmental issues. Controllability of systems (2.69) was the lowest mean score in human comfort although it is still considered to have been applied frequently.

The means for statements about interior materials were lower than the means for statements about indoor environmental quality. For example, the lowest mean score in indoor environmental quality, low-emitting materials (2.62), was usually higher than the mean scores of interior materials characteristics, except durable materials (3.41), hazardous waste reduction and disposal (2.68), and local/regional materials (2.63). Sustainable interior material was identified as a less frequently applied component of sustainable interior design. Although durable materials, hazardous waste reduction and disposal, and local/regional materials have been more frequently applied than other sustainable interior material characteristics, they are easy characteristics to apply without environmental knowledge.

The statements about interior materials included statements about input reduction, output management, and life cycle design. Among the three characteristics about input reduction, reduced materials use (2.48) showed the highest mean score, while disassembly (2.19) and resource reuse (2.16) showed low mean scores. Among responses to the statements of output management, hazardous waste reduction and disposal (2.68) was the highest mean score, while construction waste management (1.74) was the lowest mean score. Among seven characteristics of life cycle design, durable materials (3.41) and local/regional material (2.63) were high mean scores. However, recycled content materials (2.16) and materials with low life cycle impact (2.13) showed low mean scores. The results indicated that construction waste management and materials with low life cycle impact were less frequently applied. Interior designers may not be responsible for environmental consequences over the entire life cycle of interior materials, which includes construction waste management for ultimate disposal.
Conclusion

Although interior designers acknowledge the importance of environmentally sustainable design, its application to projects did not reach the same level as its perceived importance. Use of sustainable interior materials was less frequently applied than indoor environmental quality. It also appeared that interior designers were not aware of the entire life cycle of interior materials. Therefore, teaching methods that improve awareness of the importance of sustainable interior design and an understanding of the life cycle impact of interior materials are needed in classes for undergraduates and in continuing education courses for practitioners.

The results of this study suggest the development of regulations for environmentally sustainable interior design practice. For example, if additional regulations existed for limiting VOCs in adhesives, sealants, paints, composite wood products, and carpet systems, the application for indoor air quality would be promoted.

Several research issues have been suggested for further study. Conducting the survey with members of the International Interior Design Association would add to this study. This further study would provide an opportunity for a stronger generalization to the population. Asking respondents about the importance of sustainability to clients could also expand the study. Research may be conducted among interior design practitioners to determine the factors that motivate them to practice environmentally sustainable interior design. A research study could be designed to examine the environmental and economic integrations of sustainable interior design. Examining economic implications of the 2005 Top Ten Green Projects selected by the American Institute of Architects might provide insight on the real costs associated with sustainable design. Also, a case study focusing on interior materials of green projects could be conducted.

References


Pediatric Healthcare: How Art Heals

Sarajane Eisen,
Lamar University

Purpose
Art possesses therapeutic benefits of healing for children in healthcare. Yet little research has been conducted on the healing effects of art on children, so the hypothesis that children prefer representational art over abstract art is based upon research findings of adults who prefer nature art over abstract art (Ulrich, 1993). The effect of stress on health has attracted attention from researchers, healthcare providers and designers. Although most of the research deals exclusively with adults, there is growing evidence that children experience stress as well and their health is affected by it (Dise-Lewis, 1988). Children in hospitals are faced with many psychological challenges where their freedom is restricted, painful procedures and recuperation are encountered – all in unfamiliar settings. Limited cognitive development may limit the array of internal coping skills available to these children to cope with such stresses. Thus the importance of external environmental factors in lowering the effects of hospital-related anxiety may be increased.

Children often use distraction as a coping mechanism to divert attention away from stressful stimuli. Positive distractions refer to certain type of environmental features that have been shown through research to successfully reduce stress and promote wellness such as an environmental feature that elicits positive feelings and holds attention (Ulrich, 1981). Positive distraction is an effective method of cognitive-behavioral techniques to help children cope.

Prevalent studies validate the impact of well-designed, patient-focused environments on reducing stress. According to Roger Ulrich (1992) representational nature art has beneficial effects on adults experiencing stress and anxiety in a number of healthcare settings, so it is probable that children should be affected in similar ways. Ulrich found most persons prefer representational nature art that is unambiguously positive and tension free, rather than impressionistic or abstract. The objective of this three-phase study was to determine what type of art children prefer and what type of art heals in pediatric healthcare environments.

Theory

The designed environment has the potential to affect individuals’ psycho-physiologically interacting with the behavioral processes to elicit responses – positively or negatively affecting stress levels in patients, as long recognized by environmental psychologists and architects (Evans & Cohen, 1975). The physical environment has characteristics that can influence whether or not stress is induced.
Review of Literature

The designed environment has the potential to affect individuals’ psychophysiologically, as long recognized by environmental psychologists and architects (Evans & Cohen 1987). Stress is an important concept in understanding the interaction between individuals and the environment, specifically how the built environment in healthcare can influence patients’ well being. Stress is a result of a misfit between individual needs and environmental attributes. The hospital is a sensory deprivation area, and a patient’s ability to handle stress has already been impaired by illness or the effects of surgery (Tse, Jacobus, Fanza, 2002). In healthcare settings, stress is an important factor because of its ability to significantly affect medical outcomes through physiological reactions such as increased heart rate and increased blood pressure (Ulrich, 1992).

Children develop through an intellectual regulatory process geared to adaptation to the environment, assimilating new experiences, fitting the information into existing schemas and accommodation to fit the new environment (Gallagher & Reid, 1981). Cognitive development is a process whereby a child’s understanding of the world changes as a function of age and experience. Theories of child development, such as Piaget’s Theory of Cognitive Development, suggest that children are incapable of understanding certain aspects of the world until they reach a particular stage of cognitive development (Gallagher, et al, 1981).

Methodology

A sequence of three studies was designed to investigate the main questions of this investigation:
1) What type of art do school and hospital children and adolescents prefer? 2) A difference in art preference based on gender? 3) A difference in art preference between school children versus hospitalized children? 6) What type of art contributes to lower stress with pediatric patients? 7) A difference among cognitive developmental age groups and the type of art that has the greatest effect in lowering stress with pediatric patients? (Refer to Table 1)

Phase 1, a Focus Group Study using four developmental age groups: 5-7, 8-10, 11-13, and 14-17 years of age, was based on Piaget’s Cognitive Development Theory. Thirty children were selected from each age group from science classes in three schools. Each participant was asked to bring ‘their favorite picture or art image, with discussion helping to discern what the children liked about their selections. Children were shown six different art images: impressionistic, chaotic abstract, subject abstract, simple abstract, abstract with color, and nature, representational for further definition of preferences. Phase 2 was an art preference study with pediatric patients who viewed six art images on a laptop computer, then expressed preference as to their ‘favorite.’ Phase 3 was a quasi-experiment with pediatric patients to discern what type of art lowers stress and contributes to the healing process. Three patient groups were randomly selected for the study phase to view an art image placed in their hospital room. One group had an abstract art image, one a nature, representational art image, and the third group had no art on the walls. The emotional functioning of the patient was evaluated prior to viewing the
art image in their hospital room using the Varni Emotional Functioning Module, coupled with vitals of blood pressure and respiratory taken by nursing staff. Over a two-hour period these three measurements were compared to discern any change, which would indicate a change in stress levels while exposed to an art image, or not art.

Summary of Results

Phase 1: A total of 129 subjects participated at four different schools (n=62 males, n= 67 females). In all four age groups, 66% (n= 77) preferred the nature, representational art (refer to Table 2). There was significant difference between genders in all age groups. In the 5 to 7 age group, 50% (n=17) preferred the nature, representational image, with the next highest preference as impressionistic nature 23% (n=6). In the 8 to 10 age group, 70% (n=28) preferred the nature, representational image, with the next highest preference being chaotic abstract 24% (n=7). Seventy percent (n=18) of the 11 to 13 age group also preferring the nature, representational, and their next highest preference was the impressionistic nature scene 33% (n= 6). Fifty percent (n=16) of the 14 to 17 age group preferred nature, representational, with the next highest preference being impressionistic nature 25% (n=8).

Phase 2: A total of forty-eight subjects participated in Phase 2 (n=24 males, n= 24 females) with the total from each healthcare facility approximately equal. Nature, representational art was the preferred art image for males and females for 60% in each of three older age groups: 8-10 (n=8), 11-13 (n=8), and 14-17 (n=8) year olds (refer to Table 3). For the 5-7 year olds, 50% (n=6) preferred nature, with impressionistic, nature scene being the next favorite 1% (n=2). For 8-10 year olds, chaotic abstract was the next preferred 1% (n=2), with 11-13 year olds preferring the cat abstract as their next preferred 1% (n=2). There was not a preferred second favorite in the 14-17 year old age group.

Phase 3: There were no significant differences between the gender, art, or age groups. Within the art-nature group, there were no significant differences between genders, art images, or age groups (n=5 males, n=15 females). Chi-square analyses was performed with results indicating that within the abstract group, there was a significant difference (N=16 males, N= 15 females). With the no art group, there was no significant difference (refer to Table 4). Due to the exploratory nature of this study and since there were not any extremely significant results, a paired T-test was performed to look at any effects that may have been lost. Results revealed that art exposure intervention made no difference in PFM, blood pressure, or respiratory rates.

Conclusion

This study expands our understanding of the relationship between the child and their environment in an interdisciplinary manner. Although studies of place use and preference by environmental psychologists have not addressed the effects of cognitive development on environmental preferences, developmental psychopathologists have
seldom considered the impact of children’s emotions on their interactions with large-scale environments (Thurber & Malinowski, 1999). The results of this study illustrate the benefits of interdisciplinary collaboration between disciplines of interior design, architecture, environmental psychology and suggest previously unidentified developmental implications of children can affect their responses to environmental elements such as art.

Since the psychological and physiological well being of children in healthcare settings is extremely important in contributing to the healing process, it is vitally important to identify elements in the environment that support stress reduction. Because art possesses such therapeutic benefits of healing, it is important to understand what type of art children prefer and what contributes to healing. This study results could contribute to the practice and research in the discipline of the interior design in pediatric healthcare settings by providing design practitioners, facility managers, and policy-makers guidelines for designing restorative environments. With the growing number of children’s hospitals there is a greater need for patient-validated expressions of art preference by the children themselves, rather than adult preferences.

Bibliography


Table 1
HYPOTHESES

1. Distinct differences in art preferences will exist among 4 cognitive developmental age groups
2. Gender will impact art preferences
3. It is hypothesized that both school and hospitalized children and adolescents will prefer nature art over abstract
4. Nature art should prove to have therapeutic benefits of healing

Table 2
Phase 1: Comparison of Art Preferences

[Bar charts and graphs showing data comparisons]
Table 3
Phase 2: Comparison of Art & Age

Response Per Preference
Summary of Fit

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Phase 3: Present Functioning Module


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**Phase 3: Present Functioning Module**


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Note: Correlations between T1 and T2 are underlined. *p<.05, **p<.01 (2-tailed)
Design Instruction through Distance Education: Is it Possible?

Betsy Gabb,
University of Nebraska, Lincoln
D. Case, K. Ankerson, D. Matthews

Purpose

Changes in lifestyle, work patterns, and student demographics are forcing educators to reconsider the ways they deliver instruction. The internet and information technology offer new opportunities for reaching students. Transcending time and space, students can take courses in the convenience of workplace or home. Originally limited to a text based format, online distance education can now augment instruction with graphic images, sound, and video. An increasing number of postsecondary educational institutions are taking advantage of these advances, offering instruction in a variety of academic disciplines and professions.

This panel considers whether design should become part of this emerging trend. It undertakes a critical analysis of the pro’s and cons of using distance education technology to teach design. Members of the panel will share first hand experience teaching design online. All formats (lecture, seminar, and studio) and all program levels (undergraduate and graduate) will be considered.

Context

Distance education is “any form of learning that doesn’t involve the traditional classroom setting in which students and instructor must be at the same place at the same time (Ko & Rossen, 2004, p.2).” According to the US Department of Education, 56% of all two and 4 year degree granting institutions presently offer distance education courses. For public institutions this figure is nearly 90% (USDOE, 2003).

“Online” instruction is a recent development in distance education. Exchanging instructional material through the mail and later via telephone and television was the original format for distance education. With the widespread availability of the internet, online instruction has become increasingly common. According to the Sloan Center for Online Education (Allen & Seaman, 2004), online enrollments are growing at a faster rate than the broader student population and this growth rate is expected to continue to increase for the foreseeable future. In 2002 over 1.6 million students took at least one online course and of these 1/3 took all their courses online. In 2003 this number increased to 1.9 million, with 2.6 million estimated for 2004. The Sloan Center Survey also assessed quality of instruction and found that 41% of students felt online instruction was as good as classroom instruction with 56% neutral and only 3% dissatisfied. A majority of academic leaders believe that online education is already equal to or superior to face-to-face instruction. They also believe that online education is critical to their long-term strategies (Allen and Seaman, 2004).

These statistics make a compelling argument that design programs should consider distance education, especially online instruction, as one of its instructional formats. Assessing the feasibility of using online instruction to teach design should be an important factor in this consideration.
Methodology

To this end the panel proposes to examine two questions. The first questions is: What are the critical differences in providing an online course in design from a “face to face” course in design? Or, more to the point, how can you translate expectations of face to face design instruction into an online format?

The second question is: Are all types and levels of design instruction equally adaptable to design instruction. For example, is studio instruction as able to be translated into online instruction as a lecture based course or a seminar based course? Are upper level courses as equally translatable as lower level courses? Are graduate courses as translatable as undergraduate courses?

To answer these questions, individuals have been selected for the panel who have had direct experience in converting face to face design courses into online courses. All instructional formats and all levels of a design program are represented. Examples will be given for: 1) an introductory lecture courses, 2) an upper level skills based course, 3)an undergraduate design studio, and 4) several graduate seminar courses.

Findings

All online instruction faces some basic challenges. These include 1) engaging the students attention in the absence of direct eye contact, 2) facilitating interaction not only between student and instructor but between student and student, and 3) creating a sense of community among students who are separated in space and time [Ko & Rossen, 2004]. 

Methods and techniques will be shared that have been developed to address each: including lesson content delivery, online group discussion, online student presentations, group projects, and methods of assessment. Figure 1 shows an example of online discussion using the instructional management program BlackBoard. Information on necessary resources such as online instruction text books, web-based tutorials, and resident instructional technology staff will also be shared.
A particular challenge of teaching design courses is providing graphic imagery that addresses two-dimensional and three-dimensional representation. Figure 2 shows materials from a lesson on color theory. An even greater challenge is providing a medium for students and teacher to interact “graphically”, that enables marking up plans and drawings, providing written and verbal comments, adding graphic analysis and suggestions through drawing and sketching. Much of this can be handled through “asynchronous” file exchange, using built in notation systems of existing software such as the “comments” tool in Microsoft word or the “white board” in BlackBoard. Doing this in real time, however, is an exciting recent internet software development. Macromedia Breeze, for example, allows live video and audio to be shared across the internet among physically separated participants. In this program participants can simultaneously show and markup information graphically, while providing verbal
commentary and discussion. Figure 3 shows an example of a live Breeze forum. Examples of how these technologies are being used in current online course instruction will be explained and demonstrated.

Another opportunity offered by emerging software technology is the ability to access remote sites for instructional purposes. For example, an introductory online design course provides its students with a campus tour of buildings to discover architectural structural form using iPod technology. Students download a site map and audio files and then use them on a trip
across campus. [See Figure 4]. This same approach will be used to access a model corporate office facility for a distance ed course on the changing workplace. These tours will be augmented with QuickTime movies and narrated PowerPoint’s. Each will provide a means of visually and experientially immersing the student in a virtual experience, remote from the classroom and remote from the students “place” of study.

Figure 4: A self guided tour of architectural buildings and structure using “Podcasting” technology.

Conclusion

As the panel shares its experiences of developing online instruction for design members of the audience will be invited to give examples from their own experiences as well as to raise questions and concerns. The panel is very interested in hearing about examples and strategies that others have tried and facilitating a dialogue in community building among interested programs.
References


Integrating Lighting Simulation in Interior Design and Architecture Curricula

Tina Sarawgi,
University of North Carolina, Greensboro

Statement of Purpose

Almost two decades back, Greenberg (1988) lamented in his lecture that, “for computer
graphics to attain its potential for design and aesthetic evaluations, it will be necessary to
accurately represent the appearance of objects as they look to us. Most computer graphics images
are pictures that have no real correlation with the actual appearance or with our visual perception
and the way we see environments”. With the maturing of rendering algorithms this has changed
tremendously.

Today, lighting simulation tools use ray-tracing and radiosity methods to produce
acceptably accurate calculations and compelling visuals with a fast and comparatively easy user
interface (Benya, 2004). Hence, the simulation tools can directly benefit interior design and
architecture community. They can extend the possibilities of the other tools, such as scale models
and manual calculations, because of their flexibility, walk-through capability, and ability to
conduct physically accurate computations with ease. A recent online international survey
reported a drop in the use of physical scale model measurements and increase in trust in
reliability of daylighting simulation tools, showing that simulation tools are fast gaining
acceptance in the design profession (Reinhart & Fitz, 2004).

Unfortunately, the use of computer applications in the undergraduate design curriculum is
largely relegated to producing alluring imagery by ‘painting’ light intuitively or randomly.
Consequently, the outcomes demonstrate little environmental understanding of the building, lack
scientific basis, and are not accurate enough to base design decisions on. A due consideration to
lighting in an environment with the help of computer simulation tools could lead to energy-
efficient buildings, hence mitigating the ensuing environmental impacts. Most architects believe
that the role of university education regarding building performance simulation tools is
important, although addressed less than adequately in design schools (Mahdavi, Feurer, Redlein,
& Suter, 2003). As interior designers or architects are usually the pivot of a design team,
bringing in and directing the consultants, they need to have the expertise to co-ordinate the
decisions that occur in the design process of energy-efficient environments (Wilde, Voorden,

Hence, there clearly is a need to determine the reasons for exiguous use of currently
available lighting simulation tools, and spread more awareness regarding their capabilities in the
academics. In this paper, the author embarks on a two-step process to assess the use and
demonstrate the benefits of lighting simulation tools within the academic design community. As
a first step, an online survey of interior design and architecture programs in the United States is
prepared to determine the impact of computers in teaching and learning lighting, and identify
design educators’ lighting simulation needs. The second step involves development of course
modules on lighting simulation, beyond tutorials on specific software programs, guided by the
results from the online survey.
Research Framework

Some of the primary reasons for tenuous use of simulation software at the undergraduate level in a design curriculum may be due to skeptical attitude towards simulation tools, lack of awareness, perceived steep learning curve, and/or lack of inclination to familiarize with relevant software programs. Intuition is not sufficient for good decision-making, and lighting design should be considered as early as possible in the design process. Holistic understanding of lighting design is vital to both interior design and architecture schools as stated by their accreditation organizations, namely Foundation for Interior Design Education Research (FIDER) for interior design and National Architectural Accreditation Board (NAAB) for architecture (FIDER, 2005; NAAB, 2004).

The specific aim of this project is to demonstrate and emphasize the use of computer technology for meaningful environmental design investigation and visualization, as distinct from the more conventional computer graphics-based ‘image making’, within the design curricula.

Review of Literature

The relevant quantitative and qualitative surveys related to their use in building design fall under the following categories:
(a) General survey on the use of computers or lighting resources in design education (Clemons & McLain-Kark, 1991; Curry, Shroyer, & Gentry, 1992; Kesner, 1987; Mc-Lain-Kark & Tang, 1986);
(b) Survey on use of lighting and other building simulation tools for building design and evaluation in the profession (Jacobs & Henderson, 2002; Lam, Wong, & Henry, 1999; Mahdavi et al., 2003; Pilgrim, Bouchlaghem, Loveday, & Holmes, 2003; Reinhart & Fitz, 2004); and

The literature review reveals that lighting software tools are gaining acceptance in the design profession with more design professionals turning to these tools for quick, iterative, and accurate photorealistic analysis since 1987, when surveys by Mc-Lain-Kark & Tang (1986) and Kesner (1987) showed marginal use of computers for lighting simulation. None of the above surveys is based on an extensive assessment of the use of lighting simulation tools amongst design educators. The above reviews also illustrate that easy to use lighting simulation tools, better software documentation, and training opportunities seem to be a consistently high priority for users. Easy to use tools are available today (Roberts & Marsh, 2001), however, better software documentation and training opportunities still need to be addressed.

Process

The project’s process includes conducting an up-to-date comprehensive survey today to determine the use of computers for lighting simulation in the interior design and architecture field, and develop online course modules to demonstrate the value of lighting simulation tools.
Online Survey

A web-based survey on the current use of lighting simulation tools in teaching lighting design in the design curriculum will be administered from mid-October to end of November 2005. The purpose of the survey is to assess the impact of computers in teaching and learning lighting design, and identify lighting design educators’ needs. The survey participants will include lighting design educators from 117 NAAB accredited architecture and 135 FIDER accredited interior design in the US, where lighting design is taught as a support course.

The survey contains four question types: multiple selections of specific categories, a single selection of a specific category, free text, and Likert scale. A typical participant will be led to one of the three paths (see Figure 1) in the questionnaire depending upon their response to the critical questions.

*Figure 1.* Flowchart showing the paths that a participant can take in the online survey

The survey will seek answers to some significant questions such as how lighting design is taught in architecture and interior design schools. Has lighting design education been enhanced due to computers? What variables are affecting the use of computer in lighting design education in interior design and architecture schools? What is the future of lighting simulation tools? The survey results will be presented at the conference.

The learning modules

The goal of this step of the project is to develop free online curriculum material that bridges the gap between digital media and responsible building design, for architecture and interior design students, faculty, and professionals. The course modules will be conducted in a self-paced discovery environment in which users can verify physical concepts and learn procedures for conducting photometrically accurate lighting predictions to guide their design decisions, without being tied to specific application programs. The course material will be divided into three principal modules with topics hyperlinked to one another (Figure 2).

*Figure 2.* Online learning modules on lighting simulation

The lighting concepts module will provide fundamental knowledge on lighting to conduct lighting simulation. The computer simulation module will be mathematical and scientific in nature, providing information on physics-based algorithms of computer-aided lighting simulation. The lighting application module will demonstrate the application of knowledge from the previous two modules for specific lighting tasks.

The course modules are envisioned as either being used in parts as a reference material, or used by instructors as assignments based on the available topics. A draft of the online course modules will be presented at the conference to receive input and feedback from design educators and professionals.

Summary

Most designers prefer tools that enable them to explore scenarios related to daylighting and fenestration products, especially if these tools also produce graphics and reports that help communicate the benefits of a certain design scenario to their clients. The probability of efficient
use of daylight and electric light and energy conservation is undoubtedly higher with incorporation of light simulation into design of buildings.

The project responds to the perceived instructional need to include lighting simulation in a design curriculum for improved visual quality, energy efficiency, and thermal comfort; and to balance hands-on experience with fundamental concepts that remain constant beyond changing software programs. When presented with rigor and creativity, computer-aided simulation can bring lighting concepts to life providing its users valuable information and skills to arrive at effective design solutions. The survey and learning modules discussed above will determine the use of lighting simulation tools in undergraduate design curriculum, and provide the much-needed resources to the design academic community. The results of the survey will be available in January 2006, while the course modules will be completed by December 2006.

The high interest shown by undergraduate students in the use of digital media, and the growing demand for digital media proficiency in the workplace make this project very timely.

References


The Virtue of Multiple Voices:  
Confronting Homelessness through Environment, Message and Photo Image

Jill Pable,  
Florida State University

Purpose

Research suggests that people learn in different ways. A variety of cognitive theories have arisen, including Gardner’s multiple intelligences theory (1993) and ways of knowing (Wilson, et al., 1987). Consequently, educators are exploring possible benefits of mixing different learners together to examine a problem from various points of view. “Learning communities” in higher education are one such exercise (Gabelnik, 1990). This proposal will describe an ongoing service learning collaboration engaging students in interior design, graphic design and photography and jointly investigating the issue of homelessness. Lawson (1979) and Cross (1990) suggest that such humanities-oriented learning communities may be logical, given that these learners approach problem solving in a similar fashion collectively (working toward results), but different from learners in the sciences (discovering rules).

Goals for the students’ group experience were defined:

- Facilitate student interaction with a tangible issue able to be understood through site visits and interview.
- Collaboratively expose students to different ways of understanding a social issue; specifically through spatial planning (interior design), message (graphic design) and photodocumentation (photography).

Several goals were defined with the project’s homeless shelter service learning client:

- Convince homeless guests to stay at the shelter, important as shelter staff report that the homeless are often suspicious of institutional help.
- Show prospective guests that others before them have escaped from homelessness to better lives.
- Allow the clients to share their stories through spoken testimony and photographs.

This proposal, submitted by the project’s guiding faculty in interior design, graphic design and photography, will describe the project’s process and examine the expected and unexpected outcomes that resulted. The project’s collaborative approach was judged sufficiently unique to receive $5,500 in grant funds by the resident university’s Office of Community Collaboration.

Context

Service learning projects in interior design have been well represented in conference presentations and publications, including such applications as eldercare homes (Dickinson, 2004) and community design (Edwards, 2000). Different learning groups using inter-collegiate populations (Blossom, Gibson & Mathews, 2002) and collaborations with other countries are also being explored (Asojo, 2004). All of these initiatives report their students’ experience was enhanced by the integration of others’ viewpoints.
What may be less common are collaborations of interior design students with students of the related arts, especially in the context of a social issue and service learning project. However, as Richie and Spafford suggest (2002), multiple perspectives may be valuable for projects tightly integrated with social considerations. For example, in this homelessness-based project it became clear that effective spatial design of the shelter’s public areas was impossible without understanding the facilities’ messaging function, a skill the graphic students brought to the project.

The selection of homelessness as an appropriate topic was confirmed by the students’ naivete and, at times, insensitivity towards the issue as surveyed through pre-project questionnaire. Students reported inaccurate opinions of who homeless people are and why they are homeless.

Review of Literature

Service learning is characterized by student activities that are integrated into learning objectives while simultaneously serving the community. Service learning may have positive payoffs for design students as they promote problem analysis and critical thinking abilities. (Eyler & Giles, et.al, 2001)

There is precedent for homeless shelters as focus for service learning projects within interior design education. Stanford (Christeson, 2001) and Rhode Island School of Interior Design (Kim, 2004) explored homeless facilities with regard to design detailing and furnishings. Chalmers’ youth hostel programming analysis project also offered rich opportunities for her students (2004). However, these explorations did not include other student groups in their learning activities.

Process

Project Parameters
The service learning project commenced in fall of 2004 with one class each in interior design seniors and graphic design juniors, and three senior photography students. Three faculty, one in each field, guided their efforts. It was envisioned that the groups would both produce independent projects and, as possible, collaborate.

The interior design students’ project involved the re-design and significant expansion of the homeless shelter from 12,000 square feet to 42,000 square feet. The project encompassed the programming, concept design and design development stages with final presentation boards, models and presentation deliverables. (see figures 5,6,8 & 10)

The graphic design students investigated the concept of growth and developed a message, color palettes, text and photos (obtained from the photography students) that displayed case studies of guests who successfully moved from homelessness to recovery. These projects evolved to be called the “Wall of Hope”. (see figure 4)

The photography students documented the other students, homeless guests and shelter staff in through observation and weekly interviews. This work, punctuated with written quotes and student interpretations, evolved into the book Shelter Lives, a photograph-intense study of life at the shelter. (see figure 13)

Collaborative Activities
The pooling of funds and coordination of activities allowed the three groups of students to participate in some activities together:
• A lecture by Sam Davis, author of *Designing for the Homeless: Architecture that Works*. (see figure 12)

• A student-driven gallery show featuring homeless encampment and shopping cart mockups, photos of homeless persons, and graphic displays providing homelessness statistics. (see figure 7)

• A field trip to homeless shelters in San Francisco.

• Multiple class visits to the shelter. (see figure 9)

Collaborative Outcomes

• Interior design/graphic design team pairings facilitated the incorporation of the graphic designers’ color palettes and wall designs into the interior design solutions. (see figure 5)

• The photography and graphic designers worked closely on the Wall of Hope element of the facility, integrating photographs with client quotations and explanatory text. (see figure 4)

• Photography students documented the interior design students’ visits and activities, capturing compelling shots of student-homeless client interactions and walk-throughs of the site. (see figure 9)

Discussion

The project culminated at the conclusion of the semester with presentations of all students’ solutions at the shelter to Shelter staff, homeless clients and faculty. (see figure 11)

Expected outcomes

Through reflective writing exercises, the interior design students appeared enthused about the hands-on nature of the project. Some students were deeply affected by the project, and one student revealed only to her faculty guide that she herself had been homeless, sleeping in her car for six months. Another confided that her father was currently presumed homeless. The students seemed challenged to perform well by the knowledge they would be presenting to shelter staff and the homeless clients themselves. Thus, the project appeared to instill a commitment within the involved students.

The photography students, too, became more comfortable and confident with their surroundings after several visits to the shelter. This in turn allowed a more personal and meaningful learning experience to result.

Body language and written responses also chronicled a change in some students’ attitudes toward visiting the shelter. The first visit was tense and students stayed in small groups as they moved about. Later on, despite faculty directives to the contrary, several students visited the shelter outside of class time to obtain a final measurement. Shelter staff, formerly homeless clients themselves, came to greet some students by name and vice versa.

Collaborative efforts between the student groups were judged to be moderately successful. While some interior design students took guidance from their graphic design colleagues, others tended to alter the design to their own ends. Asynchronous class times complicated collaborative activities on occasion and this issue should be improved in succeeding semesters.
The photography and graphic design collaboration on the Wall of Hope highlighted the different priorities for the two student groups regarding the appropriate use of message coupled with image. Student dialogue, however, was quite fruitful and in the end the issue resolved itself.

Unexpected outcomes
The collaboration proved interestingly useful to the client, who invited the students to display their work at a fundraising event attended by 1,500 business persons. (see figure 14) Also present was the client’s capital facilities committee who requested a digital copy of the students’ results for use in increasing the fundraising campaign from one to five million dollars. Interestingly, the students’ visioning-style designs resonated with the committee as viable ‘what-if’ graphics for public awareness and fundraising.

The acquisition of further grant funds made possible pursuing actual design and construction of the Wall of Hope within the shelter’s existing waiting room. Two student graphic and interior design project veterans were selected to pursue this end. The client is currently considering a $25,000 fundraising campaign to make the Wall of Hope a reality. (see figures 15 & 16) Further, the collaborative project unexpectedly generated media interest, and several university newspaper articles and an alumni magazine piece resulted. The students’ final interior design presentations were marked by local television news coverage, a fact that likely contributed to their preparedness.

Summary

Despite the considerable effort that this service learning collaboration required, the authors suggest that the learning payoffs and increased awareness of social issues justifies the effort. Multiple design points of view, in this case, tended to stimulate conversation and offer potential for both evolved design solutions and social perceptions.

In a closing reflective exercise, one student summed up the experience by describing she will now engage a homeless person in conversation who has taken up residency in her workplace’s doorway instead of merely walking by. In the larger scheme of life, this seems a positive outcome.

References


Homeless Shelter Visioning Project

A student senior project for a real homeless shelter provided not only a vehicle for student learning but also raised awareness of homelessness as a community issue. The students' service learning collaboration resulted in the production of programming manuals and design development graphics, both of which are currently helping the client charity organization call for an increase in capital facility funding from one million dollars to five million dollars and increase the number of beds from 80 to 300.

The interior design student's homeless shelter initiative has spurred other faculty and student partnerships with the departments of photography, graphic design and social work. These side projects have resulted in a number of outcome products including the published book Shelter Live, a collection of photo essays that relate homeless persons' personal stories. Similarly, an interior design student and graphic design student are completing a project that creates a "Wall of Hope" display within the shelter's waiting room. This piece will showcase examples of past persons' success in escaping homelessness through photos and text so that incoming homeless clients might be similarly inspired.

The IDEC paper submittal coordinator assured the authors that graphics submitted in this multi-image format is acceptable for review.
Figure 1. Flowchart showing the paths that a participant can take in the online survey
Figure 2. Online learning modules on lighting simulation
Re-Thinking Studio Critique: Three New Strategies

Stephanie Watson-Zollinger,  
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Patricia Salmi

Purpose

Critique has always been at the core of educational activity in the interior design studio setting. While it is true that content delivery and knowledge acquisition in the interior design studio come in other types of formats such as lecture and discussion, interior design studio is heavily dependent upon critique as an important vehicle for student knowledge acquisition and growth. Unlike many educational methods that have undergone dramatic change over time, studio critique has remained much the same as it was thirty years ago, all too often utilizing an unformatted approach or framework in which work is assessed according to the opinions and biases of the critic(s). This approach can work if the critic is very knowledgeable, as in the case of the instructor. If, however, the opinions are those of other students, the value of the critique can be called into question because all too often students, particularly beginning students, do not have adequate knowledge for a thorough assessment. Preserving teacher and peer input is important to the studio critique. However, it is time to consider some new approaches to this important component in the interior design education process. This presentation will examine commonly used critique methods and propose three new strategies for the interior design studio critique.

Review of Literature

Criticism of the arts, according to Tate and Smith (as cited in Dickson & White, 1997) is “an informed opinion … an attempt to judge the results of an activity, to evaluate the whole within a context. [It] should seek to inform the creator as well as others” (p.4). Criticism, then, serves to educate within a context. It delineates, defines, and evaluates, thereby further refining the viewer’s perceptions (Dickson & White, 1997). Criticism within the interior design studio seeks to achieve these same goals, albeit on a less ambitious scale. Through studio critique, it is hoped that the student will acquire new insights that will guide the project in the student’s chosen direction.

Critique in the design studio typically takes one of three formats: individual critiques conducted by the teacher at the student’s desk, group critiques that frequently involve peers, and juried critiques that usually include professional designers (Uluoglu, 2000). All three types of critique serve different purposes in the studio and should be utilized. This paper’s primary focus will be on the group critique.

The traditional format for group critique most often consists of the student presenting his or her work and the peers and teacher giving input and opinions. Usually no formal structure is imposed on the critique other than possibly a time limit. At best, the teacher hopes that the student will be offered constructive criticism from peers, and that the student’s peers will gain insight regarding their own work. At worst, the student will take the criticisms as a personal attack and will resist making changes to better his or her project, and peers will have gained little
new knowledge to apply to their work. The role of the critic, whether it is peer or teacher, should be to help the student pursue the design direction that the student has chosen, not the design direction that the critic chooses (Evan, Powell, & Talbot, 1982). Before any project critique, it is critical to emphasize with all the students that criticism should be constructive in nature with the goal of helping to create a better project (Kilmer & Kilmer, 1992). One problem with peer critique is that students often feel that their peers, while offering opinions meant to be helpful, might not have the knowledge and experience to legitimately critique their fellow students’ work. This perceived problem is very real. According to Geahigan, 2000), criticism should involve a full, evaluated understanding of the subject. This presents a dilemma for students: How can students, particularly students at the beginning level, be equipped to provide this level of criticism? With insufficient knowledge and no format or guidelines, students cannot offer fellow students much more than their opinion, based on the knowledge that they have acquired up to that particular point in their education.

One possible solution to this quandary is to require students to use a framework when critiquing their peers’ work. This framework can take the shape of simple guidelines based on student readings or class discussion. It could be based on a taxonomy of criticism developed by the instructor with student input, or a more formal taxonomy as suggested by Attoe (in Evans et al., 1982) that employs normative, interpretive, and descriptive criticism as types of criticism within which to frame the critique. By requiring students to use a solid basis upon which they will form their opinion, students can not only contribute to each others projects in a meaningful way, but can personally benefit from the increased knowledge they have gained because they had to understand the ideas behind the format of the critique in order to use it. Empowering students in this way demonstrates to the student that they can play an important role in the learning process for themselves and lends greater legitimacy to their opinions.

Method

The following descriptions briefly outline three new strategies for interior design studio critique that utilize a structured format. While the primary goal of each strategy is to improve the quality of the critique by requiring students to use specific guidelines, a secondary goal is that of encouraging knowledge acquisition for the peer reviewer. It is hoped that these ideas for critique will serve to educate within a context.

Prompts

Using prompts such as the elements and principles of design is a useful method for any design student, regardless of experience, as they develop the vocabulary to communicate about design.

In this learning strategy, students use one design element and one design principle to evaluate selected peer’s work. The idea behind this approach is not only to provide solid guidelines for the peer critic to evaluate their fellow student’s work, but also to encourage better learning of the elements and principles of design.

This strategy offers both parties of the critique (the giver and the receiver) some benefit. The peer who is doing the review must understand and be able to discuss any of the design...
elements and principles prior to arriving at class that day. The peer also has a definitive format to guide the critique. The student whose work receives the critique benefits from the knowledge that their work is evaluated on objective criteria that is understood by the peer, thus adding value and a level of credibility to the peer’s opinion.

**Praise, Question, Polish (PQP) Critique Method**

This critique method is most effective while work is in progress. For this strategy, students will be asked to work in small groups (3-4 people per group). The participants within each group are asked to make Praise Statements about each piece of work. The students should be encouraged to be as specific as possible and to use design vocabulary. Never accept an answer such as “It’s good” or “I just like it” without a series of probing questions to help the speaker frame a more specific response. The Q is for questions—these can be questions about anything-technique, content, future plans, etc. The final P is for polish for what should or could be done next. Discussion should center around suggestions for improvement.

Motivationally, peer learning has the advantages of interaction with peers, thus providing an opportunity for mutual support and stimulation. Cognitively it provides an opportunity for elaboration—putting material into one’s own words—as well as a chance to begin using the language of the discipline (McKeachie, 2002).

**Six Hats of Critique**

This critique strategy is based on the book *Six Thinking Hats* (1999) by Edward deBono. Each hat in this strategy represents a role that the mind plays in the critical thinking process. By switching from one hat to another as students critique a project, they are forced to look at the project from a variety of perspectives.

The Six Hats method uses the idea of role playing to move thinking toward maximum productivity. In other words, the artificiality DeBono provides makes it clear to all that having these hats is “play acting” and not necessarily the unrestrained opinion of the individual. This minimizes the confusion, facilitates coordination, and provides a definitive focus and framework for the process.
The table below identifies the six hats, their characteristics and some of the questions that should be asked with each hat. For each hat, there should be a minimum of three statements. Once, each student has worked through all six hats and has jotted down at least three statements for each, the studio instructor will know that the major points in the critical thinking process have been covered.

<table>
<thead>
<tr>
<th>Hat</th>
<th>Characteristics</th>
<th>Questions</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>White Hat</strong> (concerned with facts and figures)</td>
<td>Used to check clearances, codes, and other objective information.</td>
<td>Have programming needs, codes, and clearances been met?</td>
</tr>
<tr>
<td><strong>Red Hat</strong> (the emotional hat)</td>
<td>Used to acknowledge the nonrational aspects of thinking.</td>
<td>Do you believe the design has potential? What does the design concept remind you of?</td>
</tr>
<tr>
<td><strong>Black Hat</strong> (careful and cautious, the devil’s advocate hat)</td>
<td>Used to discover the ideas that might not work. Also used to discover weaknesses of the design solution.</td>
<td>What are weaknesses? Are there potential problems if design solution is implemented?</td>
</tr>
<tr>
<td><strong>Yellow Hat</strong> (focuses on the positive)</td>
<td>Used to obtain the positive outlook, this hat sees the strength, possibilities, and benefits.</td>
<td>What are strengths? What are the benefits of the design solution?</td>
</tr>
<tr>
<td><strong>Green Hat</strong> (associated with creativity and new ideas)</td>
<td>Used to find creative new ideas</td>
<td>What completely new, fresh innovative approaches were taken? Are there any alternative ideas or solutions?</td>
</tr>
<tr>
<td><strong>Blue Hat</strong> (the organizing hat)</td>
<td>Used to evaluate the overall presentation and layout of design solution.</td>
<td>Is presentation organized in a logical manner? Easy to read? Does design solution communicate well?</td>
</tr>
</tbody>
</table>
Conclusion

Studio critique is a vital component in the education of the student of interior design and teaching students how to critique as well as how to utilize the critique session to benefit their specific projects are important educational goals. The suggested strategies proposed in this paper offer new ways to approach a much-used vehicle in the interior design studio classroom. Particularly useful to the beginning student, these strategies offer the advantage of focusing attention on specific categories and building student knowledge in those particular areas.

References


Who are we? Beginning Markers of Accredited Interior Design Programs

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Purpose

In 2004 the FIDER Research Council, with FIDER board approval, conducted a scan of existing FIDER accredited programs to begin identifying key features of accredited programs. The data point toward markers differentiating accredited programs while maintaining individual program anonymity. Such information is intended to enhance internal and external understanding of the state of (accredited) interior design education and inform strategic planning. The goals of what is anticipated to be a longitudinal project include collecting and disseminating information that helps identify the current status and emerging trends in interior design education. This information is intended to systematically overview central dimensions of interior design programs (anonymous) that could in time be accessed in a reliable database.

Context

While great energy has been expended toward creating sound, innovative, valuable programs in interior design that can also be evaluated and thus accredited, little has been done to document or distinguish the context in which such programs operate. As universities and programs attempt to respond a changing society and to the emerging trends and dynamic trajectories of education (Boyer & Mitgang, 1996; Guerin & Thompson, 2004), it is clear that understanding the contextual profiles of existing interior programs is essential to understanding and planning future needs and future directions. Who are we, and what are the key markers of successful, accredited interior design programs?

Review of Literature

While interior design programs are rigorously evaluated based on student work (Hines, Albanese, & Brown, 1999), the context in which that work is done has been primarily left to anecdotal evidence. Studies in interior design education are likely to focus on new, creative ways of learning and teaching (Bender, 2002; Bender & Good, 2003; Catsis, 2001; Clemons, 2002; Sagun, Demirkan, & Goktepe, 2001). Others investigate how to predict a more successful student (Demirbas & Demirbas, 2003; Mahboub, 2004; Powers, 2004; Watson, 2001), but do not offer how the program may influence the relevance of the learning outcome.

Other research focuses on supporting the professional community of interior designers. Allderdice (2002), observing that programs of interior design in Canada are mostly influenced by the needs of the profession, posits that a successful program of
interior design is one whose graduates are employed or employable. Danko (2003) offers narrative as an effective method of developing more reflective practitioners. Powers (2004) describes the value of student involvement with the community, while Forsyth, Lu, and McGirr (2000) report how service learning may enhance the student’s potential for job opportunity.

Still others question the changing student demographic and the academy’s responsiveness. Hildebrandt (1999) questions the value and unintended consequences of FIDER’s standards as setting minimal expectations of the students. Guerin and Thompson (2004) propose that design education would benefit from an Executive Masters of Design Education. Watson, Guerin, and Ginthner (2003) demonstrate the need access to current research relevant to design in order to have a more relevant relationship between interior design educators and practitioners.

In each case the investigators shop short of profiling the design educator or the distinguishing the program in which the education occurs. This may be due to an inability to access that information through an efficient mechanism. The goal of this research is to collect that data and provide the system and the mechanism for its access.

Method

Survey questions were developed by the FIDER Research Council members during a collaborative discussion. The Research Council is comprised of three full-time faculty members of interior design programs and one interior design practitioner from different universities and diverse sections of the United States. Questions were refined by the FIDER staff and resubmitted to the Research Council for testing of reliability and validity. The 36-item survey was mailed to administrators of all accredited interior design programs in the Fall of 2004. Response rate was 89% with 120 of 135 programs responding.

Comparing public and private as well as urban and rural institutions, the survey elicited information regarding where interior design programs are academically housed, the number of full-time and part-time faculty, salary ranges, location of the institution, location of graduate programs in design, and enrollment and attrition trends. To collect baseline information, the survey was sent to all currently accredited interior design programs in the United States and Canada. Descriptive statistics and correlation analysis were used to evaluate responses to items in the profiles. The statistical reports were reviewed by the Research Council and an independent statistician for interpretation of results. Acknowledging that some questions appeared to elicit confusing and conflicting answers, the statistical report was also used to identify questions needing further refinement.

Findings

Profiles of participating programs were based on three categorical systems. One system was the type of institution: public, private (for profit), or private (not for profit). Another system was location of institution: urban, urban fringe, or rural. The third categorical system was mission of institution: teaching, research, or service. Most
responding programs reported they were in public institutions in urban and urban fringe centers of population (Figure 1).

Figure 1. Location of institutions by type of institution housing programs of interior design.

<table>
<thead>
<tr>
<th>Location of Institution</th>
<th>Type of institution</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Public</td>
<td>Private, non-profit</td>
</tr>
<tr>
<td>Urban - Cities with population of 50,000 persons or more</td>
<td>52</td>
<td>21</td>
</tr>
<tr>
<td>Urban fringe - Cities with population of 2,500 or more</td>
<td>20</td>
<td>6</td>
</tr>
<tr>
<td>Rural - Cities with population of less than 2,500</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>73</td>
<td>27</td>
</tr>
</tbody>
</table>

Of the responding programs over all, 73.8% reported their primary missions to be teaching, 24.3% declared their primary mission to be research, and less than 2% saw their primary mission as service. With only one exception, private institutions reported their primary mission to be teaching. Only public universities reported research as their primary mission (Figure 2).

Figure 2. Primary institutional mission by type of institution.

<table>
<thead>
<tr>
<th>Primary institutional mission</th>
<th>Type of institution</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Public</td>
</tr>
<tr>
<td>Teaching</td>
<td>43</td>
</tr>
<tr>
<td>Service</td>
<td>1</td>
</tr>
<tr>
<td>Research</td>
<td>29</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>73</td>
</tr>
</tbody>
</table>

Those programs reporting their primary mission as teaching were most likely to be housed in their own academic unit (Figure 3). Those programs reporting their primary mission as research were just as likely to be housed in their own academic unit as in architecture (Figure 4). Only two programs responded that their primary mission was service.

Figure 3. Academic Unit Housing Program by Teaching Mission (n=82)

<table>
<thead>
<tr>
<th>Percentage of whole</th>
<th>Academic Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>43.9%</td>
<td>Interior Design</td>
</tr>
<tr>
<td>13.4 %</td>
<td>Architecture</td>
</tr>
<tr>
<td>13.4 %</td>
<td>Design</td>
</tr>
</tbody>
</table>
12.2% | Other programs  
9.8%  | Human Ecology  
6.1%  | Art

Figure 4. Academic Unit Housing Program by Research Mission (n=27)

<table>
<thead>
<tr>
<th>Percentage of whole</th>
<th>Academic Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>24.1 %</td>
<td>Architecture</td>
</tr>
<tr>
<td>17.2%</td>
<td>Art</td>
</tr>
<tr>
<td>13.8%</td>
<td>Human Ecology</td>
</tr>
<tr>
<td>10.3%</td>
<td>Design</td>
</tr>
<tr>
<td>10.3%</td>
<td>Other programs</td>
</tr>
</tbody>
</table>

The total full-time faculty for responding programs reported teaching was augmented by adjunct or part-time faculty and other support by more than three times (Figure 5). The average number of full-time faculty was 4.20 supported by 11.91 adjunct, part-time faculty, and other support. More full-time faculty was found in Interior Design units than in any other.

Figure 5. Number of faculty in each academic unit

<table>
<thead>
<tr>
<th>Academic Unit Housing Program</th>
<th>Mean of full time faculty members for interior design program</th>
<th>Mean of adjunct, part-time, and support for program</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interior Design</td>
<td>4.82</td>
<td>16.45</td>
</tr>
<tr>
<td>Architecture</td>
<td>4.22</td>
<td>12.76</td>
</tr>
<tr>
<td>Human Ecology</td>
<td>4.14</td>
<td>4.75</td>
</tr>
<tr>
<td>Design</td>
<td>3.67</td>
<td>9.80</td>
</tr>
<tr>
<td>Art</td>
<td>2.65</td>
<td>10.44</td>
</tr>
<tr>
<td>Fine Arts</td>
<td>2.00</td>
<td>4.00</td>
</tr>
<tr>
<td>Other</td>
<td>4.08</td>
<td>6.08</td>
</tr>
<tr>
<td>Total</td>
<td>4.20</td>
<td>11.91</td>
</tr>
</tbody>
</table>

Programs in public universities reported much larger student populations, but not always the largest classes, and a greater proportion of adjunct, part-time and other support for their programs. Mean enrollment for full time students at a public university was 179, private non profit average 102 students, while private for profit institutions average 299 full time students. The number of full time faculty and full time students were positively correlated, as were number of part time students and adjunct or part time faculty. Most graduate programs were reported in public universities. Salaries for full-time faculty ranged from $66,475 in an urban public university to $41,824 in a private, for profit institution.
For all programs, the overwhelmingly, most influential factor impacting change in interior design education was FIDER Standards. To a far lesser extent, other influential factors included faculty, industry trends, and practitioner feedback.

Conclusions

This study describes the profiles of 117 FIDER-accredited interior design programs in North America. This information will be useful to inform planning and strategic initiative in interior design programs. It will provide markers to inform administrators how their programs compare to others throughout the United States and Canada. Insight into size, mission, and resources of similar programs will assist researchers, administrators, and faculty in formulating their strategies for meeting current and future needs. Over time and with the development of a database, patterns and trends will be revealed in the context of design education and may support the research on usefulness and validity of changes in curriculum and pedagogy.

In the presentation of the findings, this session will employ numerous additional charts and illustrations to elicit feedback and suggestions from attendees regarding other critical markers not identified in the current study.

References


Re-assuming Leadership: Challenges and Opportunities in Interior Design Education

Allison Carll-White, University of Kentucky
A. Dickerson

Statement of Purpose

The purpose of this presentation is to initiate a serious discussion that addresses the challenges and opportunities in interior design education.

Context

Over the past 40 years, interior design has completed a number of steps that have established professional credibility. Interior design educators were at the forefront in these initiatives as evidenced by the IDEC publication, "A Critical Study of Interior Design Education" (1968). This seminal study called for the development of educational standards, national competency testing, and a unified voice among all professional organizations to address other issues including licensure. All of these improvements represent past challenges that were faced and led to actions resulting in development of the profession. Tomorrow's challenges for the interior design profession likewise have roots in the educational arena.

Specifically:
Who is going to teach interior design and what are their qualifications?
What is going to be taught and how long will it take?
Who are the students going to be?
These are three critical questions that impact the future of interior design and need to be addressed by IDEC if educators are going to maintain a leadership role in the profession.

Review of Literature

A review of position listings on the IDEC website will quickly confirm that there is an on-going need for interior design faculty (Employment announcements, 2005). For example, in October of 2005, a total of 55 faculty positions were being advertised on the website, with some schools having two or more openings. Frequent consumers of the website are aware that annually faculty positions at a number of schools remain unfilled, only to be re-advertised the following year. This suggests problems with the supply and demand of qualified faculty.

To teach in an interior design program, most colleges and universities require a minimum of a Master's degree. A total of 40 schools offering a post-professional degree in interior design are listed on the IDEC website (Interior design graduate programs, 2005).
Although the number of students enrolled in these programs ranged from 42 to as low as 1, the more typical enrollment ranged from 4 to 10 students. It is not known how many of the students enrolled in these graduate programs are preparing to teach and how many are trying to strengthen their background to practice interior design. The questions that need to be raised are: How can we attract more qualified people to teach in university interior design programs and are our graduate programs adequately preparing those graduates interested in teaching to be successful in academia? Achieving success in academia is more than simply being successful in the classroom. White and Dickson (1996) found that addressing the university's research mission through refereed publications and grants are critical for faculty survival at public institutions. This requirement has not changed as evidenced by 35 institutions listed on the IDEC website in October 2005 (Employment announcements, 2005). Faculty must clearly demonstrate how their work promotes the stated university mission and goals. In other words, how do individual faculty contributions through interior design units add value to the university? Do individual research or creative efforts reinforce the university's overarching mission of increasing a body of knowledge? And annually, of increasing importance is what is the amount of funding that the individual brings to the academy?

Guerin and Thompson (2004) have suggested the need for an Executive Master's of Design Education degree to prepare design practitioners to teach in the university setting. Minimum qualifications for enrolling in such a program are an interior design degree, a minimum of ten years of practice experience, and interior design certification. This proposal provides an initial point of discussion in addressing issues related to the need for attracting qualified individuals to teach interior design. But is this sufficient to ensure success in the academy? Universities must graduate individuals who are well qualified to add to the knowledge base by conducting research that supports and enhances the interior design profession. After 40 years, it has become apparent that interior design research might look different from that carried out by other more traditional models. Although JID has initiated the e-journal to accommodate more visual methods of research presentation, the editorial staff struggles with educators who have been trained in the more traditional research models and are grappling with the new electronic format (Blossom, 2005). This suggests that perhaps for too long, interior design has attempted to use existing research models to meet its needs.

Assuming that we have a sufficient number of faculty members who are qualified to teach and meet the performance expectations of the university, the questions that must be raised are what will we teach and what is the length of a professional degree program? As design has evolved from focusing on visual symbols of and within space to encompass a broader perspective such as strategic planning, a greater emphasis on human behavioral factors and cultural aspects of design, and technological developments and influences, students must know how to integrate these new knowledge areas with the visual symbols so important to design such as artifacts, images, and processes (Coleman, 1999). In the annual review of interior design education published in Design Intelligence, high marks were received for multidisciplinary collaboration, more stringent professional standards, and technological advances. Areas targeted for improvement include knowledge of
detailing, collaboration with allied disciplines, and the expansion of research and scholarship efforts (Williams, 2005). This further supports Guerin and Thompson’s position of the need for future designers to have a greater breadth and depth of knowledge to create evidence-based design solutions and to understand the value that research adds to design as well as the importance of adding to interior design’s body of knowledge (2005). Given the need for the beginning designer to have a grasp of the greater breadth and depth of knowledge, enhanced multidisciplinary experiences, and more technical expertise, is this possible in four or even five years? Before one can focus on the intimacy of space and details, one must have an understanding of the larger concepts of space. Can the education of the interior designer be accomplished in any less time than that of an architect? If we do not address program length, will we be seriously compromising the ability to add the breadth and depth of knowledge needed to enter the profession?

Finally, who the students are going to be is a third challenge. Many interior design programs are healthy from an enrollment perspective. The bigger challenge is increasing the aptitude and diversity of the applicants. Waxman and Clemons (2005) have documented that "since 2000, the number of students selecting interior design as a major has steadily risen, with many universities recording an increase of 200-400 percent" (p. 52). This increase has been attributed, in part, to the popularity of the design-based reality shows. Unfortunately, many of these students do not truly understand the scope and nature of the interior design profession.

Given the way that interior design is depicted on TV and through other media, how is the profession going to attract the best and brightest students?

Process

The panel is viewed as a means to initiate a significant discussion for the purpose of exploring future challenges and opportunities facing interior design education. After an overview into the state of the situation, a moderator will lead three to four panel members in a discussion and will actively engage the audience in participation. The panel members will be chosen from IDEC leaders. The individuals selected will have diverse backgrounds in education and have had experience and leadership roles at the national level with other professional organizations so they can bring diversity of thought and experience to the discussion. In this initial dialog to explore the talking points raised, the panel will be limited to interior design educators; future discussions can be broadened to include other arms of the profession.

Discussion

A number of questions have been posed which interior design education needs to contemplate. As a result of educators’ concern for the interior design profession in the early 1960s, a major study was conducted of interior design education. This research and visioning resulted in three major recommendations that have shaped the interior design profession today. It is the intent of this panel discussion to again initiate a dialog that will
extend beyond the 45-minute format and be continued in other venues. As the conversation continues and additional study is conducted, it is anticipated that once again interior design education will move the profession forward in its course of action.

Conclusion

Interior design educators have historically been at the forefront of significant movements to advance the profession. This leadership role must be continued as the profession faces new challenges in the 21st century.

References

Blossom, N. (personal communication, October 12, 2005).


Removing the Fear Factor!
A Graduate Strategy for Teaching the Scientific Method

Mitzi Perritt,
Stephen F. Austin State University

Issue

For a new interior design graduate program, it was necessary for the first course to appeal to a range of student majors to guarantee sufficient enrollment. Faculty hoped that the first course also would allay student concerns about the mystique of research and graduate study. A lecture course offering advanced housing and residential design information while engaging students in a class-directed research project realized both objectives.

Process

To build student readiness for housing research, the class investigated the concept of home through personal reflection and literature review. Students identified roles which the familial home had fulfilled in their lives. Responses were grouped by category and compared with results of prior research (Perritt, Martin, Impson, & McCune, 1993) which identified basic factors in the concept of home.

Lectures addressed residential requirements for clients in various life stages. Students explored similarities and differences in housing needs of children; teens; and young, middle-aged, and older adults. The instructor introduced the scientific method as a means to explore more specifically the residential needs of a specific cohort.

Problem Statement

The class selected young adult college students residing in residence halls as the targeted population. Student satisfaction with residence hall features and services is believed to impact university recruitment and retention. A study conducted at three universities revealed that measuring and marketing the benefits of on-campus housing offered valuable information (Hill, 2004). Thus, local university planners, architects, and designers should benefit from study findings.

Based on the literature, students developed six research questions addressing student perceptions. Items investigated room features, social spaces, security/safety, convenience, technology, and social support.

Review of Literature

Students reviewed the literature for variables, concerns, and trends in campus housing. Kaya and Erkip (2001) concluded that when people reside in an environment for an extended period, user satisfaction increases in importance. They also examined the relationship between floor height and perception of room size and crowding in residence.
halls as components of housing satisfaction. Kahana (1982) purported that the degree to which an environment meets the needs of a person--the "person-environment fit"--directly affects housing satisfaction. A study of female students in residence housing revealed that privacy and territoriality were two of the most important aspects affecting overall satisfaction (Ibrahim, 2002). Jordyn and Byrd (2003) concluded that crucial to developing adult identity is the process of moving away from home and establishing one's own residence. A study at Cornell University investigated the possibility of relocating freshman students where they could live separately from upper classmen and graduate students (Dagit, 2003). Christie, Munro, & Rettig (2002) determined that student's acquire new skills or "adult competencies" as they migrate through various levels of housing while at school, attempting to improve the quality of their accommodations; the housing quality currently available to students may hinder this growth, especially for students first moving away from home.

Methodology

Graduate researchers secured approval for the study from the university’s housing department which supplied a list, including telephone numbers, of students residing in the 12 residence halls. Based on physical inspection of existing halls and review of literature, students developed a five-item Likert survey (Isaac & Michael, 1997) addressing demographic information and housing perceptions (Appendix A). Telephone surveys were administered with participants granting oral consent.

The project required approval from an institutional review board (IRB) since it utilized human subjects. The IRB required information including the project’s projected time period, survey instrument, consent form (Appendix B), and research protocol (Appendix C). Respondents were to be informed that no risks existed with the study, they could terminate the interview at any time, they could contact the course instructor for further information, and the interview would last an estimated 15 minutes. Respondents received copies of their verbal consent forms via campus mail.

Students piloted the survey on a sample of resident housing occupants. This procedure (Fowler, 2001) enabled researchers to adjust the instrument for improved clarity and conciseness.

A sample of at least 100 residents was desired. Seven interviewers collected data yielding a total sample of 105 respondents. Systematic random sampling was used wherein every nth element in the population was selected starting with a randomly chosen element between 1 and n (Sekaran, 2000). The value for n was identified as 28 (2907 total residents divided by a sample of 105 respondents). From slips of paper numbered 1 to 28, #18 was drawn randomly. Thus, the sampling began with the 18th respondent phone number on the population list, and all subsequent telephone numbers were selected at intervals of 28. If the 28th person did not answer the phone or declined to participate, the interviewer moved to the next name below the 28th name. This process ensured that the research was unbiased and resulted in a representative sample.

To enhance study reliability (Fowler, 2001), an interview script was developed so that data were collected consistently across multiple interviewers (Appendix D).
However, the interviewer was permitted to record voluntary comments. Interviews began with the consent procedure and progressed to the survey instrument. Each student entered her own data into the master computer data file.

Results

Data were summarized and analyzed using SAS statistical software. Responses provided personal and housing demographic data (Appendix E). Frequencies for each item were tabulated. A chi-square analysis for homogeneity identified significant relationships. Important results are summarized below.

Room features. Room (private or shared) and bath (private, suite-style, or communal) type emerged as the significant room features. Respondents were divided almost equally in favor of private rooms (43.69%) versus shared rooms (45.63%). While most respondents (57.29%) felt a private bath was important, this opinion was linked statistically to hall type and bath type (p=.0016). Of those living in coed dorms, 100% felt private baths were “important” or “very important.” Only 47.62% of respondents in same-sex dorms agreed. Of respondents who shared a room previously in the family home, 83% considered lighting in the dorm adequate; only 60% of those who did not share a room at home responded similarly (p=.0184). While 76.19% of females felt natural lighting was “important” or “very important,” only 52.5% of males agreed (p=.0351).

Social spaces. Only 45.63% considered these spaces as “very important” or “important.” However, 68% of students enjoyed the time spent there. Forty-five percent of respondents having private baths stated they “almost always” enjoyed time in the social spaces while only 36.3% of those with communal baths and 13.38% of those with suite-style baths felt similarly (p=.0055).

Security/safety. Concerning windows, 48.54% stated that their residence hall window opened, 24.27% said their window did not open, and 27.18% indicated that they did not know. Some respondents had never attempted to open their window because they had been told not to do so by hall officials. In response to whether having a curfew helped the student to feel safe, 76.70% of respondents stated “no affect.” A majority of students (88.35%) felt “very safe” regarding fire issues, and 70.87% responded they had been “adequately informed” about fire extinguishers and sprinklers. Lastly, 52.42% of respondents indicated they were “very concerned” or “somewhat concerned” about contracting airborne illnesses. For the respondents sharing a bath within the family home, 47.22% indicated they were “almost always” concerned about airborne illnesses versus 12.90% of respondents not sharing a bath (p=.0073).

Convenience. Students’ (92.23%) conveyed that adjacent hall parking was “very important” or “somewhat important.” When asked if enough laundry facilities were available, 41% responded “almost never” or “never.” Overall, 53.40% indicated they “always” or “almost always” had enough bath facilities. Chi-square analysis revealed that men were more satisfied with their bath facilities than women (p=.0119).

Technology. Respondents (97%) indicated that in-room internet access was “very important” or “somewhat important.” Approximately 86% stated that furnishings were computer friendly; however, many complained that fixed shelving above the built-in computer desk was too low to accommodate a monitor.
Social support. Over 65% of students with a roommate stated that peer mentoring programs would be helpful; only 55.57% of those with no roommate felt similarly (p=.0390). Almost 50% of females stated that interacting with peers in their major was important versus 25.24% of males (p=.0093).

Conclusions

Students concluded that when designing future housing facilities or renovating existing ones, university planners should evaluate all aspects of student satisfaction to ensure a comfortable home-away-from-home where students may learn and develop. By providing choices of room and bath type; sufficient lighting; pleasant social spaces; appropriate safety features; up-to-date technology and supportive furnishings; adequate bath, laundry, and parking facilities; peer mentoring programs; and sufficient lighting--all items that were found to be highly important--the university may enjoy increased enrollment and retention, a result of healthier, more satisfied students.

Summary

Many students fear graduate school due to apprehensions concerning research methodology and thesis development. The course project countered fears by allowing students to experience the research process through a class-conducted inquiry. Researcher responsibility to disseminate results was reinforced by co-authoring a journal submission, currently in review. Students in subsequent biometrics classes reported an enhanced understanding of research protocol as well as anticipated success in the thesis endeavor.

References


RESIDENCE HALL SURVEY

I. Room Features

1. Rate the importance of private baths.
   ( ) Very important
   ( ) Important
   ( ) Undecided
   ( ) Unimportant
   ( ) Very unimportant

2. Rate the importance of single occupancy.
   ( ) Very important
   ( ) Important
   ( ) Undecided
   ( ) Unimportant
   ( ) Very unimportant

3. Was privacy important to you at home?
   ( ) Very important
   ( ) Important
   ( ) Undecided
   ( ) Unimportant
   ( ) Very unimportant

4. How important are kitchen facilities?
   ( ) Very important
   ( ) Important
   ( ) Undecided
   ( ) Unimportant
   ( ) Very unimportant

5. Would extra storage space benefit you?
   ( ) Strongly agree
   ( ) Agree
   ( ) Undecided
   ( ) Disagree
   ( ) Strongly disagree

6. Is lighting adequate for reading and studying?
   ( ) Extremely adequate
7. Is lighting a problem when sleeping?
   ( ) Always
   ( ) Almost always
   ( ) Frequently
   ( ) Infrequently
   ( ) Almost never
   ( ) Never

8. Is natural lighting important to you?
   ( ) Very important
   ( ) Important
   ( ) Undecided
   ( ) Unimportant
   ( ) Very unimportant

9. Rate the view of your room.
   ( ) Very good quality
   ( ) Good quality
   ( ) Uncertain
   ( ) Poor quality
   ( ) Very poor quality

10. Is noise pollution a problem?
    ( ) Strongly agree
        ( ) Agree
        ( ) Undecided
        ( ) Disagree
        ( ) Strongly disagree

II. Social Spaces

11. Is community space important to you in your dorm?
    ( ) Very Important
        ( ) Important
        ( ) Undecided
        ( ) Unimportant
        ( ) Very unimportant
12. Do you interact with others within your chosen major in your residence?
( ) Almost always
( ) Frequently
( ) Infrequently
( ) Almost never

13. Rate the quality of time spent in your dorm?
( ) Excellent
( ) Good
( ) Undecided
( ) Poor
( ) Unsatisfactory

III. Security/Safety

14. Is your ventilation system adequate?
( ) Very adequate
( ) Adequate
( ) Inadequate
( ) Very inadequate

15. How important is curfew?
( ) Very important
( ) Somewhat important
( ) Undecided
( ) Somewhat unimportant
( ) Very unimportant

16. How safe do you feel regarding fire issues?
( ) Very safe
( ) Somewhat safe
( ) Undecided
( ) Unsafe
( ) Very unsafe

17. Have you been adequately informed about fire extinguishers and sprinklers?
( ) Very adequately
( ) Adequately
( ) Inadequately
18. Were you concerned about communicable illnesses?
   ( ) Very concerned  
   ( ) Somewhat concerned  
   ( ) Undecided  
   ( ) Somewhat concerned  
   ( ) Very unconcerned  

IV. Convenience

19. Due to location of residence, do you have problems getting to class on time?
   ( ) Almost always  
   ( ) Usually  
   ( ) Never  
   ( ) Almost never  

20. Due to location of residence, do you have problems getting to the cafeteria?
   ( ) Almost always  
   ( ) Usually  
   ( ) Never  
   ( ) Almost never  

21. How important is parking on campus?
   ( ) Very important  
   ( ) Somewhat important  
   ( ) Undecided  
   ( ) Somewhat unimportant  
   ( ) Very unimportant  

V. Technological

22. How important is internet access in the room?
   ( ) Very important  
   ( ) Somewhat important  
   ( ) Undecided  
   ( ) Somewhat unimportant  
   ( ) Very unimportant
23. If printing facilities were offered in your dorm, would this benefit you?
( ) Definitely yes
( ) Probably yes
( ) Uncertain
( ) Probably no
( ) Definitely no

VI. Social Support

24. Would mentoring programs be helpful to you?
( ) Very helpful
( ) Helpful
( ) Unhelpful
( ) Very unhelpful

25. Are interactions between other class members of the same field of study be of importance to you?
( ) Very important
( ) Somewhat important
( ) Undecided
( ) Somewhat unimportant
( ) Very unimportant

26. If you attended orientation, did you find it helpful?
( ) Very helpful
( ) Helpful
( ) Unhelpful
( ) Very unhelpful
Appendix B
Consent Form

Respondent: ____________________________

I understand:

1) The purpose of this research is to determine students’ perceptions of residence hall quality and services at Stephen F. Austin State University.

2) I will be asked a series of questions orally pertaining to my current residence hall satisfaction. A question will be read to me along with a series of responses from which I will select a response that best matches my opinion. The interview will take approximately 15 minutes of time.

3) There are no experimental procedures in the study. In other words, I will not be asked to perform any task other than answering the questions.

4) There are no foreseeable reasons why I should experience any discomfort.

5) The benefits of my participation in this survey will be to assist interior designers, architects, housings specialists, and university planners in designing residence halls that better meet the current needs and expectations of university students. In so doing, student retention rates for the university may be improved.

6) There are no alternative procedures for data collection. The survey must be completed via telephone per the recommendation of staff in the SFASU Office of Housing who granted permission for the study.

7) All data collected will remain confidential, and my identity will not be revealed.

8) The researchers for this project are Dr. Mitzi R. Perritt and the graduate students in HMS 574 (Advanced Housing) in the Department of Human Sciences at SFASU.

9) I may forward comments or questions to Dr. Perritt at 468-2155 or mperritt@sfasu.edu.

10) My participation is voluntary, and my refusal to participate will involve no penalty. I may discontinue participation at any time. However, I do realize that the graduate students will appreciate my completing the survey in its entirety so that they may conduct a thorough research study.
11) I will receive a copy of this consent form via campus mail.

I agree to allow Dr. Mitzi R. Perritt and HMS 574 students to use my information for their study.

by oral consent

(Student Signature)

Date: ____________________, 2005
Appendix C
Research Protocol for Institutional Review Board

APPLICATION FOR APPROVAL OF RESEARCH
INvolving the use of human subjects
(Manually Typed Cover Forms with Items 1-6 Not Included)

7. Informed consent. Data will be collected via telephone interviews. Once the respondent has answered the telephone call, listened to an explanation of the purpose of the call, and agreed to participate in the study, the consent form will be read to the respondent. If the respondent agrees to continue with the interview, the researcher will note “oral consent” on the consent form. The researcher will inform the respondent that a copy of the consent form will be mailed to him/her. The original form will remain on file in the researcher’s office. The consent form developed for this study is attached.

8. Pertinent information. The students of XXX XXX have reviewed relevant literature and documented residence hall procedures. From this information, they have constructed a 32-item survey to administer to residence hall occupants. A copy of the survey is attached as well as a personal data form for recording demographic information.

At the conception of the study, the primary researcher contacted the XXX Department of Housing to secure approval for the study. Documentation acknowledging this approval is attached. Housing staff also recommended collecting data via telephone rather than using on-site solicitation. The Office of Student Affairs provided a list of telephone numbers for all on-campus residents categorized by residence hall.

9. Provide a research protocol following these steps:

A. Target Population. The study will target students living in XXX residence halls. The anticipated demographic profile of respondents includes:
   - Ages: 17-21
   - Sample Number: 105 residents
   - Gender: male and female
   - Ethnicity: all
   - Classification: freshmen – senior

A sample number of approximately 100 residents is desired for the study. With the seven students enrolled in the class collecting data, an equitable number of 15 respondents per graduate student was determined yielding a total sample of 105 respondents. To select the sample, the class used a systematic random
sampling process wherein every $n$th element in the population was selected starting with a randomly chosen element between 1 and $n$ (Sekaran, 2000). The $n$th element was identified as 28 (2907 total residents divided by a sample of 105 respondents). From slips of paper numbered 1-28, #18 was randomly drawn. Thus, the sampling began with the 18th respondent phone number on the population list, and all subsequent telephone numbers were selected at intervals of 28.

B. Sites. The sites for the study will include all campus residence halls (unmarried) at XXXXXXXXXXXXXXXXXXXXX University. These residence halls include Wisely, Todd, North, Hall 10, Mays, South, Wilson, Hall 14, Griffith, Hall 16, Steen, Kerr, and Hall 20. Staff in the XXX Department of Housing approved the use of campus residents in the study (see attached communication).

C. Proposed Research. The study will address six research questions:
1. What are student perceptions of residence hall room features at XXX?
2. What are student perceptions of residence hall social spaces at XXX?
3. What are student perceptions of residence hall security and safety at XXX?
4. What are student perceptions of residence hall convenience at XXX?
5. What are student perceptions of residence hall technology at XXX?
6. What are student perceptions of residence hall social support at XXX?

The study design is descriptive in nature seeking to describe systematically a situation or area of interest factually and accurately (Isaac & Michael, 1997). Data will be collected via a survey administered by telephone. Statistical analyses of the data will provide frequencies and means to describe survey results.

D. Potential Risks. No potential risks are foreseen for study participants. However, benefits from the study may be realized by the university in terms of planning housing accommodations which appeal to prospective students and thus, improving the university’s competitive edge in the college market. In addition, the design of housing which appeals to students should enhance the university’s retention rate of existing students.

E. Confidentiality. Respondent data forms will be coded numerically to preserve respondent anonymity. Completed consent, demographic, and data collection forms will be stored in the office of XXXXXXXXXXXXXXXXXXXXX, professor for XXXXXXXX.
References


Appendix D
Student Developed Telephone Survey Script

Hello…

My name is _____. I am a graduate student in an advanced housing class taught in the XXXXX XXXXXXXX Department. Is this a good time to talk?

To help us learn how to conduct a quality research project, our teacher is taking us through the steps of a complete research study. The title of our project is “Student Perceptions of Residence Hall Quality and Services.”

My responsibility is to interview 15 students who reside in our dorms. The Office of Housing approved our study but recommended that we conduct the interviews by telephone. The interview should take about 10-15 minutes. Would you be willing to help me by answering some questions now over the phone?

………………..(after the interview)

Thank you SO much for your time and helpfulness!
### Respondent Demographic Data

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The “Big Issues” Impacting Interior Design Education – Perspectives of Administration

Janetta McCoy,
Washington State University - Spokane
D. Guerin, M. Portillo

Purpose

The future of design education is uncertain. Both the profession of interior design and academia are changing at an increasingly rapid pace and the changes will impact interior design education. Members of the FIDER Research Council believe that unless we know and understand the issues driving this change, we may or may not successfully meet the challenge. In order to understand the issues driving change in interior design education, this study questioned administrators and faculty in both private and public as well as large and small institutions: “What are the ‘Big Issues’ impacting interior design education. We wanted to identify both the current issues, as well as what they thought would be the issues driving change in the foreseeable future.

Literature Review

While the Boyer Report argued the need to train future (design) practitioners (Boyer & Mitgang (1996); and Guerin and Thompson (2004) urge us to consider graduate degrees for design educators, the current evolutionary track of the academy makes the worth of such suggestions difficult to validate. Preparing for design education in the future requires that we have some notion of issues guiding its current trajectory.

Studies in interior design education are rarely focused beyond the immediate needs of the classroom outcomes and technology. They are most likely to focus on new, creative ways of learning and teaching (Bender, 2002; Bender & Good, 2003; Clemons, 2002; Sagun, Demirkan, & Goktepe, 2001). Those that do take a broader perspective linking practice and education typically focus on how best to support practice. Allderdice (2002), observing that programs of interior design in Canada are mostly influenced by the needs of the profession, posits that a successful program of interior design is one whose graduates are employed or employable. Danko (2003) offers narrative as an effective method of developing more reflective practitioners. Powers (2004) describes the value of student involvement with the community, while Forsyth, Lu, and McGirr (2000) report how service learning may enhance the student’s potential for job opportunity.

Some research questions the changing student demographic and the academy’s responsiveness. Hildebrandt (1999) questions the value and unintended consequences of FIDER’s standards as setting minimal expectations of the students. Guerin and Thompson (2004) propose that design education would benefit from an Executive Masters of Design Education. Watson, Guerin, and Ginther (2003) demonstrate the need access to current research relevant to design in order to have a more relevant relationship between interior design educators and practitioners.
A recent survey conducted by the FIDER Research Council indicates that FIDER standards are the most influential factor impacting change to interior design programs while to a lesser degree faculty, industry trends, and practitioner feedback also provide impact. However the issues most likely to be read about in publications like the Chronicle of Higher Education are much more fundamental. This research seeks to understand those more fundamental issues and to discover how they may be relevant to interior design education.

Methodology

In the first phase of this study, face to face interviews were conducted by three experienced researchers in three large research-oriented universities in Arizona, Florida, and Minnesota. Each interviewer requested 15 - 30 minute interviews with their respective chancellor or provost, dean, chair, and selected faculty with one open-ended question: “What are the big issues in Higher Education that are impacting Interior Design programs?” Goals included gaining an insight into the administrator’s or faculty member’s vision of current issues and projections of future issues. Follow up probes included legislation; media influence; funding; restructuring; changes in program homes; privatization of education; increased enrollment; and, trend toward evidence-based design.

All interviews were conducted during the summer of 2005. Summaries of interviews were distributed to each of the interviewers and assessed for patterns and trends in the administrators responses. Content analysis of interview summaries revealed patterns and trends across the three institutions.

In the second phase of this study, a focus group of eight interior design administrators from diverse institutions from different regions of North America convened in Chicago to discuss their perspectives on one question: “What are the big issues in Higher Education that are impacting Interior Design programs?” Participants in the focus group represented both large and small, public and private institutions.

The focus group met for one day in the Fall of 2005. Each participant was invited to join a “rich and stimulating discussion about the trajectory of higher education”. They were asked to “identify trends in higher education and their impact on interior design education, knowledge that in turn assists in the development of FIDER standards for interior design programs.”

Findings

Preliminary analysis of the first phase of the study, interview with institutional administrators, suggest nine drivers of higher education in the coming 15 years. Of these nine drivers, all nine were mentioned (in some version) across all levels of administration as the big issues driving design education. It is clear that change is the constant in education and there is a trajectory toward new concept in higher education.

1. Continued movement toward education as private good rather than public good was mentioned by both a provost and a dean. In all cases the discussion
of how to pay for increasing costs of institutions of higher learning with dwindling resources was a primary focus.

2. Continued withdrawal of public sector funding of higher education. As the mood of the United State government focuses on tax cuts and cuts of social services, education institutions are greatly impacted. This is requiring faculty to devote increased time toward identifying sources of external funding to support research, travel, and graduate students. There is some sense of threat that if design educators do not attract research dollars, the university may not be able to support design education. The dilemma is that design education is “resource intensive”: the studio experience implies small classes, extensive technology, and larger (sometimes dedicated) classrooms.

3. Increasing value from higher education as gap between wages for college graduates and non-graduates widens. As new design reality television has marginalized and trivialized interior design, it also questions the value of design education.

4. Reversal of mission inflation in universities and greater differentiation within higher education (Research universities vs. regional universities vs. training institutions vs. online institutions. Concentration of research in fewer institutions.) Public, private (for profit), and private (not for profit institutions may have different missions (research versus teaching), but they do not differentiate themselves with students and potential students. All seem to offer the same degree and the same professional opportunity, thus competing for the same students and the same limited resources.

5. Greater diversity of student body – ethnicity, learning style, etc. Students today and students tomorrow are growing up in very different worlds. Increasing levels of diversity, new understanding about learning styles, and new technologies challenge the content of our programs as well as our methods of delivery.

6. Students becoming more non-linear in their thinking, more in need of stimulation, and more savvy, demanding consumers. The demographic of our students is not a static entity. Ubiquitous computing and entertainment has influenced how students view and solve problems. As educators we have to respond to a more Disney version of their world.

7. “Digital native” faculty will replace “digital immigrant” faculty. Rather than students traveling to the university, taking up residence and immersing themselves in learning, the institution will provide technology to take the faculty to the student. This changes both the content and method of course delivery.

8. Low-cost broadband/wireless will be pervasive. Ubiquitous computing. Who can see the future of this phenomenon?

9. The “massification” of higher education will continue. One reason enrollment is burgeoning is the emerging concept that higher education is a right and all high school students should pursue a “college degree”. With this has come
high expectations from the students that they can achieve a high educational status and that the education will be affordable.

The analyses of the focus group data is incomplete (but will be by the time this panel discussion convenes), we believe that a comparison and contrast between the two levels of administration should be insightful for planning with in all programs of interior design.

Conclusions

Drivers of change in Higher Education are relevant to programs of interior design education. Increasingly we are asked to do more with less. Limited resources suggest increased class size and more time in teaching while administration demands funded research -- all the while salaries remain marginal. Changing student demographics suggest the need for rethinking refining our courses and curricula. Societal changes bring changes in student-teacher expectations and responsibilities.

While the reflections of administrators from large research universities certainly do not constitute all that design educators need to consider in planning their programs of tomorrow, these are important issues to consider. An evocative panel discussion with IDEC attendees will help to refine our understanding of the “Big Issues” driving changes in Higher Education and Interior Design education as well. Attendees of this panel discussion will be encouraged to share their perspectives on our research findings as well as their relevant experiences in their respective institutions.

References


Designing in Two Worlds: Shoshone Bannock Tribes Inspire an Alternative Worldview for Interior Design Studio

Rula Awwad-Rafferty, University of Idaho

Issue

Design projects, as a community service, are a dynamic and powerful vehicle for building consciousness of alternative points of view, appreciation of cultural diversity, investigation of complexity, and enabling a global perspective into design problem solving. Such projects are symbolically and tangibly a canvas for innovation, integration, and application of ethics, skills, paradigms, and processes. Benefits are multiplied when the students are immersed into the worldview of another culture, thus empowering the shift in design thinking between the designer’s worldview and that of the community and client being served. This presentation describes the investigation of intricate relationships and highlights the outcomes of a comprehensive community service design project between interior design senior studio members and the members of two Native American tribes.

Process/Context

The Shoshone Bannock tribes (Shoban) contracted with the senior interior design studio to research, study, and provide design alternatives for a place that honors the tribes’ veterans, documents their contributions, affords connections opportunities and resources, provides benevolence space for traditional gatherings and rituals, and affords a sense of community and continuity. The 7.5 acre site allotted for the Shoban Veterans/Benevolence center is strategically located on the tribes’ reservation at the intersection of two major roads, providing a gateway into a currently developing mall/corridor.

“Look at the mountain out there and tell me what you see. Don’t look with your eyes, look with your imagination and memories” said Mr. Appeney, a Shoshone veteran and tribal elder, during the first class visit to the site, embarking them on a personal and professional journey. The tribes afforded the students entrance not only into the project site, but also into their sacred spaces and lives. This project addressed several 2006 FIDER indicators regarding professional values, cultural diversity and community service the students must attain in their educational programs.

The Newe Warriors. Shoban have a rich, powerful, and complex history and dynamic culture. They called themselves the Newe (people), and together occupied a large homeland, Pia Sokopia (Earth Mother), in the Great Basin region (Crum, 1994). The homelands of the tribes have been reduced to the current reservation by treaties, congressional orders, and survey errors.

The warrior tradition is very important to the Shoban; veterans are greatly respected and honored (Figure 1). According to the Department of Defense (1996),...
Native Americans have the highest record of service per capita when compared to other racial/ethnic groups. Shoban veterans went into the military to uphold the warrior tradition, for economic reasons, personal reasons, the draft, or a combination of these.

**Class Profile.** The senior studio had 12 students from the region, most were female (11:1), and four were double majoring in architecture and interior design. All students were middle class, Caucasian, with no significant interaction with Native American tribes.

**Design Process.** Each two person team articulated project mission and vision statements following site visit (Figure 2), interviews, and immersion experiences; finalized programming documents, and created comprehensive design solutions for the project. The design process followed was a hybrid of established interior design problem solving and Shoban traditional decision-making and story telling approaches. Each stage was shared with the tribal members; conceptual phase on campus with the participation of six tribal representatives, schematic via distance delivery, and final solution on the reservation. As the site was yet undeveloped, the class collaborated with the fourth year studios in architecture and landscape architecture in generating the foot print and the site development through a design charrette/consulting approach (Figure 3).

**Analysis and Results**

Reflection was a crucial component of this community service project. It served as the bridge between experiences and learning. On-going feedback, analysis, and reflections revealed central outcomes of this community design experience, some of which were anticipated, others emerged because of the depth of interactions between studio and tribal members.

Empowerment. “The mother is the one who wraps the child when s/he is born, she is the one who wraps him/her when s/he dies, and ...” the war mother’s eyes surveyed the audience and added “and you are all women”. This sentiment was repeated a few times, both by men and women, during the class visits to the site; it was seen most fitting to have this class with the greater majority being women design the veterans’ center and memorial. Similarly, the process followed empowered the clients through engaging them in active participation and providing articulate project briefs at specific points of the project.

Culturally based problem solving and communication. Following on traditions of “learning” and “teaching” the Shoban hosts afforded the studio an internal glimpse of the complexities, dichotomies, and intricacies of their history and cultures. Providing several immersion experiences, and elevating the role of the tribe throughout the process with central participation, presented the students with a global perspective and approach to thinking and problem solving.

Prior to the first site visit, the students under the direction of a healer learned about native worldviews and medicine wheel, and participated in creating a Mandala, an integrated symbolic view of the world. The Mandala itself came to represent the studio as a united community, the project as an honor, the design solutions as places of healing and the design process as a Mandala (Figure 4). This exercise prepared the students with
the mindset necessary for entering into a culture different from theirs and opening themselves to learn and be moved with the experiences that followed.

The students took part in traditional story telling, rituals, crafts, celebration, and even building a gathering lodge. These experiences, augmented by discussions and readings, expanded students’ awareness and respect for cultural, social, and environmental diversity. Teams articulated their vision statement as inspired by storytelling (Einhorn, 2000), warrior traditions, references to sky and earth (Krinsky, 1996), connections to the circle, and the concluding remarks of Native prayers “All My Relations” (Figure 5).

Reconciling realities/dualities. One of the most difficult aspects for the students to deal with was that of dualities. One such issue is the service in the United States military by members of sovereign nations. However, as Thomae (1996) stated “…But Native Americans were not merely defending America as we know it but as America as they knew it. It was their land, their culture, their history, their friends and relations that they were fighting for”. Reconciling spatial articulation and spatial identity when dealing with life/death, young/old, nature/built, closed/open, and sacred/profane was made possible through reiterated stories, symbolism, and examples. It was evident that the students came to realize that reconciliation is a recurring process (Kraybill, 1995) which provided direction to integrate new information and events into the design solutions.

Regeneration through design. A. Dunn stated “We were here first and it is our responsibility to protect this land” (personal communication, September 8, 2005). The intricate relationship with earth and natural resources became more evident as the women of the tribes told of how the umbilical cord is buried in a sacred place that is not contaminated by people or domesticated animals, how the choice of that location was a meaningful and important phenomenon “you bury it in an ant hill so your child may be industrious, or in the chokecherry so that your child offspring may be plentiful…”. Such descriptions were inspirational as the students explored the power of regeneration through the design of the project. The students exploration of Shoban’s views of nature and environmental responsibility, combined with their reading of Cradle to cradle: Remaking the way we make things (McDonough & Braungart, 2002) and participation in a campus sustainability conference, resulted in an approach to designing with memory where regeneration through design is about relationships: between present and future, environments and decisions, people and environments, and building and site.

Active listening. Experiential learning is an effective approach to gaining familiarity, sensitivity, and understanding of the meaning, articulation, and behavior in the built environment. Having the students discern the design program through interviews, participatory critiques, site visits, and gatherings hosted by the tribes was necessary to enhance their level of engagement in the project. They have acquired active listening skills leading to effective interpretation of requirements, needs, and environmental interpretations. This approach made it necessary for the students to realize
the importance of professional discipline in time management, organization, and seeking information as they became the “owners” of the project information.

Summary

History and traditional culture come to bear on everyday life and worldview. Through this project the students appreciated how traditions and connections with nature, ancestors, and worldview have anchored Indian identity and have continued to find expression throughout history and into the contemporary world. Learning from and designing for Native American cultures, designing a sacred place, addressing sustainability and place making, and learning form the intricacies of working with real clients and problem were only some of the objectives achieved. The intimate familiarity and closeness with the Shoban members inspired the interior design seniors to design and communicate effective, respectful, regenerative, and comprehensive solutions. These solutions honored not only the veterans, but also the tribes and the students who completed them.

Integrative abilities are among the most important goals of a twenty-first century education (AACU, 2005). Interior design projects as a community service provide opportunities for integrative learning that fosters interdisciplinary connections. The Shoban Veterans’ and Benevolence Center was a notable project that illustrated integrative thinking in a model of learning that puts the learner in charge.

References


Crum, S. J. (1994). The road on which we came : Po’i Pentun Tammen Kimmappeh a history of the Western Shoshone. Salt Lake City, Utah: University of Utah Press


Figure 1: The Colors, The warriors, and the Circle--The circle made sacred by honoring tribal veterans at the grand entry
Figure 2: Site visits, sacred places, stories, interviews, and experiences on the reservation
Figure 3: Design Charrette /consultations with Architecture, Landscape Architecture and Interior Design students
Figure 4: Mandala of wholeness, unity, and worldview as the studio become a community
The space is a story told of our past and our future, it is the story of the people. It is sharing, learning and healing through continuity. It is the story of the warrior shared with the young. The space must be the hand of the warrior, strong and protecting, taking the hand of the child and guiding her on the journey. It must tell the story of the warrior with honor. It must reflect the culture of the land and its people. As a hand reaching out to share with the community, the center will actively influence and be influenced by the lives of the users. Like ripples on the water the story will grow and spread to reach many people.

Figure 5: Students’ explorations and integrative innovation.
Introduction of Quantitative Methods and Instrumentation into Interior Design Studios

Connie Thibeau-Catsis,
Arizona State University

Purpose

The Agents of Change Workshop offers interior design educators a format to develop case studies based on quantifying light levels, air circulation, and room temperature as part of the post occupancy evaluation process. The active use of equipment provides a means of learning about health and well being issues in relation to the ambient environment.

Interior design is becoming more competitive requiring quantitative evaluation of designs and projects. In response to this trend, design educators need to prepare students by introducing quantitative methods into practice and research. The case study methodology presented by the Agents of Change Workshop is an effective method of introducing quantitative methods to design educators for application into design studio education. The Agents of Change Workshop offers an environment to work with multidisciplinary teams and to discover building evaluation techniques using light and atmosphere instruments. The teams work with faculty and teaching assistants utilizing a coached case study development process. This basis of direct, peer-to-peer training enables the participants to more readily incorporate instrumentation into the design process. Within this process, participants learn, not only how to use the instruments, but quantitative methods for evaluating interior design and the built environment. Providing this case method process of evaluation with the peer-to-peer teaching and learning environment can be a transforming process of student engagement.

Theory

Learning style theory suggests that individuals have unique styles of processing information (Dun & Dunn, 1978; Kolb, 1975, 1984, 1985). According to their cognitive preferences for processing information, they will engage a problem solving process of seeking additional information, training, or support for growth and development, as they assimilate or accommodate new information. Helping students shift from passive to active knowledge in design studio is a challenge of educators. This shift is inherent in the process of fostering creative and critical thinking (Kucko & Caldwell, 1995; Nussbaumur & Guerin, 2000).

For students to become more aware of the design process, they must engage in problem solving thinking of both a divergent and convergent nature. Likewise, problem exploration, concept development, hypothesis testing, and decision making are all part of not only the design process, but the research process (Kriebel,
Birdsong, & Sherman, 1991). Students may benefit from a more technical vehicle of discriminating environmental characteristics by incorporating equipment that supports or defends their decision making process. By developing a quantitative research case study process in studio, design students may more able to analyze, criticize, and advocate ideas. In other words, they may utilize the case studies to maintain a mode of discovery (Heilighen, Neuckermans, & Bouwen, 1999; Kucko, 1995).

Case Study Methods

As a research exercise, case studies are frequently associated with qualitative research. They are in-depth investigations of an individual or group, or an environment. These studies are trying to find out how the macro context is influencing the micro events (Frankel & Wallen, 1996). Characteristically, case studies are a naturalistic inquiry and rely on content analysis for evaluation. Nevertheless, mixed research design can be introduced and an experimental or quasi-experimental research design established when the intent of the researcher is to make suppositions about the setting. In other words, hypothetical-deductive efforts can solidify ideas about how to interpret the environment (Patton, 1980).

The “Agents of Change” program is based on integrating quantitative analysis into the context of post-occupancy evaluation of the built environment. They engage educators in a quantitative research-based training exercise. The integration of quantitative analysis of ambient conditions, such as lighting characteristics, heat and cooling issues, and air circulation are concerns of comfort that can influence function, utility, and even aesthetic concerns of the interior environment (Agents of Change Program, 2003).

Learning Environment

Quantitative case studies can link ambient comfort issues to functional, utility, and aesthetic issues in the design education studio as they provide a vehicle for critical thinking (Kucko & Caldwell, 1995). This research effort provides a means to help students shift from passive knowledge to active knowing (Heylighen, Neuckermans, & Bouwen, 1999). The use of hand-held equipment measuring light and air flow levels in the interior environment as part of post-occupancy evaluation is an active learning tool (Martinson, 1998).

Educators and students need to acquire practical knowledge of instrument operation and measurement protocols. The Agents of Change Workshop offers an environment for exploring the use of instruments for evaluating the built interior ambient conditions of a space. By providing a peer-to-peer training environment, educators quickly learn the coached case-study development process of teaching. Ultimately educators can introduce these skills into the design studio encouraging student application of quantitative methods as they encourage students to interpret aesthetic, functional, and utilitarian issues in relation to environmental quality.
During the Agents of Change Workshop, interior design and architecture educators collaboratively developed research hypotheses related to lighting and environmental quality of the Burton Barr Library in downtown Phoenix, Arizona. The multidisciplinary teams investigated and honed quantitative skills using state-of-the-art handheld equipment.

**Workshop Process**

The model for the Agents of Change Workshops was developed by Dr. Alison Kwok of the University of Oregon for the U.S. Department of Education Fund for the Improvement of Post-Secondary Education. The grant supports on-going workshops to educate and train educators to bring the technology of instrumentation into design studios. The case studies are built around the process of post-occupancy evaluations. Teams analyzed the quantitative instrument data to evaluate hypotheses of building performance issues. See Figure 1.

The dependent variables typically include the following: (a) luminance, (b) illuminance, (c) temperature, (d) humidity, and (e) velocity. This workshop model includes an introduction to instruments, a tour of the Burton Barr Library, developing hypothesis, determining data collection methods, analyzing data, and presenting results to the workshop participants.

The case study process begins with a hands-on introduction of instruments. Following a brief introduction to the instruments, participants completed a short case study as shown in Figure 2. This exercise on luminance allows the participants to experiment with the instrument and ask questions in a non-threatening environment. Because the cost of luminance meter ranges around $5000, design educators may not have previously had the opportunity to use this instrument.

The group members and facilitators surveyed the library to develop ideas for hypotheses that could be evaluated in the two day period. The groups became interested in the qualities of light that resulted from direct sunlight on the book stacks and the effect on the library patrons. See Figure 2. After stating the research questions: “Stacks on direct sunlight exhibit more conditions of glare than those out of direct sunlight” the group defined the light conditions quantitatively. The Illuminating Engineers Society of North America (IESNA) luminance ratios are the quantitative threshold level used for testing the hypotheses including: 1:5 for between tasks and immediate surroundings and 1:10 between tasks and overall surroundings recommends. See Figure 3.

The data collection phase of the workshop required the group to decide on the number of light readings to collect and the location of light readings to adequately cover the study area. The group developed sampling times and locations for comparison. Because sunlight was an important factor of the experiment, readings needed to be collected during the late morning. See Figure 4. Earlier workshop experience with the luminance meter increased the efficiency of the data collection process. After collecting the luminance readings and computing the ratios the group accepted that the quantitative measures identified luminance ratios of over 1:10 for books in the surrounding area.
compared to the task area. See Figure 5. The quantitative measures confirmed the groups’ observation of glare on direct sunlit book stacks and limited concentration of library patrons in this area.

Discussion

The workshop process and the case study application stimulated participants to critically think about the qualities of light from both a qualitative and quantitative perspective. Through the case study process, the testing of hypotheses were possible immediately following introduction to the instruments. Design educators were able to learn how to use seemingly complex instruments and realize the value of the quantitative measures. The power of quantitative metrics allows for another dimension of testing hypothesis and exploration of design elements.

Summary

Incorporating quantitative case studies to the post-evaluation process of an interior environment may offer an opportunity to become more aware of ambient conditions that contribute to health and well being issues. In the Agents of Change Workshops, design educators will increase their knowledge and ability to collect and analyze quantitative data related to building performance. This knowledge can then be introduced into the design studio allowing students to link building performance to design through quantitative research methods. The quantitative evaluation of case studies provides a valuable research method in interior design education.

Advanced workshops would be desirable in order to develop quantitative skills and support continued use of instruments and quantitative methods. For example, an advanced workshop may contain practical experience with computer software techniques and modeling. The workshops also are an opportunity to network with professionals in related fields such as architecture and building sciences.
Figure 1. Agents of Change Luminance Meter Case Study

AGENTS OF CHANGE EQUIPMENT DAY
Sketch Exercise No. 8

IS THERE GLARE IN THIS ROOM?
(Minolta Luminance Meter)

The quality of lighting may be described in terms of luminances (brightness), diffusion, uniformity, and chromaticity of the lighting. Excessive luminance (luminance ratios) in the field of vision is commonly referred to as glare. When the discomfort glare is caused by light sources in the field of vision, it is known as direct or discomfort glare. When glare is cause by reflection of a light source in a viewed surface, it is known as reflected glare or veiling reflection.

Your Challenge:
Measure the brightness of several surfaces in this room and calculate a luminance ratio.

Do this:
1. Turn the power switch to the ON position on the Minolta luminance meter and CAREFULLY take several readings along the wall surfaces and windows. Draw a quick perspective sketch and record your readings.

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<thead>
<tr>
<th></th>
<th>High</th>
<th>Low</th>
<th>Ratio</th>
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<tr>
<td>Luminances of two adjacent surfaces:</td>
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<td>Luminances of highest and lowest surfaces:</td>
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Figure 2. Glare on Book Stacks (Top) and Burton Barr Library (Bottom).
Hypothesis

“Stacks in direct sunlight exhibit more conditions associated with glare than those out of direct sunlight.”

- The conditions associated with glare are studied through a short occupant survey and measurement of luminance contrast ratios between the task and its immediate and general surroundings.
- IESNA recommends that the maximum luminance ratio between tasks and immediate surroundings is no greater that 1:5. The ratio between tasks and overall surroundings should be no greater than 1:10.
Methodology

**Luminance Readings:**
- Minolta LS 100 1 degree luminance meter.

**Data Collection:**
- Occupant view point
- High and low readings taken for each task book
- 3 measurements taken for each shelf, minimum 36 readings at each stack
- Random variety of types of bindings (dark, light, reflective, matte)
**Time of testing:**
10:30 to 12:00 am, January 9, 2004

**Test Locations:**
#1 south facing stack, several rows in from south wall with direct sun patches
#2 north facing stack, at center of library with no direct sun
- Electric lights on in both locations
- 2 sections of stack length
- Observer position at midpoint of 2 sections, standing against opposite stack
Figure 5. Case Study Example of Results

**Location #1**
**Direct Sun**

Ratio of task to immediate surroundings:
- Maximum Range: 1:2 - 1:2.3
- Minimum Range: 1:0.2 - 1:0.25

Ratio of task to overall surroundings:
- Maximum Range: 1:50 - 1:59
- Minimum Range: 1:0.6 - 1:0.3

**Location #2**
**No Direct Sun**

Ratio of task to immediate surroundings:
- Maximum Range: 1:5 - 1:8
- Minimum Range: 1:0.3 - 1:0.6

Ratio of task to overall surroundings:
- Maximum Range: 1:6 - 1:4
- Minimum Range: 1:0.6 - 1:0.3
References

Agents of Change website: <http://aoc.uoregon.edu/workshops/phoenix2004.shtml>


Psychophysiological Effects of Color

Hannah Mendoza,
West Virginia University

Purpose

In 1988 the Department of Psychology at the University of Washington completed a study for NASA titled *The Human Factors of Color in Environmental Design: A Critical Review*. This study proposed to “view the extant research literature on environmental color with special reference to its utility in the design of space station interiors (Wise and Wise, 1988 p 1). This paper and presentation extend that prior research and initiate a public discourse to facilitate critique and feedback. It asked and answered the question: what new research has been done regarding the psychophysiological effects of color?

Frequently the information dispensed in our classrooms regarding the effects of a color on human behavior, psyche or physiological system is based on lessons learned when we were students. Is this information correct? Has it definitively been established that a green room will make a person feel more relaxed, or is that a theory that has never properly been tested and therefore should not be taught under the guise of fact? Which of our current teachings about color are truths and which are beliefs and assumptions?

Context

This information set is vital for interior designers because color plays a very important role in interior design. According to Fehrman and Fehrman, “color may well be the most important element in an interior space” (2004 p124). It can affect the perceived shape, size and mood of a space, as well as physically affect the occupant in terms of perceived heat or coolness or internal measurement of the passage of time. The use of color without a full understanding of its effects undermines the argument that interior design is a profession with a basis in fact rather than personal feelings and “flair.” The uninformed application of color may also result in unintended consequences. This research identifies existing gaps and suggests opportunities for further research.

Review of Literature

The literature review includes all research that was done before 1988, the last time a comprehensive compilation of color effect research was done. This review is critical to our understanding of the work that is done later and the advances that have been made. Following are some examples of the study of psychophysiological reactions to color done during that time period.

Kurt Goldstein, a pioneer in the field of color psychology, is most often cited when referring to the reaction of humans to different colors. He worked with subject groups consisting of patients with diseases of the central nervous system, testing their physiological reactions to color in rooms, fabric, color samples and lights (1942). His
work is often cited by those wishing to draw conclusions about reactions to colors. However, his studies consisted of subject groups of three to five patients with no control for hue, saturation or texture of the color to which they were exposed. Despite the problems inherent in his experiments, they have been largely accepted as truth and have greatly affected the way in which color is used and the advice that color experts such as Faber Birren give regarding that usage.

Goldstein’s study, for which neither numerical results nor statistical analysis were ever offered, seemed to show that red resulted in more severe symptoms of nervous central damage, trembling, shaking and involuntary movements, while blue reduced the symptoms (1942). He then postulated that red caused greater anxiety while blue had a calming affect. Despite the fact that his work has not been confirmed independently since he conducted those first experiments, his theories have become embedded in our cultural consciousness.

Faber Birren in his 1963 book *Color for Interiors* stated that blue’s effects could always be measured in a negative direction while red’s effects could be measured in a positive one. For example, when placed in a blue environment, he believed that the subject’s blood pressure and respiration rates would decrease, along with the rate at which the subject blinked. He based his assumption on the 1958 dissertation by R. Gerard titled *Differential Effects of Colored Lights on Psychophysiological Functions* in which statistical significance was found in the physiological differences between subjects placed under blue light versus subjects placed under red light.

In a study done by Erwin et. al. in 1961 on the effects of colored lights on human subjects, however, the results are not nearly as clear. James Nuckoll’s raised the point in his 1983 book *Interior Lighting for Environmental Designers* that there existed a lack of appropriate controls in color experiments and not enough standard basic definitions used in the experimentation which raised grave questions regarding the validity of any existing color research in the past.

Methodology

Historical research techniques were applied to gather data on the studies done regarding the psychophysiological effects of color. “Historical research...is the systematic collection and evaluation of data to describe, explain, and thereby understand actions or events that occurred sometime in the past” (Fraenkel and Wallen, 1991 p 573). A review and analysis of literature is itself a qualitative form of historical research, in this case a review and analysis of historic research into the effects of color on human subjects.

The historical research techniques for this paper involved defining the problem (i.e. understanding associations relevant to color), compiling and reviewing content of existing research and disseminating the findings. Once this is done, the information is seen in a holistic manner and can be viewed through a framework that is focused on meaning (Shank, 2002). The result will be a larger, more complex understanding of the effects of color and its place within the environmental system.

To create a public discourse among individuals is vitally important to a full understanding of the problem as the experience of the problem is different for each party involved. The different experiences of the audience versus the presenter and; the
differences in experience among audience members based on past experiences and established points of view demonstrates the incompleteness of any singular point of view. In qualitative research we embrace the “academic modesty that acknowledges that the aim of analysis is not to reveal the truth but to contribute to a process of understanding, and to provoke other, probably contradictory contributions” (Denzin and Lincoln, 1994 p194).

Discussion

Valdez and Mehrabian studied the effect on emotional states of brightness and saturation of colors, hue and brightness of achromatic colors. This study which consisted of 250 subjects used the Munsell Color System as the source for its 76 color samples. They found that hue had a very weak relationship to emotional state while they found “strong and highly predictable relationships of color brightness and saturation to emotional reaction” (1994 p 405). They concluded that dark colors enhanced feelings of aggression, anger or displeasure among others and their findings can be generalized. However, the do conclude with a caveat in which they state that the “findings here are expected to have relevance only in situations in which colors are reasonable and probable elements of those situations” (p 408).

In a 1990 study 24 subjects were presented with 100 ml of solution which had been colored to match plates in the Methuen Handbook of Colour (Zellner and Kautz). This solution was then scented with McCormick extracts of mint, strawberry, lemon and orange in distilled water in varying concentrations which were not necessarily related to color of the solution. There was found to be a significant enhancement of odor perception in mint and strawberry when their corresponding colors were present. No significant differences were found in the orange and lemon scented solutions. They stated that as a result of this experiment that the “intensity of the odor of a solution can be enhanced by the presence of a highly associated color” (p 392).

This presentation will more fully explore these studies as well as the studies which have occurred after the 1988 NASA compilation. Any studies which have not been included in the NASA compilation were also covered in this paper.

Summary

There is an abiding interest in interior design in determining how colors affect us in a psychological and physical way. In the basic interior design texts references to the effects of certain colors can be found stated as fact. Allen et al in Beginnings of Interior Environments has an entire chapter listing the psychological and physiological effects that “research studies have shown” (p 86). In this list they state that using certain colors can affect a person’s perception of temperature, their perception of time and improve the rate of recovery of patients. Checking the citations for these statements I find only references to secondhand sources such as Faber Birren. In this way color myths are passed from generation to generation.

With the NASA study a lot of the obfuscation was cleared away. However, it has been eighteen years since that study was done and the researchers in the field have been
no less diligent in trying to track down the elusive relationship between color and psychophysiological states. This paper is an attempt to arm our profession with the latest information by identifying existing gaps and suggesting opportunities for further research so that informed decisions can be made.

References


Are There Lasting Effects of a Schema-based Learning System in the Interior Design Studio?

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Iowa State University

Purpose

Gallini (1989) argues that, “the ability to combine a collection of problems into a meaningful representation, or schema facilitates learning” (p. 244). In a previous study, it was found that introducing a schema-based learning system in the design studio assisted novice designers in a structured, purposeful process, where they began to see patterns of information and use these patterns to develop and refine their design solutions. Their design solutions proved to be significantly better than the other students who did not utilize the instructional interventions. But, does this instructional intervention have any lasting effects with this same group of students? Do these skills transfer to new or novel tasks after a period of time? The aim of this study is to measure the lasting effects of this learning tool by following this group of students through a new set of transfer tasks approximately one year after the original instructional intervention. Like the previous year study, the effectiveness characteristics were examined from four main areas of a design project: 1) organization of information, 2) categorization of information, 3) application of theory, and 4) overall design. The following research questions were addressed:

1. What are the lasting effects of the schema-based learning tools after one year from the initial implementation of the instructional intervention? Or, what are the problem solving transfer effects of the instructional intervention?
2. Do students, who use these schema-based learning tools, develop projects that are more organized, categorized, more theoretically-based, and have better overall designs, than students who do not use such learning tools?

Framework

This study uses schema theory (ST), viewed by Derry (1996) as a version of the information processing theory. ST and information processing psychologists believe long-term memory stores previously learned schemas, and working memory represents a person’s extent of immediate attention. Thinking and learning take place within working memory, where prior knowledge schemata are activated in response to the environmental

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1 According the constructivist interpretation of the information-processing model, mental processing involves an active search for understanding, where incoming experience is reorganized and integrated with existing knowledge. Mayer (1996) distinguishes three basic processes in active learning: 1) selecting relevant incoming experiences, 2) organizing them into a coherent representation, and 3) integrating them with existing knowledge. In this view, processing is a coordinated collection aimed at making sense out of incoming experiences.
input. This then provides the context for interpreting experiences and assimilating new knowledge.

This study also uses Royer’s (1979) Cognitive Theory of Transfer, emerging, like ST, from information processing theories. Royer argues that the critical aspect of transfer does not revolve around shared features in the stimulus environment, but rather involves the process of retrieval or the likelihood that transfer of learning will occur, which is determined by the probability of retrieving relevant prior learning during the search process.

Review of Literature

Schema Theory and Problem Solving Transfer

The importance of ST in design studio education is highlighted by Chan’s (1990) statement that “the ability of organizing and applying schemata determines a designer’s ability” (p. 78). Schema describes the organization of information in human memory in terms of a network believed to be held among concepts (Rumelhart & Ortony, 1977). Schema-driven strategies involve the use of schemata in performing complex cognitive tasks, such as: a) Categorizing information by concept domains, b) Developing conceptual hierarchies for information that is processed, and c) Forming relationships between concepts.

Phye (2005) acknowledges “Problem Solving Transfer” as a seminal article on transfer, where Mayer and Wittrock (1996, p. 48) define transfer as the process “when a person’s prior experience and knowledge affects learning or problem solving in a new situation. Transfer, then, refers to the effect of knowledge that was learning in a previous situation (task A) on learning or performance in a new situation (task B).”

Methodology

This study was a quasi-experimental design—a within group and a between group analysis. The within group analysis followed through to the next academic year 11 of the original group of 30 pre-interior design students who had been exposed to the instructional intervention. As a result of the selective admissions review process, the 11 students were admitted to the program for fall 2004 and were the subjects in the within group analysis. Here one is interested in the gain score or difference between 2005 and 2004 scores. This group of 11 subjects also served as the experimental group for the between group analysis in the students’ sophomore year. The second part of the study—the between group analysis, compares the experimental group to the no treatment control group, or the other 26 students in the sophomore class not involved in the 2004 study. This control group had received traditional instructional materials and resources.

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2 The individual student acted as their own control, diminishing the individual difference effects of the students.
Performance assessments\(^3\) were conducted after the 2004 Freshmen Project and after the 2005 Sophomore Project\(^4\). The duration of each project was approximately four weeks. The no-treatment control group encountered the traditional, studio instruction—one-on-one student-instructor interaction each class period and exposure to the associated reading and lecture materials. The experimental group also, encountered the traditional studio instruction but was also given one of two variations of an instructional intervention: 1) analysis cards, or 2) a combination of analysis cards and a customized database learning tool.

Analysis Cards—Instructional Intervention I

The Analysis Card Technique (Pena, 1977) is a method of collecting, recording, and organizing information in small units or cards, where each card holds a single idea or piece of data (or schemata). A card includes both annotations and graphics to depict a particular idea as shown in Figure 1 and Figure 2. A weakness of this method is that it can be difficult to find relationships or links between various cards and categories. A database assists by dynamically giving the learner an expert’s framework for encoding, organizing, and retrieving information or schemata.

Database/Analysis Card Model—Instructional Intervention II

A customized database environment was developed, emphasizing the problem solving process. The database provides an expert-like structure by including categories or ways to organize, sort, and build relationships between various cards into meaningful patterns of information. Each analysis card (or database record) is associated with one stage of the problem solving model, as well as to one or more aspects of the design project. In the 2004 freshmen study, these aspects were H.O.P.P.S.\(^5\) (Health Safety Welfare, Operational, Psychological, Physical, or Setting). Figure 3 depicts some of the screens of this database tool.

Measurement Instruments

Two forms of assessment were utilized to measure student performance and knowledge at two points in time (2004 freshmen project, and 2005 sophomore project). First, the Design Review Panel (DRP) measurement instrument (figure 4) was administered to evaluate students’ final design solutions. This instrument included topics of organization, categorization, linkages of information, theory usage, and overall design success. Second, a five-question multiple-choice quiz was given, which covered definitions of the P.A.Th.Way.S. design paradigm. Because of the nature of the research

\(^3\) A method that has been developed to rate how well a student performs complex activities such as playing an instrument, presenting material orally, and doing and writing research (Shafer, 1997).

\(^4\) According to Phye (2004), the demonstration of change is not left to speculation. Change can only be determined by measuring the behavior at two points in time—typically, prior to and following instruction.

\(^5\) A systems definition of interior design, developed by Fred Malven (2003).
design (a within and a between group analysis), data for the within group participants included 2004 and 2005 project data. Data for the between group participants included only 2005 project data (sophomore project).

Data Analysis

The data were analyzed using ANOVA, independent samples t-test, and paired samples t-test inferential statistics. The analyses looked at differences between the two groups as 2005 sophomores (ANOVA and independent samples t-test), and within the experimental group’s performance between 2004 Freshmen Project and 2005 Sophomore Project (paired samples t-test).

Results

Results of the within-group analysis from the paired samples t-test revealed significant gains in their performances (2004 to 2005 projects) in categorizing, organizing, and linking of information in their design projects. In addition, this group also showed significant gains in their verbal presentation scores. Other DRP questions, including theory usage, overall design, and boards and model proved statistically insignificant. Results of the between group analysis from the ANOVA and independent samples t-test did not show any significant differences between the two groups of sophomores. Results from the five question quiz also showed no significant differences in the within-group and between group analyses. Interestingly, 11 of the 38 students admitted into the professional interior design program after the freshmen year, were exposed to the schema-based learning tools.

Conclusions

Transfer effects were found in the areas of organization, categorization, and linkages or relationships of information in the students’ design projects. The importance of schema theory in design studio education is highlighted by Chan’s (1990) statement that “the ability of organizing and applying schemata determines a designer’s ability” (p. 78).

While no differences were found between the control and experimental group of sophomores, there could be a number of reasons for this. Without directed practice, as Phye (1997) urges, students will not form the habits and strategies found in experts’ problem-solving methods. Second year students may very well still need the expert scaffolding as found in the schema-based learning tools of analysis cards and the customized database system. In a previous study, Brunner (2005) found significant differences between the control and experimental groups in all of the DRP survey questions. With such significant results obtained from this structured schema-based learning system, design instruction and instructors should take notice—the power of such instructional tools, and the temporary nature of these knowledge and skills if not practiced and reflected upon throughout a student’s program of study.
References


High visibility intersection in Downtown.

Floor surface

Zone the building into 2 kinds of zones - public / more intimate zones. Make a clearly marked edge between the two. Do this through the use of flooring materials.

-Alexander
Figure 1. Analysis card examples

Analysis (of existing conditions)

Way (Concept)

Solution

New, permanent condiment/eating utensil station. Trash receptacle also included in this station.

Design provides hierarchy of form for users/customers to “find” the supplies.
Figure 2. Analysis card examples of P.A.Th.Way.S.

Opening screen of the database organizer.

This screen highlights all of the reports a student can generate from their constructed database.
Figure 3. Screens of the database tool.

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<thead>
<tr>
<th>CATEGORIZATION / ORGANIZATION / LINKAGES</th>
<th>1</th>
<th>2</th>
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<td>Well-organized—The student presents a well-organized argument or rationale for their design decisions.</td>
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<td>Logical categorization—The student categorizes information into a logical or meaningful framework and reveals a strong level of detail.</td>
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<td>Strong technical/factual linkages—The student demonstrates strong linkages or connections between information in the various design stages (Problem ID, Analysis, Theory, Way/Concept, and Solution).</td>
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<th>THEORY / RESEARCH</th>
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<td>Connection to theory—Theory is introduced and applied to design solutions. Solution is strongly supported by research (lecture material, readings, etc.).</td>
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<td>Logic usage of theory—The student uses relevant theory in appropriate and insightful ways to support their design solutions.</td>
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<td>Strength or preponderance of theory—The student exhibits a strong breadth and/or depth of theory to guide their design solutions.</td>
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<tr>
<td>Verbal presentation—The verbal presentation communicates the rationale or logic of the design clearly and comprehensively.</td>
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<tr>
<td>Boards and model—The 2-D &amp; 3-D presentation materials communicate the story of the design clearly and comprehensively.</td>
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<td>Design solution, overall—Overall, the design solution is strong.</td>
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For Office Use Only
Presentation Group #: 1   2   3   4
Group CG: AC: AC/DB: Project ID: CP: VH:
Figure 4. Design Review Panel Survey (DRP) instrument.
A Shifting Paradigm: Integrating Critical Thinking with the New Learning Styles of the Millennium Generation

Nancy Miller,
University Of Arkansas
H. Sattar, M. Gentry

Purpose

Critical thinking, a termed frequently used by education administers and researchers, is a typical objective for interior design educators. FIDER requirements (Standard 2) state “The program MUST provide learning experiences that incorporate critical, analytical, and strategic thinking” (2005). Critical thinking is presently touted by pedagogical researchers as a life skill, a necessary component of life-long learning. For interior design students to achieve higher levels learning, critical thinking must be entrenched in interior design curriculum beyond typical studio projects. Planning studio work that holds the attention of ‘millennium’ college students while addressing their distinctive learning styles and interests is both challenging and exciting. The purpose of this paper is to demonstrate how to address new learning styles of Millennium students while simultaneously increasing the level of critical thinking in the studio classroom.

Context

Realizing the need for advancing current teaching methods and addressing today’s students more completely, faculty of a four-year, land-grant university began planning curriculum renovation. The primary goal for the renovation was to create a curriculum that would emphasize rigorous application of pedagogy accentuating critical thinking, thus affording a necessary skill in the life-long learning thrust university administrators are promoting. The faculty believed methods currently used to teach the subject matter were appropriate, but also believed learning needed to be reinforced to address FIDER standards and to develop critical thinking skills more fully. Further, faculty recognized the changing disposition and learning styles of today’s students tested the effectiveness of existing teaching methods and interior design projects.

Throughout the curricular planning process, literature reviewed emphasized use of service learning, problem based learning, sketchbook/journals, recording justifications for decision made in the design process, reflective writing, and constructive feedback from peers and faculty as methods of creating ‘significant learning experiences’ (Fink, 2003). The literature revealed attention focused on lecture-based coursework, without mention of studio classes. It was this realization that prompted faculty to focus more on pedagogy when developing project design and classroom activities.
Literature

Since the introduction of books such as *Millennials Rising: The Next Great Generation* by Neil Howe and William Strauss and *When Generations Collide* by Lynne Lancaster and David Stillman, there has been a renewed interest in examining the implications of generational differences in our society. For educators, this means incorporating new teaching strategies to manage and motivate students. For example, unlike previous generations, Millennials respond well to collaborative, realistic experiences that are structured (Gleeson, 2003). For interior design educators, such information can help facilitate the development of critical thinking skills.

Critical Thinking.

Critical thinking is defined as the mental process of actively conceptualizing, applying, analyzing, synthesizing, and evaluating information to reach an answer or conclusion (Webster, 2003-2005). Certainly, critical thinking is a necessary skill in the interior design classroom, although students often fall short of faculty expectations. Other types of activities advanced as deep learning techniques, such as problem-based learning, situational observations (precedent studies, path analysis, personal interviews), and authentic projects (service learning) were currently in place in the design studio courses. Given the literature and predominant characteristics of the millennium generation, it was evident that critical thinking activities, grouped together as reflective writing exercises, were key to deeper learning in the interior design curriculum.

Service-Learning.

Service learning seems a particularly appropriate strategy for the Millennial generation. According to the literature, this generation seeks meaningful work and realism (Gleeson, 2003; Howe & Strauss, 2000, and Lancaster & Stillman, 2002; Wilson, 2005). In addition, with their tenacity and heroic spirits, they may be more likely to embrace the service ethic. The value of service learning for students is well documented. Research points to the positive effects on learning outcomes, personal outcomes, and social outcomes. Regarding learning outcomes, faculty and students confirm that service activity has a positive effect on academic achievement. For example, research reveals improvement in problem-solving and critical thinking skills and increases in GPA, exam scores, and knowledge (Astin & Sax, 1998; Driscoll, et.al., 1996; Fredericksen, 2000; Hesser, 1995; Lima, 2005). Likewise, learning involvement in the form of classroom participation, interaction with faculty, and enthusiasm for courses has also been found to increase with service-learning experiences (Astin & Sax, 1998; Billig & Furco, 2002; Greene, D.P., 1996; Driscoll, Glemon, Holland, Kerrigan & Spring, 2001). Nevertheless, the National Commission on Service-Learning notes that service learning is “effective only when students address real unmet needs or issues in a community and when young people are actively involved in decision making at all levels of the process.” In addition, one of the core premises of service learning is the process of reflection. According to the National Service Learning Clearinghouse, the most effective service-learning experiences are those that require learners to formally reflect upon their service experience (Center
for Community Engagement, Learning, and Leadership, 2004; Connors & Seifer, 2005).

A study by the Higher Education Research Institute supports the notion that connections between service learning experiences and academic course work in the form of reflection are critical to learning (Astin, Ikeda, Yee, & Vogelsang, 2000). Reflective practices and strategies such as journals and self-and peer evaluations may be especially critical for Millennial students given their need for supervision, structure, and feedback (Generations @ Work, 2005; Gleeson, 2003; Wilson, 2005).

**Course Journals.**

Keeping a course journal can serve multiple purposes. Journals proved immediate response where a student is able to connect their own experiences and prior knowledge with the material presented in class. In a course journal, students record their reflections about the course, identify material that confuse them, and describes new ideas, insights, sources, and connections about the subject matter.

Written reflection is often considered a required component of a journal and is what distinguishes a journal from class notes. The set of artifacts, reflections, and annotations contained in a journal, tell a unique story about some aspect of the owners’ “learning” by helping them make visible and explicit their knowledge, experience, and growth. For example, these artifacts may have been created by the portfolio owner in the context of the experience being represented—such as a design brief, measurements, diagram, or a drawing. The reflective journal writing facilitates cogent thinking about the course and the student’s own learning. Students become more actively involved in the process of learning and develop a better understanding of how they learn (Thompson and Serra, 2005).

Author L. Dee Fink (2003) contends that students are not accustomed to the responsibility of reflective thinking nor are they frequently provided with feedback on the accuracy of their observations. He continues to say the unusual power of journal writing “derives from the fact that it simultaneously integrates and promotes all three of the main components of instruction design: significant learning goals, active learning activities, and educative feedback and assessment.” (p. 118). Students prefer comments about specific points in their journals, suggestions, identification of positive points, and additional informational notes within the pages of the journal rather than a listing of general remarks at the end. Such comments can promote trust and build relationships between students and instructors (Todd, Mills, Palard, & Khamcharoen, 2001).

**Self- and Peer Evaluations:**

Brown and Knight (1994) suggest reflective writing in the form of self-evaluation develops self-evaluative skills and is very influential in improving students’ own learning ability. They state “where students develop an awareness of their own abilities, they are able to effectively research their own learning processes alongside the actual learning” (p. 53), consequently making their learning more complete. Additionally, self-assessment shares transferable learning outcomes in the areas critical and creative thinking and problem-solving (Bangert-Drowns, Brindle & Scoffield, 1998; Brown and Knight, 1994; Dochy, Segers, & Sluijsmans, 1999; Nilson, 2003; Topping, 1998).
Summary

Millennial students are educationally prepared for the task of critical thinking, but often they don’t know how to think about the tasks, topics, and processes they are asked to manage. Teaching students to think is a considerable task. By the integration of reflective writing, particularly in service learning records, course journals, and feedback/self-evaluation statements this faculty demonstrated positive outcomes in student learning and students’ ability to make improved decisions in their course work. During mid-semester evaluations, students reported a stronger interest in their projects and displayed a greater level of participation in the classroom activities. The goal of this faculty was to enhance critical thinking skills, specifically by incorporating writing in diverse forms throughout the studio classes in the program. What they received has been a more engaged student who seemed more interested and attentive—and showed enhanced thinking skills.

Author’s Note: Presentation will include handouts outlining typical reflective writing questions and bibliography of suggested reading on Millennial Students, service-learning, journal writing, self-evaluation writing, and critical thinking.

References


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Active Learning Strategies for Teaching Sustainability: A Case Study

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Purpose

Current discourse addresses new FIDER standards mandating the inclusion of “sustainable design” content in the interior design curriculum. What this content includes, and how it is best delivered, are topics for debate. There is a valid argument that what may be most critical in incorporating these standards into the curriculum is to engender in our students an environmental consciousness—a mindset that our design decisions have consequences and that we can and must take leadership roles in the environmental decision-making process. Getting students to buy into this type of thinking may, in fact, be more important than the need to deliver a quantifiable list of testable content.

Integration of sustainable content occurs, arguably, across the curriculum—in materials and textiles classes, construction methods classes, professional practice and business classes, building systems classes, and in the design studio. It makes sense, then, that programs will choose to incorporate sustainability content in multiple places. This will serve to “reinforce the message.” And it will clearly demonstrate to an accrediting team—via inclusion of appropriate language in syllabi and problem statements—that the content is both valued and “institutionalized” in the curriculum.

And yet, a more active engagement with the topic (rather than simply being taught about the topic) may similarly promote a more active engagement in the students’ future professional careers. This paper provides a case study assessment of a unique studio-based project focused on sustainable design. The project was problem-based, involved active learning, and promoted multiple types of collaboration. Informal assessment suggests that this approach had great value in increasing students’ buy-in and in promoting a more proactive level of engagement.

Review of Literature

Various scholars argue for more active learning models. Brooks and Brooks (1993) suggest that a deeper type of learning occurs when students are allowed to construct their own learning and to create meaning by drawing on their own experiences and what they already know. Constructivist learning is more student-centered, more problem-driven, and inherently draws on multiple types of knowledge from multiple disciplines. Other researchers (Kraft and Kelsmeier, 1995; Myers and Jones, 1993) support a more active and hands-on type of learning over a more traditional mode of learning in which students are viewed as passive receptors of knowledge. Jones and Piotrowski (1995) and Peterson (1996) discuss the merits of team collaboration within architectural education. The design studio model, by definition, supports these various problem-based and active learning strategies (Schon, 1986). Taken together, these various pedagogical approaches form a framework for evaluating the inclusion of sustainable design content in the interior design curriculum, and for discussing the merits and limitations of the presented case study.
Process

A year-long studio-based experience was offered to students in six different majors: interior design, architecture, paper science, marketing, manufacturing engineering, and mass communications. The project involved seven faculty and 23 students. The intent of the project was to address environmental sustainability generally; however, an early decision reached by the group was to explore “commercial interior partitioning systems,” as a way of providing focus and depth of study, and as a way of defining a specific applied project with real-world relevance.

Termed the “Ecowall” project, the studio was funded by a grant from the National Environmental Protection Agency. Team members identified the focus on commercial interior partitioning systems early in the process. Interior wall systems are currently produced in ways that are, arguably, not sustainable. The “typical” gypsum board on metal stud commercial wall is highly inflexible over the life-cycle, and non-recyclable. Alternative manufactured wall systems have not been competitive in the marketplace, due to high first-cost and a similar lack of flexibility. At the same time, the paper industry in the U.S. produces 80-90 million tons of paper each year with a substantial amount of it being deposited in municipal landfills after a short useful product life. The paper industry is the third largest user of energy and has historically been one of the largest polluters of rivers and streams. By developing creative new markets for recycled paper, the potential exists to positively impact the environment while creating job opportunities in the rapidly growing market for “green” building products. Therefore, a market for recyclable, paper-based wall panel systems was identified and explored by the student groups.

The project team most frequently functioned in smaller task-based groups. Given the logistics of class schedules and the number of different majors involved, it was difficult for all participants to come together in one place at one time. So there was great reliance on email communication for task assignment, and on communication through faculty and team “leaders.” At the outset of the project, student groups from each major made presentations to the larger group about sustainability, from the perspective of their discipline, thus defining a collective knowledge base. The design firm IDEO led an early charrette, in which key issues were identified and problem definition began to take shape. As the project evolved, the various student teams engaged in discipline-specific research, prototyping, and testing. Ultimately, the project—including a full-scale mock-up, paper based panel prototypes, documentation of performance characteristics, and market and cost analysis—was presented to the EPA in Washington, where it received an honorable mention award. Subsequent discussions with wall system manufacturers have identified future opportunities to bring this product to market. This has generated additional funding for prototypes, and work is continuing beyond the initially projected time frame.

Discussion

Although the Ecowall project has resulted in a prototype for a new modular wall system that is continuing to be developed, the focus here is on the pedagogical merits of the active learning
model. The authors cite several advantages to this approach based on observation and student feedback:

1. The project provided students a *broad overview of current knowledge* on the topic, by allowing students to research and present discipline-specific content to the larger group.

2. The focus of the project was on the *creation of new knowledge*. Students and faculty worked as a team to explore new ways of envisioning wall systems and of addressing the need for sustainable construction. This in turn promoted the value of research and challenged the idea of “normative” design practice.

3. A corollary here is the observation that the project addressed sustainable practice with *greater depth* than typically occurs in the curriculum. Although the students gained exposure to sustainability across a range of disciplinary perspectives, the project tackled a specific and more narrow topic in great depth.

4. The *collaborative* nature of the project supported the value of multi-disciplinary perspectives. Collaboration worked on several levels; it was interdisciplinary (student-student), and multi-level (student-faculty and academic-professional).

5. The design process was *non-linear*. Both problem and solution were defined (and redefined) by students in an iterative process.

6. The project had *relevance to the broader population* of students not participating in the project. Because it was highly visible, and because department-wide discussion addressed the project, other design majors understood that sustainability was an important and valued area of study.

7. Of particular note, the project generated a high level of “buy-in” and *positioned the students as advocates for sustainable design and as leaders in support of sustainable practice*. Students realized that they had been involved in something that was relevant and important. They discussed the project frequently with those not participating and several discussed the possibility of pursuing sustainability-focused practice in their future careers. A more active type of learning clearly seemed to promote a more proactive engagement of the topic.

**Summary and Implications**

As discussed in the findings section, the project suggested the merits of a more active learning model in promoting student-generated knowledge, a greater depth of knowledge, collaboration, multi-disciplinary perspectives, and non-linear thinking. The authors specifically note that the active learning model produced a high level of buy-in and modeled the interior designer (as one of several players on a multi-disciplinary team) as a leader in addressing sustainable practice. These more general issues related to student thinking, all valued in the FIDER standards, were addressed through the more narrow focus on sustainability.

The implications are that this type of learning may have value not only in addressing sustainability content, but also as a *context* for delivering content across the curriculum. FIDER standards mandate that programs evidence student learning in multiple content areas (including sustainability). Although the language is vague regarding the need to deliver the same level of content to all students, the implication is that all students must evidence some minimal level of understanding. This suggests the need, then, to institutionalize content into the curriculum in a manner that is easily observable and communicated, as opposed to delivering content in the more
ad hoc manner discussed in this paper. Yet, arguments exist for promoting a depth of understanding through an active learning process—even if this necessarily occurs at the expense of a more superficial breadth of understanding. Given the limited time in any curriculum, and given an ever-increasing amount of content to be covered, both may not be possible.

References


From Person to Product: Empirically Profiling Creativity in Design

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Purpose

Design is commonly regarded as a creative profession, thriving on creative people, creative processes, and creative products. Though many design professionals possess their own implicit conceptions about the nature of creativity, little empirical evidence has advanced an explicit understanding of creative designers, their processes, and products. As Goldschmidt (1999) observed, “Creative design is held in great esteem, but we still know little about design cognition and the cognitive abilities and strategies that contribute to creative design thinking” (p. 526).

While a handful of well-conceived studies have profiled personality traits, cognitive style, and creative self-awareness in samples of designers (Clitheroe, 2001; Lam, 1996; Mackinnon, 1962, 1965, 1970; Portillo, 1996; Russ & Weber, 1995; Watson & Thompson, 2001), few of them have validated the influence that these intrinsic traits have on real-world creative performance. In contrast to other studies, the current investigation profiled personality/cognitive style in a sample of design students and evaluated their creative performance on a design task using field

Review of Literature

While a need for further inquiry prevails, it is commonly recognized that design problems demand an integrative and holistic approach to developing solutions (Goldschmidt, 1999; Lawson, 1997; Rowe, 1987; Zeisel, 1981). Designers need to address disparate artistic and technical criteria that frequently place competing demands on problem solving. In recognition of this, Mackinnon (1962) observed the following during a study of creative male architects:

In architecture, creative products are both an expression of the architect and thus a very personal product, and at the same time an impersonal meeting of the demands of an external problem. . . . Architecture, as a field of creative endeavor, requires that the successful practitioner be both artist and scientist–artist in that his designs must fulfill the demands of “Delight,” and scientist in that they must meet the demands of “Firmnesse” and “Commodity.” (pp. 485–486)

The polemic that design entails both artistic and scientific mindsets suggests that creativity in design may depend on one’s capacity to be adaptable, exhibiting flexibility to negotiate complex and multi-dimensional design problems.

Some scholars have suggested that the paradoxes found in the creative person appear to support adaptability—in thought and behavior—as an attribute of creative performance (Brophey, 2001; Csikszentmihalyi, 1996; Guastello, Shissler, Driscoll, & Hyde, 1998; Herrmann, 1989; Mackinnon, 1962, 1970; Sternberg & Lubart, 1995, 1996). Using interview data collected from over ninety luminaries across varied fields,
Csikszentmihalyi (1996) identified paradoxical traits in his sample of mature creatives, including the capacities to be playful and disciplined, logical and naive, humble and proud, reality-bound and fantastical, introverted and extroverted, and masculine and feminine. Paradox as an integral component of the creative personality emerged in a classic study of personality correlates of noted male architects. Mackinnon (1962; 1970) identified creative architects as having a relatively high level of traditionally feminine traits with an increased openness to emotions, high intuition, self-awareness, and diversity of interests atypical of males from a Western perspective in that time period. Mackinnon concluded, “It would appear that the creative person has the capacity to tolerate the tension that strong opposing values create in him, and in his creative striving he effects some reconciliation of them” (1962, p. 490). MacKinnon’s study also found that the creative personality displayed both introverted and interpersonal characteristics. In a later study of designers, Watson and Thompson (2001) concluded that design students exhibited dominance in more cognitive styles than non-design majors; however, they did not relate this finding to creative performance.

Framework

Inquiry into a specific domain calls for a systems framework of creativity that accounts for interactions between the individual who creates, the domain that provides the creative venue, and the field experts who act as gatekeepers to the domain (Csikszentmihalyi, 1990, 1996). A systems research approach couches individual characteristics and thinking styles in the domain where the creative activity occurs and accounts for the creative performance standards of the field. Empirically spanning the creative person, process, and product, this study examined the following research questions: (1) What profiles of creative personality traits and cognitive styles characterize beginning design students? (2) What relationships emerge between creative personality traits and cognitive styles? (3) How do individual profiles relate to the level of creativity expressed in their design solutions?

Methodology

Personality trait and cognitive style profiles were collected from a sample of beginning design students (N = 41) using two standardized self-report instruments:

**Personality inventory.** The Adjective Check List (ACL), scored for Domino’s Creativity Scale (ACL-Cr), was used to inventory personality traits associated with creativity (Domino, 1970, 1994). The ACL is composed of 300 alphabetically ordered adjectives and adjectival phrases that commonly describe diverse personality attributes. ACL respondents are asked to select self-descriptive adjectives that ultimately are compiled into a personality profile.
Cognitive style inventory. The Herrmann Brain Dominance Instrument (HBDI) was used to identify each participant’s preferred thinking style (Herrmann, 1989). The HBDI is composed of 120 questions that assess a respondent’s disposition on the following cognitive dimensions: cerebral (analytic thinking), limbic (affective thinking), right (global thinking), and left (local thinking).

During the first data gathering session each participant completed the ACL in an untimed classroom setting. The following week a second data gathering session occurred in a campus computer lab where the participants individually completed the HBDI via an Internet link with the instrument developer. During the third week the design problem solving task was assigned:

Design Task. Each participant was asked to design a three-dimensional form that was transformed into an original piece of furniture for book storage. The participants received a short list of functional criteria to be incorporated in their final design solutions. These criteria included: 1) storage for a specific quantity of books, 2) storage for different sized books, and 3) accessibility for an average height adult. Each participant was asked to design and construct a three-dimensional model using uniform construction materials, design instructions, and time constraints for task completion (see figure 1). After the project instructions were administered, participants were asked to work quietly at their own tables and not to obtain any input from others. The participants were allotted two consecutive days of class, totaling 5 hours and 30 minutes, to complete the model of their design solution.

Figure 1  Two Example Solutions to the Design Task (Furniture for Book Storage)
Measure of creative performance. Following Amabile’s (1996) Consensual Assessment Technique (CAT), a panel of four expert judges, composed of design faculty, was asked to evaluate the completed design solutions. All of the models were randomly arranged on tables and assigned a number. Each judge was supplied with written instructions and an evaluation sheet to record their responses. Each judge was then assigned a different starting point within the room and was asked to evaluate each model on a five-point scale of creativity. The judges were instructed to rate the projects relative to one another based upon their own subjective definitions of creativity and to work independently. Inter-rater reliabilities of .72, calculated for the current study, were above the acceptable level of .70 recognized by Amabile (1996) and Barnard (1992). A high and a low scoring creative solution are presented in Figure 1.

Summary of Results

Personality Traits and Thinking Styles.

The study found that the sample collectively favored a right-brain thinking style, indicating a preference for big picture issues and a broad focus to problem-solving. Interestingly, those participants who exhibited stronger creative personality traits differed from the overall sample by further displaying a preference for a left-brain thinking style, indicating an additional propensity for details and analytic scrutiny. ACL items, such as alert, precise, logical, thorough, and suspicious, were found to significantly discriminate this high adaptability group and provided additional evidence of their accompanying left-brain thinking style. In possessing this propensity, the high adaptability group appeared more open to evaluation, revision, and refinement of their concepts during the design process than their predominantly right-brain peers.

Supporting these findings, the linkage between flexible thinking and creativity has been well established, emphasizing the integration of opposing cognitive processes in creative problem solving (Brophy, 2001; Finke, Ward, & Smith, 1992; Guilford, 1967; Sternberg & Lubart, 1995). The authors theorize that the level of cognitive flexibility required for creativity varies between disciplines; furthermore, and maintain that the hybrid nature of design disciplines may demand a higher degree of cognitive flexibility, to synthesize artistic and scientific problem criteria. Supporting this notion, Lawson (1997) stated:
Whilst we have seen that both convergent and divergent thought are needed by both scientists and artists, it is probably the designer who needs the two skills in the most equal proportions. Designers must solve externally imposed problems, satisfy the needs of others and create beautiful objects. (pp.156–157)

Creative Performance.

By evaluating the level of creativity in design solutions, this study was able to assess predictive validity by relating internal personality and cognitive measures to an externalized measure of creative performance. It was found that beginning designers with stronger creative personality traits (ACL-Cr) produced work that was judged to be more creative than that of their peers who did not exhibit the same level of creative personality. This finding is consistent with other research (Alter, 1984, 1989; Domino, 1970, 1974, 1994; Domino & Giuliani, 1997) identifying the ACL-Cr as a significant predictor of creative performance. While the HBDI did not directly predict creative performance, it was significantly linked to the creative personality. This suggests that cognitive style variables may be necessary but not fully sufficient to account for creativity in design. For example, a person could exhibit opposing cognitive abilities and not have the personality or motivational faculties to engage in adaptive behavior. While the present study found evidence that beginning designers who are more creative in their personalities and design projects appeared to think more flexibly than their peers, further research is necessary to fully relate cognitive style to creative performance in design.

References


Teaching Spatial Literacy to Beginning Interior Design Students: The Foundation for Contextually Responsive Design

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Purpose

Spatial literacy is the fundamental skill necessary to read and respond to context with intention in the design of interior space. Teaching spatial literacy to interior design students should be fundamental to interior design education, yet the topic of contextual analysis and response is included in only a few textbooks intended for use in interior design education. When contextualism is addressed in texts for interior design, the general focus is on the site, region, culture, or specific materials and their condition, rather than the spatial and formal context of the building envelope (i.e. Ching & Binggeli, 2005; Karlen, 2004; Pile, 2002; Rengel, 2003).

Based on the interest shown in a panel discussion on the topic of contextual design in interiors (Anderson, Dudek, Honey, Rengel, White, 2005), it appears that many interior design educators are interested in this topic. The question to be answered is what are the best methods of teaching interior design students to read and thoughtfully respond to context in their designs? This paper will describe a project that is an effective method of introducing the knowledge and skills that are fundamental to spatial literacy to beginning design students.

Context

The author recognizes that there are various forms of spatial literacy and is focused here on the formal and spatial literacy that is exemplified in Architecture: Form, Space & Order Ching (1996). For the purposes of this paper the focus will be on spatial characteristics, formal features, and geometric ordering systems. The beginning point for context-responsive design is the ability to read the context of a proposed interior design project as a system of spaces and formal elements with order, proportion, hierarchy, variety, rhythm, unity, balance, etc. While important and also a foundational area of knowledge, it is not enough for a designer to have an awareness of historic and contemporary stylistic features, motifs, color schemes, and the like.

The described project centers on an analysis of Tadao Ando’s Church on the Water. The learning objective is to develop awareness of spatial characteristics and qualities and to be able to document and communicate them through drawings. The analytical diagramming component of the project requires students to examine the following issues: underlying geometric structure, regulating lines, mass/void, symmetry vs. asymmetry, center vs. edge, primary vs. secondary spaces, multiple and overlapping spatial readings, sequence/movement, and light.
Review of Literature

The author found no sources that specifically address teaching spatial literacy to interior design students. Ching & Binggeli (2004) provides a description of how important it is for interior designers to “…work with, continue, or even offer a counterpoint to the essential qualities of an architectural space.” (p 7). Yet the book fails to cover the scope necessary to teach spatial literacy to interior designer students who are learning to fully design the space contained within a building’s exterior skin. There are few scholarly sources of information about contextual design in interiors. These sources tend to be textbooks for interior design and they vary significantly in both scope of coverage and points of view.

The strongest text identified is Rengel (2003), which provides a significant description of contextual analysis. Pile (2002) is an excellent book in many ways. However, Pile’s discussion of contextual analysis in chapter two is focused on function, structure and materials, and aesthetics—not issues of interior spatial character such as ordering principles, hierarchy, spatial definition, and spatial overlap. The issues Pile includes are those that have been the traditional focus of decorators, i.e., matters of function, surface, and taste.

In Karlen (2004) under “Planning Methodology,” in chapter one, he lists “Compile contextual data (architectural, historical, social)” as one of the steps in “Establishing architectural parameters.”(p. 3) When describing the programming phase, Karlen actually warns that “Highly detailed information about the physical setting is not necessary at this early phase of project involvement; too much detail might even get in the way at this point.”(p. 5) Interestingly, Karlen dismisses the idea of architectural spatial context informing the conceptualization of interior design and asserts that only those human and social contextual factors will play a major role in determining the conceptual approach to a project.

Among the architectural literature on this topic, Lawson (2004) includes a compelling argument for designers to have a strong knowledge of precedent.

Process

In the author’s program the introductory design studios are common to two colleges and four programs with a total of more than 200 students in approximately 14 sections taught by approximately 12 faculty members. The students in these introductory design studios subsequently study interior design, architecture, landscape architecture, and interior architecture/product design. The first year of study for all these beginning design students consists of two introductory studios that are required to transmit foundational spatial design knowledge and the skills necessary to communicate design ideas through models and hand-drawings of space, form, and design intent.

The studio courses consist of multiple design projects beginning with abstract form/space and proceeding through gardens to buildings and their site. These projects
introduce and reinforce the use of spatial design elements such as point, line, plane, and volume. The projects also focus on concepts such as formal and spatial character, formal and spatial order, spatial definition, spatial overlap, hierarchy, proportion, rhythm, symmetry, and asymmetry. In addition, the projects require students to examine the characteristics of human interaction with space such as scale, circulation, spatial meaning derived from form as exemplified by center versus edge, open versus closed, and the like. When students begin to design places rather than abstract forms and spaces, environmental influences are considered. Project descriptions for inhabitable space include nearby or adjacent natural features such as bodies of water, mountains, and/or prairies. Students are expected to consider views within and away from the garden and/or building site. They are also to consider climatic forces and the influence of natural light and the shade and shadow that will be present in the exterior and interior spaces.

The author has observed teaching and learning through this project sequence over the last six years. The first project of the first course is intended to teach students to read space through direct observation followed by analysis and communication of spatial order with a variety of drawing types and a model. It is the author’s opinion that the project used in recent years failed to bring all students along to a high level of comprehension and skill. In fact, it was such a difficult project to understand and accomplish that students were highly frustrated, changing majors even though they obviously had talent, and essentially beginning design education with a negative experience. To test ideas about a more effective way of teaching the content of the first project, the author and a colleague redesigned it for the fall 2005 semester. The interior design program used this new project in three sections of the introductory studio. The objective in creating the assignment was to address communication of the elements and principles of spatial design through precedent analysis and to introduce all the skills necessary to produce orthographic drawings, analytical diagrams, and one-point perspective sketches. (See Figure 1 for a summary of the assignment and Figure 2 for a schedule of lectures, activities, and due dates.) This paper will describe part 1b of the three-part exercise and the aims to teach the basics of spatial literacy to interior design students within their first month of design education.

The exercise centers on an analysis of Tadao Ando’s Church on the Water. The learning objective of the project is to develop awareness of spatial characteristics and qualities and be able to document and communicate them through drawings. The first step for students was to peruse web sites with images and to study information compiled from Drew (1996).

The first individual student effort to analyze and record Church on the Water as a formal and spatial entity was during the second class. Students were asked to examine the geometry of the architectural spaces that form Church on the Water based on drawings from Drew (1996). Students were asked to identify as many geometric relationships as they could and to provide written notations as necessary to record their thoughts about the discoveries they made. Even with very little preparation and awareness, students were able to identify the geometric relationships in the site planning and building planning and most importantly they were finding that there was significant intention in the design of the spaces and forms that could be understood and illustrated using geometry and
regulating lines. The analytical diagramming required students to examine the following issues: underlying geometric structure, regulating lines, mass/void, symmetry vs. asymmetry, center vs. edge, primary vs. secondary spaces, multiple and overlapping spatial readings, sequence/movement, and light. (See Figures 3, 4, and 5 for student work that earned a grade of A).

Summary

Based on the author’s experience, the learning process using this project was rewarding rather than frustrating to students. As evidenced in the diagrams in Figures 4 and 5, the learning outcomes were as we had hoped. Of sixteen students in the author’s course section, two earned a grade of A, ten earned B’s and only four earned C’s. Next year, we will use this project and we will add exercises in creating tone and using value before students are asked to do the analytical diagramming. The author’s experience in teaching this project and observing the work of students in two sections taught by others is that the project was highly successful in introducing spatial literacy to the beginning design student. Using carefully implemented precedent studies shows great promise as a way to introduce spatial knowledge to interior design students.
Exercise 1 Analysis and Representation of Space
The objective of the project is two-fold: to learn the principles and elements of design by applying an analytical process to an existing structure and to learn to draw/represent space in orthographic views, analytical diagrams, and one-point perspective.

The project is subdivided into three components:

Exercise 1a Representation of an Existing Space

Objectives
- To begin skill development of line quality in freehand drawing
- To introduce basic conventions for plan, section, and elevation drawings
- To introduce basic design vocabulary
- To introduce the elements of design and the principles of spatial order and spatial definition: spatial edges and centers, types of enclosure, degrees of enclosure, hierarchy, symmetry and asymmetry.

Exercise 1b Analysis of an Existing Space

Objectives
- To introduce basic design principles
- To encourage abstract thinking
- To introduce diagrams as an aid to architectural thinking
- To encourage speculation about architectural phenomena including the following:
  - Underlying geometric structure and regulating lines
  - Mass vs. void
  - Symmetry vs. asymmetry
  - Center vs. edge
  - Primary vs. secondary spaces
  - Multiple and overlapping spatial readings
  - Sequence and movement
  - Light

Questions students were asked to consider regarding the design of Ando’s Church on the Water:
- How are spaces defined?
- What are the space-defining elements?
- What are the visual characteristics of the space-defining elements?
- Of what materials are these space-defining elements made?
- What relationships do the space-defining elements have to each other?
- How is spatial hierarchy established?
- What is the main (primary) space?
- What is the relationship between the main space and the sub-spaces?
- What are the proportions of the main space and of sub-spaces?
- How is light brought into the space?
- How does the space relate to the context of the site and its surroundings?

Exercise 1c Freehand Perspective Drawing

Objectives
- To introduce the principles of one-point perspective; convergence & foreshortening
**Figure 1.** Summary of Exercise 1, DSFN 201, Fall 2005

<table>
<thead>
<tr>
<th>DATE</th>
<th>PRESENTATION</th>
<th>ACTIVITY</th>
<th>DUE/PIN-UP</th>
</tr>
</thead>
</table>
| 8/22  | Introduction to course  
Overview of orthographic drawings  
Introduction of Ex. 1: Analysis & Representation of Space | Orthographic drawing exercises using proportional three-dimensional blocks in basic geometric shapes. |  |
| 8/24  | Lecture/Discussion of Ando’s Church on the Water | Begin geometric analysis using drawings from Drew’s *Church on the Water, Church of the Light.* | Pin-up geometric analysis for discussion |
| 8/26  | Lecture: Primary Elements & Properties of Form  
Introduction to lettering | Begin plan drawings of Church on the Water  
Begin lettering assignment |  |
| 8/29  | Lecture: Spatial Organization & Ordering Principles | Begin section drawings | Pin up plan drawings for class discussion |
| 8/31  | Lecture: Circulation | Continue with plan and section drawings | Pin up section drawings for class discussion |
| 9/2   | Lecture: Analytical Diagramming Principles and Practices | Begin Ex. 1b: Analytical Diagramming | Pin up plan and section drawings for discussion  
Pin up lettering for class discussion  
Pin up analytical diagrams for discussion |
| 9/5   | STUDENT HOLIDAY |  |  |
| 9/7   | Introduce modified contour drawings. Discuss eye/hand/mind relationships and learning to see/draw. | Do Modified Contour drawings  
Continue to develop assigned drawings | Pin up analytical diagrams for class discussion  
2nd Lettering assignment due |
| 9/9   | Overview of one-point perspective sketching | Begin Ex. 1c: One-point perspective sketch from observation |  |
| 9/12  | Introduce sheet layout strategies, discuss hierarchy and unity in composition, use of titles and lettering, etc. | Continue to develop all drawings and diagrams | Pin up one-point sketches for class discussion  
Pin up analytical diagrams for class discussion |
| 9/14  | | Continue to develop all drawings and diagrams | 3rd Lettering assignment due |
Ex. 1a, 1b, & 1c due. Submit plans and two building sections at 1:50 and a minimum of eight analytical diagrams. All hand drawn in pencil on vellum.

Figure 2. Schedule for Exercise 1, DSFN 201, Fall 2005
(Image has been removed to try to get the file to a size that would transmit to IDEC)
Figure 3. Exercise 1a & 1b, Sheet 1 of 3, by E. Swenson, DSFN 201, Fall 2005
Figure 4. Exercise 1a & 1b, Sheet 2 of 3, by E. Swenson, DSFN 201, Fall 2005. Inset shows line quality.

(Image has been removed to try to get the file to a size that would transmit to IDEC)

Figure 5. Exercise 1a & 1b, Sheet 3 of 3, by E. Swenson, DSFN 201, Fall 2005

References


Reinhold.


The Characteristics of Interior Designers Who Practice Environmentally Sustainable Interior Design

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D. Guerin

Purpose

Sustainability involves a balance of environmental, economic, and social concerns considered over the long term. Therefore, sustainable interior design can be achieved by minimizing the negative impacts and maximizing the positive impacts on environmental, economic, and social systems over the life cycle of a building. While environmental issues have not been universally significant design criteria, and they need to be emphasized to achieve environmental, economic, and social sustainability. Interior design schools and practices have begun to implement environmentally sustainable interior design in the design process. By learning the characteristics of interior designers who are applying sustainable solutions to their projects, we can determine the direction for sustainable design education and make it applicable throughout the designer’s career cycle. To date, no study has been conducted to examine these relationships. Therefore, the purpose of this study is to determine the characteristics of interior designers who are applying environmentally sustainable interior design to their projects.

Framework

The concept of sustainability is often described as having three essential dimensions: environmental, economic, and social. The three-part model of sustainable development can be traced to Firey who (1960) developed a holistic conceptual framework focusing on defining how to achieve natural resource and environmental conservation—what we would today refer to as sustainability. He described that the best way for resource planning to proceed is to look for ways of balancing the criteria used in optimizing each of these three categories, in other words, articulating and negotiating trade-off. The key assumption is that three dimensions have different underlying goals that cannot be optimized as a whole system. To achieve sustainable interior design, an awareness of environmentally sustainable interior design issues is important because environmental issues have not been significant criteria.

Review of Literature

Indoor environmental quality and interior materials are the design topics especially related to environmentally sustainable interior design. A building’s indoor environmental quality has a significant impact on its occupants. People in the U.S. spend 90% of their time in indoor spaces, and indoor air quality can be two to five times worse than outdoor air quality (U.S. Environmental Protection Agency, 2003). However, many
buildings create unhealthy and potentially dangerous interior environments for their occupants. Providing an interior environment that is physiologically and psychologically healthy for its occupants has emerged as a crucial issue for sustainable interior design. Indoor air quality and human comfort are components of a indoor environment quality.

An important part of interior design is the specification of suitable materials for the various components that make up a particular interior space (Pile, 2003). Interior materials and production of these materials require significant quantities of natural resources. The main issue of sustainable interior materials is input reduction, output management, and life cycle design. Input reduction refers to reducing the flow of nonrenewable resources (energy, water, and raw or intermediate materials) into interior materials, and output management refers to reducing environmental effects through a low level of waste and proper waste management. Reduction and management efforts can be applied throughout the life cycle of the interior materials by recognizing the environmental consequences from the gathering of raw materials to their ultimate disposal.

Methodology

A national, Internet-based survey of interior design practitioners was conducted to determine the characteristics of interior designers who are applying environmentally sustainable interior design to their projects. The population was U.S. interior design practitioners in a professional interior design organization, the American Society of Interior Designers (ASID). The sample for this study was randomly selected from practicing ASID designers, especially those whose email addresses were available.

The independent variables were interior designers’ characteristics and the dependent variable was environmentally sustainable interior design practice. A questionnaire was developed to measure these. The interior designers’ characteristics were divided into personal characteristics about respondents themselves and information about the respondents’ professional credentials based on the stages of the career cycle of interior design practitioners (Guerin & Martin, 2001). Environmentally sustainable interior design was defined by three factors: global sustainable interior design, indoor environmental quality, and interior materials. The frequency of application and the importance in respondents’ interior design practice were measured according to a Likert-type scale.

The questionnaire was tested on 20 interior design practitioners, all of whom were excluded from the final sample. The questionnaire was revised in accordance with the test results. An email was sent to those chosen, asking them to visit a specified Website to complete the questionnaire. To obtain a high response rate, the email was sent three times. The data collected from the questionnaires were analyzed using inferential statistics. The inferential statistical measure used was a multiple regression to find out which interior designer characteristics predict environmentally sustainable interior design practice.
Results

Usable responses were received from 323 interior designers, and the overall response rate was 7.66%. This response rate is acceptable for an Internet-based survey. Before running the multiple regression analysis, a correlation coefficient was computed between the independent variables. The correlation matrix, consisting of correlation pairs of independent variables used, is shown in Table 1. The correlation coefficient between the geographical region of employment and practice reached .932, suggesting the presence of multicollinearity. Therefore, one of the variables with a higher correlation than .80, geographical region of practice, was excluded from the multiple regression analysis, while geographical region of employment was retained.

Multiple regression was conducted to investigate the relationships in three categories: frequency of application, importance to designer’s firm, and importance to designer. Table 2 presents three models of multiple regression analysis. The F-value was statistically significant for two models, frequency of application and importance to designer. However, the F-value was not statistically significant for importance to designer’s firm. The results provide preliminary evidence that the model for frequency of application and importance to designer has some utility.

For these two models, a t-test was conducted. The t-value presents whether the relationship of each independent variable with the dependent variable is statistically significant or not, with all other independent variables taken into account. In the model of frequency of application, the size of interior design project is statistically significant; this indicated that the bigger the size of an interior design project, the more frequently environmentally sustainable interior design was applied to the project. Environmentally sustainable interior design practice was more frequently applied to larger projects. The greater use in larger projects could be due to a number of factors, including proposed cost of interior design and increased construction time.

Table 1. Pearson Correlations Coefficient Matrix

<table>
<thead>
<tr>
<th>Variables</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Geographical Region of Employment</td>
<td>---</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Geographical Region of Practice</td>
<td>.932**</td>
<td>---</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Degree from a FIDER Accredited Interior Design Program</td>
<td>.051</td>
<td>.009</td>
<td>---</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Continuing Education/Professional Courses</td>
<td>-.014</td>
<td>.005</td>
<td>-.049</td>
<td>---</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Specialty</td>
<td>.109</td>
<td>.076</td>
<td>.082</td>
<td>.086</td>
<td>---</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Years of</td>
<td>.065</td>
<td>.077</td>
<td>.050</td>
<td>-.272</td>
<td>-.058</td>
<td>---</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Practice</td>
<td>7. Size of Interior Design Projects</td>
<td>8. NCIDQ Examination</td>
<td>9. State License or Certification in Interior Design</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
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<td>-----------------------------------------------</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Effect Size</td>
<td>-0.017</td>
<td>-0.049</td>
<td>-0.064</td>
<td>-0.083</td>
<td>-0.434</td>
<td>-0.160</td>
<td>--</td>
<td></td>
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<tr>
<td></td>
<td>--</td>
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<td>--</td>
<td>--</td>
<td>--</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Beta</td>
<td>0.149**</td>
<td>0.135*</td>
<td>0.144*</td>
<td>-0.293</td>
<td>-0.183</td>
<td>--</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>t-value</td>
<td>2.545*</td>
<td>1.960</td>
<td>1.560</td>
<td>1.392</td>
<td>1.392</td>
<td>1.392</td>
<td>1.392</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

** Correlation is significant at the 0.01 level (2-tailed).  
* Correlation is significant at the 0.05 level (2-tailed).

Table 2. Multiple Regression Analysis

<table>
<thead>
<tr>
<th>Effect Size</th>
<th>Model (1) Frequency Of Application</th>
<th>Model (2) Importance to Interior Designer’s Firm</th>
<th>Model (3) Importance to Interior Designer</th>
</tr>
</thead>
<tbody>
<tr>
<td>R²</td>
<td>Adjusted R²</td>
<td>R²</td>
<td>Adjusted R²</td>
</tr>
<tr>
<td>.63</td>
<td>.37</td>
<td>.48</td>
<td>.22</td>
</tr>
<tr>
<td>Obtained F-Value</td>
<td>2.446*</td>
<td>1.837</td>
<td>2.312*</td>
</tr>
<tr>
<td>Degree of Freedom</td>
<td>df1</td>
<td>df2</td>
<td>df1</td>
</tr>
<tr>
<td>8</td>
<td>291</td>
<td>8</td>
<td>290</td>
</tr>
<tr>
<td>Variables</td>
<td>Beta</td>
<td>t-value</td>
<td>Beta</td>
</tr>
<tr>
<td>(Constant)</td>
<td>8.880</td>
<td>8.880</td>
<td>8.544</td>
</tr>
<tr>
<td>Geographical Region of Employment</td>
<td>.042</td>
<td>.732</td>
<td>.117</td>
</tr>
<tr>
<td>Degree from a FIDER Accredited Interior Design Program</td>
<td>.113</td>
<td>1.960</td>
<td>.091</td>
</tr>
<tr>
<td>Continuing Education /Professional Courses</td>
<td>-.126</td>
<td>-2.089</td>
<td>-.058</td>
</tr>
<tr>
<td>Specialty</td>
<td>.015</td>
<td>.231</td>
<td>-.138</td>
</tr>
<tr>
<td>Years of Practice</td>
<td>-.009</td>
<td>-.148</td>
<td>.016</td>
</tr>
<tr>
<td>Size of Interior Design Projects</td>
<td>.163</td>
<td>2.545*</td>
<td>-.004</td>
</tr>
<tr>
<td>NCIDQ Examination</td>
<td>-.061</td>
<td>-.968</td>
<td>.015</td>
</tr>
</tbody>
</table>
State License or Certification in Interior Design | .002 | -.037 | -.055 | -.869 | .011 | .180

* Significant at the 0.05 level (2-tailed).

For the model of importance to designer, the interior designer’s specialty had a significant relationship with the importance the designer placed on environmentally sustainable interior design practice. Sustainable interior design practice was more important, in decreasing order, to interior designers who specialized in child care, educational, hospitality/entertainment, financial institutions, health care, government/institutional, corporate/office, residential, and retail design. No respondents specialized in recreational or religious design.

These results showed that interior designers who specialized in child care design and educational facility design considered sustainable interior design more important for their projects. Indoor air quality in schools has been of particular concern as it encompasses the safety of students, staff, and facilities. This concern may promote an awareness of the importance of environmentally sustainable interior design. It was anticipated that interior designers who specialized in health care design and government/institutional design might consider environmentally sustainable interior design more important since health care design has moved toward improving patient health and well-being and government agencies have made efforts to build green buildings. However, designers who specialized in hospitality/entertainment design and financial institutions design considered sustainable design more important than designers who specialized in health care and government/institutional design. Interior designers who specialized in residential design and retail design considered environmentally sustainable interior design less important than other designers.

Conclusions

Interior designer’s specialty was a predictor of environmentally sustainable interior design practice as related to the importance to designer. This study showed that interior designers who specialized in child care design and educational facility design considered environmentally sustainable interior design more important. The U.S. Environmental Protection Agency (2003) reported that indoor air quality in schools improved by implementing the Indoor Air Quality Tools for Schools Kit and program. Because indoor air quality in schools has been of particular concern, interior designers who specialized in child care design and educational facility design might have been more likely to recognize the importance of sustainable interior design. The development of sustainable interior guidelines and/or continuing education programs for interior design practitioners, based on a specialty to assure the specific needs of the specialty, might be helpful to increase awareness of the importance of sustainable interior design. More studies on environmental, economical, and social sustainable interior design will be necessary to the further refine an interdisciplinary body of knowledge on
sustainable design. However, it is important to learn the personal and professional characteristics of interior designers who are applying these practices to their projects in order to determine the direction for sustainable interior design education for undergraduates and continuing education for practitioners. This study made one such contribution.

References


Cave Dwelling, Inspiration of Sustainable Design

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Eastern Michigan University
J. Feng

Purpose

The concept and principles of green design have been embraced by more and more designers in the world in recent years. Since buildings have great impact on the environment and have been the major source of pollution that causes urban air quality problems, and the pollutants contribute to global climate changes, green design plays an important role in the sustainable development. While we are looking for new ways of building to ensure a bright future for our planet, we may draw inspirations from the past when people had more harmonious relationship with the environment, or Nature as it was conceived. This study examines a type of traditional Chinese cave dwellings that can be seen as an example of the most elegant sustainable design solutions that have the least environmental impact.

Context

The cave dwelling is a special housing form found in the loess plateau along the Yellow River in northwestern China, where rainfall is scanty and timber scarce. (Fig. 1) Cave dwellings have a history of more than 2000 years in China. They are depicted in brick-carvings of Han Dynasty (206 BC to 220 AD) tombs. There are still more than 20 million people currently living in cave dwellings in China. The cliff cave dwelling is a major type of cave dwellings around loess plateau in the five provinces along the Yellow River in northern China. In the summer of 2005, supported by the EarthWatch Institute, we conducted field studies of the cave dwellings in the village of Dang jia shan in northern Shaanxi province. In our field study, we realized that the design of the traditional cliff cave dwelling is comparable to the best examples of contemporary sustainable design in many aspects. Its perfect adaptation to the environment of the loess plateau after hundreds of year’s evolution and refinement can give us inspirations in our effort to build a sustainable future.

Review of Literature

Among the studies on the Chinese cave dwellings, Golany’s works (1989, 1990, 1992) are the most authoritative and detailed. He spent more than ten years to study traditional Chinese cave dwellings. He gave typological descriptions and analyzed the thermal performance of the cave dwellings. He points out that the cave dwellings set examples for contemporary urban design in terms of efficient land use. This special feature of the cliff cave dwellings resonates with Alexander’s (1977) idea to place buildings on hillside to preserve land for agriculture. Knapp (1989, 2000) studied the cave dwellings as a part of his survey of Chinese vernacular architecture. As a
geographer, Knapp provides us with more information about the cultural context and the folk tradition in which the cave dwellings evolve. Among Chinese scholars, Hou Jiyao and others (1989) completed the first comprehensive survey of cave dwellings in China. Guo Binglu (2004), a scholar from the northern Shaanxi area, provides a detailed study of the cave dwellings in the area of our research and Guo sees the cave dwelling as a cultural phenomenon deeply rooted in the loess plateau.

In *Cradle to Cradle*, McDonough and Braungart (2002) advances a new paradigm of sustainable design. The conceptual framework of the cycling harmless biological and technological nutrients powered by solar energy provides designers with a new worldview of sustainability. More specifically in design application, we found the approach of life cycle assessment (Curran, 1996) that considers the environmental impacts of a product in all its phases from raw material acquisition to recycle/waste management can be used as a framework for our examination of the Chinese traditional cave dwelling, although we will not be able to do it quantitatively.

**Process**

The research team spent 6 weeks in the village collecting information about the traditional cave dwellings. Measured drawings were made to document the physical dimensions of the structures. Photographs were taken to record the exterior and interior material compositions. Interviews with the villagers were conducted to obtain information about the functions of the spaces and the construction methods. Indoor and outdoor temperatures were recorded in a 24 hour period to examine the thermal performance of the cave dwelling in summer time. Based on the collected information, a life cycle analysis was conducted to estimate the environmental impact of the traditional cave dwellings.

**Findings**

The caves are the result of digging into a loess cliff providing a dwelling with a narrow façade and extending into the cliff. They are, therefore, different from other types of human habitats because it only has a front façade representing its architectural identity. Since the cliff cave dwellings are built into the steep cliff, they use up much less arable land than other buildings. Sometimes, crops can still been planted on the top of the cave if the soil is thick enough. (Fig. 2) The land use is very efficient.

The cave dwellings are constructed with simple manual tools, such as shovel, hoe, wheelbarrow, and wicker baskets. These tools are locally made with wood, wicker, and steel. Only the steel parts of the tools have embedded energy consumption and environmental impact. Because the steel tool parts are relatively small and reusable for a long time, the actual environmental impact is minimal.

The primary building material of a traditional cave dwelling is the loess soil. It is not produced and transported to the construction site. It is given by Nature. It has zero environmental impact and remains in the form of biological nutrient. Wood is used only for the doors and windows on the building façade. Local species elm and willow are used. They are naturally dried and transported to the construction site.
manually. The wood is not painted and therefore remains to be biological nutrient even if it is not reused in the future. Rice paper is glued to the window lattice with flour paste. Stone blocks and plates are used on the overhang eaves, stoves, bed, and storage bins. The stone materials are obtained from a quarry ten kilometers from the village. They are transported to the village with animal powered vehicles. The interior wall and ceiling surfaces are painted with “white earth” mined from a neighbor village five kilometers away. A minimal number of iron hardware, such as door knock and hasp, is used on doors. The hardware is made by local blacksmith. Stone and wood components will be reused if the family moves to a new location.

To maintain cliff cave dwellings is simple. Keeping daily life inside a cave is the best protection for it since the regular air circulation enhanced by daily cooking helps to keep the interior dry. The only other required work is to change the rice paper on windows once a year. The use of rice paper instead of glass prevents the forming of condensation, and therefore protects the unpainted wooden lattices. (Fig. 3)

Orientations of cave dwellings always face south for the full use of sunlight. (Fig. 4) Different from other passive solar system, the loess soil mass (often more than ten meters deep) allows the summer solar heat to be stored and released into the interior during the winter time. In the same way the winter coldness will reach the interior space during the summer time. This time-lag has an optimal effect on indoor ambient temperature in both summer and winter. It provides the dwellers with cool summers and warm winters. The daily temperature remains stable during the four seasons providing a comfortable living environment. The temperature measurements (Fig. 5) in and out of the traditional cave dwelling show a steady indoor ambient temperature despite the volatile outdoor temperature changes. This result is similar to Golany’s (1990) measurements.

The cave dwellings are heated through bed-side stoves. The heated air of the stove goes through wind tunnels running inside the bed platform before escaping from chimneys. The primary fuel is crop stems and limited a mount of coal for wintertime heating. With the superior thermal performance, the cave dwellings do not need air-conditioning in summer, and saves energy to heat them in winter.

Conclusions

Based on our field work, we have found that almost all the features of traditional cliff cave dwelling coincide with nowadays sustainable design principles. 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. As an elegant design solution to the housing need of the people living on the loess plateau, it inspires us in our struggle to reach sustainability. The traditional cliff cave dwellings were built in a time of scarcity and with many technological limitations. They are the result of a people’s adaptation to their environment with limited natural and technological resources. The process has lasted hundreds of years. The people and their culture survived without leaving heavy marks on the environment. The art of dwelling also reflects the core concept of
Chinese culture – being in harmony with Nature.

References


Guo, Binglu (2004). *Yao dong feng su wen hua*. [The folk culture of cave dwellings] Xi’an: Xi’an di tu chu ban she.


Fig. 1 Distribution of cave dwellings in China
Fig. 2  Planting on the roof of a traditional cliff cave dwelling, Dang jia shan, Shaanxi.

Fig. 3  Rice paper and wood window lattices
Fig. 4 Facing south: cliff cave dwellings’ orientation, Dang jia shan, Shaanxi.
Fig. 5. Ambient temperature of a traditional cliff cave dwelling on July 26, 2005.
Preventing Students to Enter the Interior Design Profession: 
Results of an Employer Survey

Lynn Capirsello,  
Syracuse University 
S. Filkins, C. Burke, M. Berens

Purpose

Each year colleges and universities from around the country prepare their students for a future career within their field of study. From each institution comes a wide variety of curriculums, backgrounds, and ideas for the way their students should prepare their resumes and portfolios. There are never any clear cut answers since the field of design is so expansive, and certain areas of design look for distinctive criterion from graduates.

Through a Web-based survey which explored four main topics of inquiry: Portfolio Preparation, Resume Preparation, Submission of Application Materials, and Interview Skills, it is the hope that the information given will shed some light on the subject, and begin a framework for which educators and students may prepare themselves for a future career in Interior Design.

This panel discussion will allow Interior Design Educators, Professionals, Higher Education Faculty and Career Practitioners to discuss the findings of the survey, and ways in which this collaborative approach may bring this information to students and entry-level designers.

Context

The survey was developed in the hope of: 1) assisting educators to ensure that students are well prepared for their transition from college to work, 2) allowing educators and students to understand what is being demanded from practicing professionals and employers, 3) guiding educators in enhancing curriculums that will meet industry standards, 4) providing information which students may use as a guide for portfolio preparation, resume development, and interviewing skills, and 5) developing an open dialogue where all areas of the design profession may share their needs and ideas for the future of design and design education.

Methodology

The idea for this topic began with the student in mind, and that student’s need for a clear understanding of how he/she may present his/her skills more effectively to future employers. A partnership developed between a university career services program and an industry mentor and practicing interior designer, a professional organization, and an interior design educator, who together developed the questions for the survey.
The survey was fielded by sending an e-mail invitation to a qualified list of 12,000 practicing interior designers. The invitation provided the rationale for the survey and included a hyperlink to a Web-based survey form. The invitation generated 508 responses over about a three-week period. Responses were captured in an Access database for analysis. (See attached survey questionnaire.)

Findings

The survey allowed employers to comment on their preferences and expectations for future employees. Each section of the survey included a list of detailed questions that allowed for multiple and unprompted responses. These responses varied, but in many instances half or more of the respondents selected similar criteria or similar preferences. Many also provided a list of questions they ask candidates, and offered very specific advice on how to most effectively present themselves and their work to prospective employers. In addition to design skills, respondents placed a very high importance on good organization, professional demeanor, proper grammar, correct spelling and clear communication—skills that are not core to most interior design programs.

Although the majority of respondents were seeking new designers interested in residential and office projects, a large number mentioned health care, schools, knowledge of ADA, sustainable design, universal design and codes were also in demand.

Summary

The panel presentation will include a comprehensive look at the survey findings and the collaborative relationship between the parties responsible for developing the survey, collecting the data and reporting the findings. It will begin a dialogue between all disciplines of design and design education with the hope of continued growth and understanding for all parties involved.
PORTFOLIO GUIDELINES:

1. Do you have a preference as to **the size and or style of portfolio case when interviewing a designer**? Yes or No

2. If yes, please list desired specifications for the pages.

3. Do you prefer removable inserts, non-removable pages, or no preference?

4. Do you prefer one portfolio showing multiple projects or several portfolios that separate the projects?

5. Do you prefer original color boards or are reproductions sufficient?

6. What specific visual technical skills are you most interested in reviewing? (please check all that apply)

   ____ Watercolors  ____ Pen & Ink  ____ Sketches
   ____ Floor Plans  ____ AutoCAD Drawings  ____ Lighting Plans
   ____ Electrical Plans  ____ Elevations  ____ 3D work

7. What specialty design areas are of most interest to you when considering future employees? (please check all that apply)

   ____ Residential  ____ Office  ____ Hospitality
   ____ Retail  ____ Restaurant  ____ Health Care
   ____ Government  ____ Museum/Library  ____ Furniture
   ____ Other: (please specify) _____________________________________

8. What type of Space planning skills do you look for in a portfolio?

9. What Elements of Design are most important to you in a portfolio?
10. Do you prefer to review work from sophomore, junior, and senior years, or only the best work regardless of the year?

11. What is the ideal number of projects to include in a portfolio?

12. What is the maximum number of renderings you want to review for each project?

13. What is the maximum number of pages you want to review in a portfolio?

14. Do you like to review the graduates' entire Senior Thesis project which may show several boards?

15. Do you look for appropriate color schemes?

16. List the top 3 Technical skills that appeal most to you.
   1. ____________________________
   2. ____________________________
   3. ____________________________

17. List your top 3 Aesthetical considerations.
   1. ____________________________
   2. ____________________________
   3. ____________________________

18. What other portfolio considerations are important to you when reviewing portfolios?

**RESUME INPUT:**

1. When reviewing a resume, specify by number rank the order of importance (1=most important; 10=least important)

   ____ Format
   ____ Color
   ____ Volunteering
   ____ Study Abroad
   ____ Education

   ____ Internship
   ____ Listing of Skills
   ____ Professional Memberships
   ____ Career Objective
   ____ Other Work Experience

2. Do you prefer a resume presentation in formal business style or is graphic style with font changes, multiple colors and logo displayed more appealing?
3. What specific technology skills are you looking for on a resume?

4. What do you look for when skimming over multiple resumes at once?

5. What qualities and/or characteristics set a designer apart from other applicants when reviewing a resume?

6. When reviewing a resume before interviewing, do you discard resumes if you find grammatical errors or misspellings?

7. If so, does this happen often?

8. What words of advice would you give a recent graduate in regard to resumes?

COMMUNICATION STYLES:

1. How do you prefer to receive cover letters and resumes?
   - e-mail only
   - e-mail followed by U.S. Postal Service
   - U.S. Postal Service only
   - in person
   - other (please specify) ________________________________

2. If you prefer cover letters and resumes by email do you have a preference for attached documents or cut-and-paste documents?

3. Do you appreciate receiving a sample portfolio on CD along with the cover letter and resume?

4. If yes, what is the maximum number of images you prefer to review on CD?

5. If available, should a graduate include an online portfolio web URL within his/her cover letter?

INTERVIEWING SKILLS:

1. What are your top five considerations when hiring a new person?
   1.
   2.
   3.
   4.
   5.

2. List the top five questions you ask prospective employees.
1. What behavioral traits do you look for when hiring a person?

2. Is confidence something you look for in an employee?

3. If yes, what clues do you look for in an interviewee to determine confidence level?

4. How important do you weigh verbal communication in an interview?

5. Do you look for someone that can explain a project in a concise and clear manner?

6. What general words of advice would you like to offer graduates as they prepare to enter the professional world?

7. Do you look strongly at internship experience when considering their role at your firm or company?

8. If so, how strongly?

9. What do you think recent graduates lack?

10. What words of advice would you give a recent graduate in regard to interviewing?

11. Do you have a preference for interview dress attire? (casual, business casual, formal)

12. List three main facts about your company that you expect every interviewee should know prior to the interview.

1.  

2.  

3.  

**This information is optional.** This is helpful when compiling the results.

Name: ___________________________
Company: ___________________________
Title: ___________________________
Interior Design Specialty: ___________________________
Email: ___________________________
Telephone: ___________________________
City, State: ___________________________
Web Address: ___________________________
Type of ASID Member: ___________________________
Number of Years in the Design Industry: ___________________________
Do we have your permission to share your phone number with a recent graduate? Yes or No

MENTOR INFORMATION:

Do you currently participate in a mentor program?

Would you be willing to review online, student portfolios and offer feedback to Syracuse University Interior Design students? (If yes, please provide your name and email address)

Career practitioners, staff and faculty at Syracuse University appreciate your time. We plan to share this information with the ASID Student Advisory Council. The Student Advisory Council will forward this information with the 10,000 ASID Student Members nationwide.

For additional information on the Syracuse University Mentor @ SU program, contact Susan Filkins, Coordinator Alumni Programs, SUMentor@syr.edu, 315-443-3616. You may also register to become a mentor online at http://students.syr.edu/careerservices/index.html.

Syracuse University Center for Career Services, Mentor @ SU Interior Design Portfolio & Interview Survey Project Members:
Cindy A. Burke, CID, ASID, Mentor @ SU Advisor
Susan E. Filkins, Coordinator Alumni Programs, Center for Career Services
Rose Crisalli, Career Development Coordinator, College of Visual and Performing Arts
Michael Cahill, Director, Syracuse University Center for Career Services
Lynn Capirsello, Assistant Professor, Interior + Environmental Design, College of Visual and Performing Arts
Comparative Analysis of Codes, Regulations, Standards and Universal Design in Interior Design Education and Professional Practice

Emily McLaughlin,
Purdue University

Purpose

Educators play a significant role in the preparation of interior design students for real world experience and understanding. This unremitting responsibility to continually elevate the student’s level of consciousness to the expected level of professional capacity is impossible to achieve without consistent review and comparison of both presented educational curriculum and real world expectation. Within the interior design profession, this comparative analysis is especially critical when considering the domain of building codes, regulations and standards as well as universal design, as these directives are a direct stimulus on the health, safety and welfare of the public.

This study compares the methods in which codes, regulations, standards and universal design are taught in The Foundation for Interior Design Education and Research (F.I.D.E.R.) accredited schools against the required comprehension levels, with relation to building codes and universal design, of practicing commercial interior designers.

Context

Building codes, regulations and standards set critical rules and guidelines for minimum project coherence. Without established criteria, society would not evolve or progress to a more technologically advanced civilization, capable of enhancing the health, safety and welfare of the public. Buildings are bigger, more complex, and contain more people than ever before. They are more expensive and also more prone to bigger failures and greater financial and human loss than ever before. The future of improved building design and planning lies with the young innovators and explorers of today.

Review of Literature

In general, materials examined through the course of this study include books, journals, and magazines with publication dates ranging from 1980-2003. F.I.D.E.R. (2000) regulations and standards were examined as an integral resource in determination of educational guidelines and minimum competency for accreditation. Personal interviews and independent consultations were also fulfilled as a means of gathering liberated viewpoints and accomplished instruction.

Extensive literature review yielded few relevant studies and topics with relation to code instruction for interior design or professional analysis and examination of building codes, regulations or standards in practice. The specific examination of visualization and
learning style in higher education is critical to assess the manner in which interior design students learn most effectively.

Lamoreaux (2002) examined various practitioners’ perceived importance of building code compliance to the public. While he found that practicing professionals take very seriously the application of codes to facilities, he found the general public to be completely unaware of building code in everyday scenario, and mentions nothing of recent graduate or professional knowledge of codes, regulations and standards.

A study by Benhamou (1980) examined the practical application of interior design education in professional practice and reported that furniture and finish selection are predominant as young practitioner activities. In addition, conducting client interviews and presentation, space planning, and drafting are all highly reported activities of these. Code knowledge and application as a new practitioner were not discussed.

Earlier work by Lee and Hagerty (1996) based their studies on the occupational expectations of students with relation to work conditions, work relations job success and specific tasks. While they encountered widespread differences between occupational expectations of students and practitioners, their study did not specifically examine building code knowledge or application.

Birdsong and Lawlor (2001) surveyed interior design practitioners to examine their perceptions of undergraduate programs, licensing, NCIDQ examination, research and graduate education. Results explained that practitioners perceive importance in all of these areas with the exception of graduate education, therefore there is a perceived importance in interior design education, however codes, regulations and standards were not specifically analyzed.

A study by Marshall-Baker and Weidegreen (1996) examined the understanding of both interior design students and practitioners with relation to universal design. Results of the study indicated sensitivity to the range of human abilities and knowledge of accessibility in daily environments, however both agreed that projects which were most effective in developing a sense of universal design involved ongoing practice and experience.

Methodology

Two surveys were developed containing eight questions each. The first survey, constructed for examination of F.I.D.E.R. accredited schools nationally, contained 8 multiple choice questions regarding the manner in which building codes, regulations, standards and universal design practices are taught in each respective school (see appendix, figure 1). The second survey, constructed for the examination of practicing commercial interior design professionals nationally, contained 8 multiple choice questions regarding the manner in which building codes, regulations, standards and universal design are implemented within their organization’s daily practice (see appendix, figure 2). Subjects on both surveys were designed to correlate with each other, creating simplicity in the comparison of results. The selected survey format was through e-mail correspondence, and the specification of multiple choice answers rather than open-ended questions was preferred for precision and clarity.
Results

The response rate for the survey sample of interior design educators was fair with 15 of 115 responding (13% overall). Based on the response of interior design program educators, most are able to distinguish the importance of the components of the interior design profession. The majority of responding program coordinators indicated the training of codes, regulations and standards as a specific topic, separated between two or more classes in a lecture and studio practicum format and first introduced at the sophomore level.

A majority of educators perceived that the most constructive way for students to learn building codes, regulations and standards is through both memorization exercise and application to studio design projects. Instructors rated the inclusion of a variety of design scenarios within their programs to which codes, regulations and standards are applied. The most popular scenario was corporate or office, followed closely by retail and residential.

One hundred percent of respondents indicated that universal design is discussed at their institution. In terms of codes, occupancy, fire and smoke protection, and finish and furniture selection maintained the highest percentages of application.

The response rate for the survey sample of interior design practitioners was good with 8 of 20 responding (40% overall). One hundred percent of respondents place the responsibility of the application of codes on a typical project on the interior designer. The memorization and knowledge retention of precise codes was reported as an undesirable quality of students.

The highest percentage of professional response indicated that their project experience is based on corporate or office work, followed closely by medical and educational work, and fifty percent of respondents do not implement universal design into their work in any way.

Summary

The findings demonstrate that, in general, educators understand the individualized components of codes, regulations, standards, and universal design ideas utilized in the industry and are able to apply these topics appropriately in the classroom. While educators and professionals both have similar expectations with relation to means of egress, furniture and finishes, and A.D.A., code knowledge in the areas of construction types and building sizes, fire and smoke protection, and code officials and processes are largely inconsistent (see appendix, figure 3).

All in all, it is apparent that instructors of interior design maintain individualized and personalized processes for the instruction of codes, regulations and standards in the classroom. Greater consideration on the part of interior design educators must be taken in the selection of project scenarios presented to students as the industry seems to be moving less in the direction of government institution driven design. Emphasis should continue to be placed on the scenarios of corporate, medical and educational facilities (see appendix, figure 4).

Practitioners and educators need to communicate about the kinds of specific codes required to successfully practice in today’s society. The memorization and knowledge retention of precise codes appears to be an undesirable quality of students to professionals, yet educational institutions nationally are maintaining consistent effort to drill students in a wide variety of these topics, possibly
unnecessarily. The ability of students to be able to read and understand code books for application to individualized projects is a much preferred quality by practicing professionals.

The differences between instruction verses implementation of universal design in interior spaces ranged quite drastically between the surveyed parties, indicating a need for professionals to consider implementation of universal design more often in daily practice. When universal design is used, it is primarily in the areas of products and interiors (see appendix, figure 5).

References


Appendix

Building Code, Regulations and Standards Survey For F.I.D.E.R. Accredited Schools

1. Within your Interior Design Program, which of the following options best describes the way in which building codes, regulations and standards are taught?
   a. All building codes are encompassed within (1) one comprehensive class.
   b. Building codes are taught as a specific topic, separated between (2) two or more classes.
   c. Building codes are taught throughout our program, not in any specific number of classes.
   d. We do not discuss building code within our program.

2. What is the format of a standard class in which building codes, regulations and standards are taught within your program?
   a. In a lecture practicum only.
   b. In a studio practicum only.
   c. In a combination lecture/studio practicum.

3. During which year are building codes, regulations and standards first introduced to students in your program?
   a. Freshman  
   b. Sophomore
   c. Junior  
   d. Senior

4. In what way are students required to learn building codes, regulations and standards within your program?
   a. Students are required to memorize building codes for testing purposes.
   b. Students are required to study and apply building codes in studio projects.
   c. Students are required to memorize building codes for testing purposes as well as study and apply building codes in studio projects.
   d. Other –

5. Please underline all of the following Building Code formats currently taught within your program.
   b. ICBO Uniform (Uniform Building Code)
   c. BOCA National (NBC)
   d. SBCCI Standard (Southern Building Code)
   e. State-written
   f. Combination
   g. The New International Code
   h. Other –

6. Please underline all of the following Interior Design scenarios currently being presented within your program to which students are required to apply building codes, regulations and standards.
   a. Corporate/Office
   b. Retail
   c. Hospitality
   d. Financial Institution
   e. Residential
   f. Technology
   g. Government Institution
   h. Medical Institution
   i. Transportation
   j. Entertainment
   k. Education
   l. Other –

7. Please underline all of the following specific building codes, regulations and standards taught within your program.
   a. Occupancy Classifications
   b. Construction Types and Building Sizes
   c. Construction Materials
   d. Means of Egress
   e. Fire and Smoke Protection
   f. Plumbing and Mechanical Requirements
   g. Electrical and Communication Requirements
   h. Finish and Furniture Selection Codes
   i. Code Officials and the Code Process
   j. ADA
   k. Other –

8. Does your program cover the topic of Universal Design?
   a. Yes  
   b. No
   If yes, please underline all of the following topics that are specifically covered.
   a. Products  
   b. Interiors
   c. Buildings  
   d. Children
   e. Elderly  
   f. Physically Disabled
   g. Visually Impaired  
   h. Hearing Impaired
Building Code, Regulations and Standards Survey For Interior Design Professionals

1. Please underline all of the following individuals responsible for the application of building codes, regulations and standards on a typical Interior Design project within your firm.
   b. A code specialist within the firm.  d. A code consultant outside of the firm.
   e. Other –

2. Within your firm, what is the review procedure that Interior Design projects typically take before they are submitted to local building authority?
   a. Interior Designer reviews his/her own drawings, than submits drawings directly to local building authority.
   b. Interior Designer reviews his/her own drawings, submits drawings to architect for review, than submits drawings to local building authority.
   c. Interior Designer reviews his/her own drawings, submits drawings to code consultant for review, then submits drawings to local building authority.
   d. Interior Designer reviews his/her own drawings, submits drawings to both an architect and a code consultant for review, and then submits drawings to local building authority.
   e. Other –

3. Which Building Code format is currently followed within your jurisdiction?
   a. ICBO Uniform (Uniform Building Code) b. BOCA National (NBC)
   c. SBCCI Standard (Southern Building Code) d. State-written
   e. Combination f. The New International Code
g. Other -

4. Please underline all of the following project types on which your firm consistently does Interior Design work.
   a. Corporate/Office    b. Retail
   c. Hospitality    d. Financial Institution
d. Residential    e. Technology
g. Government Institution h. Medical Institution
i. Transportation j. Entertainment
k. Education l. Other –

5. Does your firm hire entry level Interior Designers, that is, Designers with a college degree with less than 1 year experience in the field?
   a. Yes  b. Sometimes  c. No
   If yes or sometimes, what do you find is the comprehension level of those designers in relation to building codes, regulations and standards?
   a. High  b. Moderate
c. Low d. Non-existent

6. Does your firm typically take on Interior Design students as interns or coops?
   a. Yes b. Sometimes c. No
   If yes or sometimes, what do you find is the comprehension level of these students with relation to building code, regulation and standard knowledge that they have learned in school?
   a. High b. Moderate
c. Low d. Non-existent

7. Please underline all of the following which are required of new Interior Design employees to know prior to induction into your firm?
   a. Knowledge of Occupancy Classifications and Loads
   b. Knowledge of Construction Types and Building Sizes
   c. Knowledge of Means of Egress
d. Knowledge of Fire and Smoke Protection
   e. Knowledge of Plumbing and Mechanical Requirements
   f. Knowledge of Electrical and Communication Requirements
g. Knowledge of Finish and Furniture Codes
   h. Knowledge of Building Officials and the Code Process
   i. Knowledge of ADA
   j. Other –

8. Do you address and/or implement Universal Design in your practice?
a. Yes  b. No
If yes, who is responsible for the implementation of Universal Design at your firm?
   c. A code specialist within the firm.  d. A code consultant outside of the firm.
   e. Other -

If yes, which specific Universal Design issues are addressed in your designs?
   d. Children  e. Elderly  f. Physically Disabled
   g. Visually Impaired  h. Hearing Impaired  i. Other –

Figure 2

**Percentage of Respondents Rating Specific Codes Taught vs. Code Knowledge Required Prior to Hire**

![Chart showing percentage of respondents rating specific codes taught vs. code knowledge required prior to hire.](chart_image)

Figure 3
Figure 4

Percentage of Respondents Rating Design Scenarios Taught vs. Most Commonly Implemented within Practice

- Corporate/Office: 87.50%
- Retail: 81.25%
- Hospitality: 68.75%
- Financial Institution: 62.50%
- Residential: 75.00%
- Technology: 18.75%
- Government Institution: 31.25%
- Medical Institution: 62.50%
- Transportation: 12.50%
- Entertainment: 37.50%
- Education: 68.75%
- Other: 75.00%

FIDER Firms

0% 20% 40% 60% 80% 100%
Figure 5

Percentage of Respondents Rating Universal Design Topics Taught vs. Implemented within Practice

- Products: 68.75% (FIDER), 100.00% (Firms)
- Interiors: 87.50% (FIDER), 100.00% (Firms)
- Buildings: 81.25% (FIDER), 100.00% (Firms)
- Children: 68.75% (FIDER), 75.00% (Firms)
- Elderly: 75.00% (FIDER), 75.00% (Firms)
- Physically Disabled: 81.25% (FIDER), 75.00% (Firms)
- Visually Impaired: 68.75% (FIDER), 75.00% (Firms)
- Hearing Impaired: 56.25% (FIDER), 75.00% (Firms)
- Other: 0.00% (FIDER), 75.00% (Firms)
This paper begins a discussion on the topic of interior environmental poetics which is a somewhat new concept in interior design. It is the art and science of designing interior environments that evoke aesthetic and emotional experiences between the designer and the user to convey a sense of place and a perception of human spirit. So what exactly is poetics? What is meant by a sense of place? What is meant by a perception of human spirit? These are concepts that shape and define the interior environment.

As a response to these questions, this paper begins a discussion on the topic of interior environmental poetics and illustrates key points through the work of various designers. It addresses important ideas and theories that can start a design process and frame a design concept: poetics, aesthetic experiences, ideologies, and nature-based concepts (see Figure 1). The goal is to make the content understandable and useable for educators and practitioners, and to relate the ideas to a meaningful design process.

Interior Environmental Poetics

The word poetics, as defined in Webster's dictionary (1971), derives from the word poetry, a “writing that formulates a concentrated imaginative awareness of experience in language chosen and arranged to create a specific emotional response through meaning, sound, and rhythm.” One of the first statements about poetics in interior design is from Interior Design Visionaries’ Explorations of Emerging Trends. In the article, Dohr explains a trend identified as Environmental Poetics: “Poetics form a language and expression that touches people on several levels of meaning. It is thinking of cultural symbols, of celebrating people in places, and providing a soul or passion to spaces” (Hassell & Scott, 1996, p.12). This statement relates to creating a sense of place and a perception of human spirit in interiors, key ingredients in the concept of poetics.

A Sense of Place

When a space evokes a sense of place, it denotes a particular type of personal experience that affects the intellect and spirit of the users through meaning, expression, and spiritual values (Hassell & Scott, 1996, p.12). These characteristics should be equally as important as function and practical objectives to a designer. Meaning in interior design comes from the integration of the principles and elements of design, various theoretical concepts, and design ordering systems. Expression addresses the act or process of representing something, and in design, it relates to mood, character, and/or feeling about a space or place. A recognized example of this concept is Fallingwater, designed by Frank Lloyd Wright (see Figure 2). Spiritual values typically deal with worth, importance, and usefulness as they relate to something of a spiritual or religious nature, and in design, these typically deal with personal attitudes about a space or place. So, perceptions and reactions by users affect the interpretation. When all of these parts merge positively in a space, there is a connection made between the designer, the space
or object, and the user.

A Perception of Human Spirit

When a space evokes a perception of human spirit, it conveys a personality, energy, and magnetism and above all connects with people through an artistic expression (see Figure 3). Personality addresses its personal character and characteristics. Energy comes from its vitality of expression. Magnetism evolves from its attraction and charm. An artistic expression related to an interior environment is the balance of function and aesthetics that addresses the need of the client resulting in a positive experience with the interior environment. When these are present, there is a dialogue established between designer, user, building, site, environment, history, and significance. This dialogue is a key element in a critical user reaction: passion. When someone develops a passionate feeling towards a space, there is a connection between “the artistic” and “the place.”

Significance of Poetics

As expressed at the Visionaries’ meeting, poetics is significant because: “It is feared that in losing sight of the poetic, the design professional has substituted technical and practical proficiencies for a more unique expertise and the inhabitants of the interiors created settle for a reduced quality of life” (Hassell & Scott, 1996, p.12). This statement is very important to interior design because it identifies what sometimes is lacking in a typical design process – the unique opportunity of incorporating a concern for spirit of place based on the integrated expression and interpretation of the theoretical, aesthetic, and practical components of design, the harmonious unity of the whole.

Another important item to consider is the fact that interior environmental poetics has not been discussed, researched, or documented in interior design. However, there has been research in interiors related to subject areas such as beauty, spiritual concerns, and aesthetics, but it may not use the term poetics. Overall, the literature on poetics in interior design is very limited, with only one article published in the Journal of Interior Design during the last 15 years or so (Schwarz & Brent, 1997). There are no articles that focus to interior environmental poetics and the topics above. And, there is no integrated framework that supports the actual creation of interior environmental poetics within interior design projects. Most of the research on poetics comes from related topics in art, aesthetics, and architecture, so it has to be woven into the narrative on interior design. Consequently, it is unclear if interior environmental poetics has been appropriately implemented in many interior design projects.

Aesthetic Experiences

Aesthetic experiences shape our perception of interior environments. Our intuitive evaluators of interior environments derive from our perception of beauty, imagination, creativity, and harmony. When they are in proportion, all relationships within the space convey a unity of parts, a rhythm (see Figure 4). Carlson describes the aesthetic appreciation of a natural environment, “…not simply a matter of looking at objects or “views” from a specific point. Rather, it is being “in the midst” of them, moving in regard to them, looking at them from any and every point and distance and, of course, not only looking, but also smelling, hearing, touching, feeling” (Carlson, 2002, p. 35).
Ideologies

Ideology is visionary theorizing that informs the design process through research into social, psychological, and cultural traditions (Malnar & Vodvarka, 1992). It provides a historical perspective and a theoretical basis for design decisions. It gives meaning and depth to design solutions. It addresses collective memories through archetypes, cultural symbols and mythology. It involves design research in many areas including architectural precedents, belief systems in a culture, archetypal images shared in the same culture, anthropology, and art history. “Ideology is likely responsible for much of our design vocabulary of forms which are often taken from popular sources and consciously modified by that population’s leaders to suggest a historical event or moral position” (Malnar & Vodvarka, 1992, p.6). By understanding these various connections, designers are better able to create aesthetically pleasing interior environments that enrich the spirit of the users and create a sense of place.

Nature-based Concepts

Nature-based concepts are design ideas that connect people to nature. Connecting to nature brings a sense of harmony and balance because nature has an intrinsic harmony and balance in her design. Hale discusses the patterns of light and shade in old towns that once influenced designers decisions in location, planning and design of buildings that are no longer evident in our urban and suburban design (Hale, 1994). Alexander believes there is a timeless way of building that models itself on the traditional building methodologies of ancient cultures. “And when a building has this fire, then it becomes a part of nature. Like ocean waves, or blades of grass, its parts are governed by the endless play of repetition and variety…” (Alexander, 1979, p.137). Holl describes his process of building as an “intertwining” of form with site, and culture (Holl, 1998). People want to be close to the intrinsic beauty and harmony of nature to enrich their spirits.

Connecting to a Design Process

A strong design process integrates the use of interior environmental poetics to inform, explain, and document the creation of place and the effect of a human spirit connection within an interior. It requires a strong design concept to activate and unify the design. As Saarinen states: “The character or expression of any building can only be achieved if it is itself a total expression. Like a work of art, it must be dominated by a strong, simple concept. All of its parts must be an active part of one dominant attitude” (Schwarz & Brent, p. 45). It demands creative imagination and technical skill. It expresses an individual interpretation. It connects the designer, space, and user. It infuses meaning, context, and form into the space. It supports a sense of place by denoting a particular type of personal experience that affects the intellect and spirit of the users through meaning, expression, and spiritual values. It supports a perception of human spirit in interiors by conveying personality, energy, and magnetism. It addresses a combination of aesthetic experiences, ideologies, and nature-based concepts. As Brooks states: “… the act of designing satisfies the spirit and the intellect of the designer and those for whom the design is shaped. A memorable interior may emerge as the designer expands…to realize a web of relationships inherent in memorable places” (Brooks, 1997, p. 1).

References


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**Figure 1. Important Definitions.**

- **Interior Environmental Poetics.** It is the art and science of designing interior environments that evoke aesthetic and emotional experiences between the designer and the user to convey a sense of place and a perception of human spirit.

- **A Sense of Place.** When a space evokes a sense of place, it denotes a particular type of personal experience that affects the intellect and spirit of the users through meaning, expression, and spiritual values.

- **A Perception of Human Spirit.** When a space evokes a perception of human spirit, it conveys a personality, energy, and magnetism and above all connects with people.

- **Aesthetic Experiences.** Aesthetic experiences shape our perception of interior environments. Our intuitive evaluators of interior environments derive from our perception of beauty, imagination, creativity, and harmony. When they are in proportion, all relationships within the space convey a unity of parts, a rhythm.

- **Beauty.** Beauty in design is a collective sensory response to a person’s experiences in a three-dimensional environment or to an object. It develops when the artist and user connect on a level that recognizes unconscious shared responses, when the user connects with the designer’s spirit.

- **Pleasure.** Pleasure is an emotion that results when something a person expected or desired provides satisfaction or gratification.

- **Ideology.** Ideology is visionary theorizing that informs the design process through research into social, psychological, and cultural traditions. It provides a historical perspective and a theoretical basis for design decisions. It gives meaning and depth to design solutions. It addresses collective memories through archetypes, cultural symbols and beliefs through mythology, and body, mind, and spirit connections through such ways of thinking as Tao and feng shui, among others.

- **Archetypes.** Archetypes are images, memories, icons, or patterns that are universally accepted, timeless models. They appear in art, architecture, mythology, philosophy, psychology, and literature.
- **Cultural Mythology.** Cultural mythology deals with the repetitive story narratives of a culture that become accepted tradition in a society. When presented orally, they often are referred to as folklores, oral histories, or personal narratives. When conveyed in writing, they may take the form of diaries, journals, or monographs. When presented graphically, they may appear as cave paintings, pictographs, or hieroglyphics.

- **Tao and Feng Shui.** The ancient Chinese philosophy of Tao describes the relationship between man, spirit, and the universe. Feng shui is an art and a way of acting that seeks harmony between yin and yang to achieve health and vitality by aligning various energy forces.

- **Nature-based Concepts.** Nature-based concepts are design ideas that connect people to nature. Connecting to nature brings a sense of harmony and balance because nature has an intrinsic harmony and balance in her design. People want to be close to nature to enrich their spirits.

- **Organic Design.** Organic design evolves following nature’s example from seed (design source and problem) to plant (interior, systems, and structure), to flower (exterior form). Things such as a flower, plant, place, or environment may inspire the creation of a man-made object, such as a building or furniture piece.

- **Proportional Relationships.** Proportional relationships are the relationships of the parts to the whole and to each other. In nature, they identify a comparison or ratio of one thing to something else, such as the petals on a flower to the whole flower and to each other, or the arm on a person to the whole body and to the other body parts. The relationships are geometric, and they are key components in the design of the built environment.

- **Connecting to a Design Process.** A strong design process integrates the use of interior environmental poetics to inform, explain, and document the creation of place and the effect of a human spirit connection within an interior. It requires a strong design concept to activate and unify the design.

*Figure 2. Place: Fallingwater in Pennsylvania by Frank Lloyd Wright. This building conveys a sense of place because it denotes a particular type of personal experience that affects the intellect and spirit of the users through meaning, expression, and spiritual values.*
Figure 3. Human Spirit: Thorn crown Chapel in Arkansas by Fay Jones. This building illustrates a perception of human spirit because it conveys personality, energy, and magnetism and it connects to people.

Figure 4. Aesthetic experiences: The Reeve Residence by James Cutler, FAIA. This house embodies a harmonious relationship between the natural environment, the honest use of interior materials, and a strong sense of order. It would be described as beautiful, creative and imaginative.
Figures 5a and 5b. Ideology: Example of a culturally influenced design by a graduate student from Saudi Arabia. The example of generating a design from cultural influences includes the design of a guest room for a hotel in Saudi Arabia and the incorporation of the room into the overall design of the hotel.
“Future-Proofing” the Work Environment: 
Green Strategies and Creative Solutions at Sabre

Johnnie Stark, 
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Purpose

Using Sabre Holdings as a case study, this paper documents and explores a major corporate project with goals for an environmentally friendly facility and a new work culture. The project team issued the following Leadership Group Commitment statement:

We, the Sabre Corporate Campus Team, are enthusiastically committed to the design and construction of a “future-proofed” work environment that is comprised of both state-of-the-art technology and “LEEDing” environmental practices – projecting Sabre’s corporate culture and enhancing Sabre’s position as a leading provider of technology services and quality career opportunities (K. Alig, personal communication, September 26, 2005).

To give form to the goal of an environmentally friendly facility, the team embarked on the certification process for the LEED (Leadership in Energy and Environmental Design) Green Rating System® for new construction, the building program established by the U.S. Green Building Council (U.S. Green Building Council, 2001). The project is significant for groundbreaking achievements in green construction and the integration of these concepts with the client’s corporate vision. Sabre was one of the first major corporations in the United States to receive the LEED 2.0 Silver level of certification. This category signifies achievement of a minimum of 33 out of 69 possible rating points.

Initially, Sabre management was focused on designing a corporate headquarters that firmly established a new identity apart from previous owner AMR Corp, parent company of American Airlines. The LEED program provided a holistic approach involving client, architect, consultants, contractors and suppliers. Since many of those involved had not participated in a LEED project, the learning curve was formidable. The commitment to environmental standards was client driven, with the Sabre project leaders continually pushing the team to offer creative solutions.

Because Sabre is a well-documented, on-going project, it provides objective data for design practitioners and corporate clients about to embark on the planning process. The first phase has been in operation long enough to assess the viability of the LEED component and the success of the workplace environment.

Context

When Sabre began project discussions in the late 1990’s, the new facility was scheduled to be a branch office housing the software development engineering department. Management leaders knew it was
imperative to attract the best workers to remain competitive in a fast-paced travel market. The project was required to demonstrate commitment to employees, state-of-the-art technology, and the environment. The company-wide view was that the existing physical environment of uniform, gray cubicles was inhibiting creative growth and in direct opposition to the corporate mission statement of speed and innovation. The direction became, “no more gray and no more right angles” (K. Alig, personal communication, September 23, 2005). As discussions with consultants progressed, Sabre learned of the LEED program and decided to adopt this approach. During this time, changes at the corporate level resulted in Sabre’s autonomy, and the project scope expanded to a corporate headquarters. Since schematic design was already underway, these decisions meant extensive revisions for the architectural team. There was little precedent for green building in this part of the country. The LEED process demanded collaboration between all entities as well as ongoing documentation of acceptable product performance levels. These demands ranged from the fly ash ratio used in mixing concrete to the effectiveness of photo sensor devices used to control lighting levels (Flanders, 2001). When reviewing interior materials, the team considered sustainable harvesting methods, recycled content, off-gassing levels, and regional availability.

To address workplace culture issues, Sabre management involved employees at all levels in programming exercises. Focus group recommendations resulted in mock-up's of systems furnishing layouts. Employee teams worked in these pilot spaces for three months, providing feedback on privacy issues, openness, configuration, storage, flexibility, lighting, and technology support.

Review of Literature

A review of the literature included the LEED program background and a survey of studies relating employee satisfaction with the physical environment. While environmentally-friendly design is not a new issue, programs for measuring effectiveness are relatively recent. The LEED program for new construction was implemented in 2000. According to Sandra Fleishman (2005), 171 commercial buildings have been LEED-certified and approximately 1800 have applied for certification. Jerry Yudelson, chair of the U.S. Green Building Council’s 2004 Greenbuild conference, predicts the number seeking certification to reach 10,000 by 2009 (Patterson, 2004). The Minnesota Sustainable Design Guide launched in 1999 is another comprehensive program that evaluates project processes and addresses life cycle cost analysis (Guerin, Jones, & Ginthner, 2004).

Numerous studies have been conducted over the last several decades in an effort to correlate all aspects of employee well-being with the physical environment. Vithayathawornwong, Danko, & Tolbert (2003) measured employee perception of physical work environment in a technology company to determine the effect of the environment on creativity. While windows and exterior views were mentioned as desirable, air quality, acoustics or thermal comfort were not identified as significant. In the open plan solution, employees cited dissatisfaction with auditory privacy and visual distractions. The support of daily tasks by the physical environment was determined to be very important. In addition, the office had to be viewed as a whole since perceived shortcomings of an open plan were mitigated by other amenities such as break rooms and rest areas. Finally, support by management for creativity must exist for work surroundings to be relevant. In a longitudinal study, Brennan, Chugh, & Kline (2002), sought to unify the physical environment, ambient conditions, and productivity through analysis of
workers transitioning from closed to open plan. The researchers predicted dissatisfaction would be high at move-in, but satisfaction would increase as workers acclimated to new conditions. In fact, dissatisfaction increased over a 6 month period. No ancillary spaces were provided and no behavioral protocols were established that might address privacy issues. Study limitations were a small sample size, no control group and no continuity of subjects through the study cycle.

The Sabre project combined variables cited in these studies. Affirmation of work culture importance was a conscious management decision. Employees participated in the decision-making process and developed protocols for open-office etiquette. The team areas were a priority but other amenities such as gourmet food service and changing facilities were added.

Work culture studies are characterized by anecdotal findings and lack of reliable measurement. In an overview of sustainability, the editors of *Building Design & Construction*, concluded reliable samples have not been available that “reflect the experience of the most recent group of sustainable buildings” (Cassidy, 2003). More studies are needed to acknowledge work force changes, technological advances, and business trends.

**Methodology**

This research was approached as a case study. One-on-one interviews with project personnel were the dominant strategy in gathering information and provided qualitative input based on the existing project environment. The interview data was particularly relevant because original project participants were still available for comment. LEED documentation and programming phase reports were also reviewed.

**Discussion**

As planning progressed, the integration of green-friendly and employee-friendly attitudes became seamless. The LEED criteria requiring exterior views for a majority of workers led to fewer private offices and a more egalitarian allocation of space. To accommodate privacy levels lost in an open plan, enclosed “wellness centers” were located at the core of the departmental floors. The inability to separate the importance of interior categories over other LEED criteria was also notable. For example, window systems designed to improve thermal performance influenced decisions on daylighting and shading devices. Sustainable site design and organic landscaping contributed to exterior views and bike paths. Structural issues were addressed in the design of a covered, elevated pedestrian walkway connecting the office complex to the parking garage (Flanders, 2001).

Sabre management has concluded that the goal for a motivating work environment has been met. Management sees three distinct groups in terms of employee satisfaction. The original group that participated in the planning process is very satisfied. Another group temporarily relocated to property with a more closed plan is unhappy and eager to return to the open layout. A third group of software designers recently hired from a traditional space has not acclimated and would prefer private offices.

Based on the success of this project, Sabre will continue to combine green design and employee feedback in future building programs. This study confirms for interior designers the importance of a thorough understanding of a client’s goals and objectives. The Sabre experience also illustrates how knowledge of green building practice can positively influence project outcomes.
Summary

For the initial project, the LEED program and green building approach unified and expanded the client’s goals for innovative workplace design and corporate culture change in response to market-driven pressures, employee-centered strategies, and cost-effective construction and operation. A study of the Sabre design process is rich in examples of creative problem solving adding valuable information to the growing body of knowledge surrounding sustainable design.

References


Interior Design – Talking Theoretically

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Purpose

The purpose of the proposed panel presentation and discussion is to engage the IDEC community in a scholarly dialogue about theoretical concepts and constructs derived from other disciplines; with the intention of considering their value to the [re]framing of interior design epistemology.

Context/Review of Literature

Current critical discourse in interior design in the United Kingdom, Australia, Canada and the United States propose alternative epistemologies from which to view aspects of human experience of value to interior design. These are drawn from feminist theory, social psychology, cultural and gender theory, and phenomenology. (Malnar & Vodvarka, 1992; Mitchell, 1995; Rendell et al, 2000; Turpin, 2001; Vaikla-Poldma, 2003).

Interior design knowledge has remained constrained by pragmatic concerns related to issues of regulation and licensing; to focus on the physical aspects of interior space: light, interior materials and planning; functional concerns such as codes, public health and safety, and systems of managing the practice of the designer (Abercrombie, 1990; Malnar & Vodvarka, 1992; Pile, 1995; Guerin & Martin, 2001). Vaikla-Poldma (2003) suggests: “This definition of interior design knowledge does not acknowledge the more transitory, experiential and human aspects of designing and of socially constructed spatial experiences, political and socio-economic issues and critical feminist discourse.” She goes on to describe in detail how discipline has evolved into a different entity from the other design disciplines with its own history, its own theoretical basis, and its own discourse, grounded in contemporary thinking. Vaikla-Poldma asserts however that Interior Designers “do not debate these issues intellectually, and this fuels insecure and unclear definitions of knowledge production.” (p69) It is therefore the intention of the panel discussion to engage the IDEC community in the current discourse.

Process

The format for the panel will be a short introduction to provide the background and context from the Panel Chair, with four presentations to follow. Each presentation will represent an opinion paper in response to the three questions suggested

“What are the evolving intellectual and theoretical concerns of the discipline?”

“What shared theoretical foundation are we building from?”

“What other theoretical concepts could be useful for informing research and discourse in the discipline?”

Given the time we have for the presentations (10 minutes each) the presenters will be limited to introductory and somewhat simplified theoretical concepts. Where more complex constructs are introduced clear definitions will be provided, grounded examples of how the
theory has been, or could be used in interior design will be presented. The presentations will be made available to the audience and will include further readings. The Proposed Panelists are drawn from across North America, and should include the Chair, an educator experienced at the Graduate level. ID educators with expertise in cultural theory, phenomenology, and the social sciences, as well as a recent Grad Student who is able to discuss the value of theory from their own perspective.

Discussion

At the conclusion of the presentations the audience will have the opportunity to pose questions, discuss the presentations and help to develop a strategy for continuing the discourse. The strategy could involve creating a web-based discussion list, or forming a group of interested educators to document and publish examples of the use of theory to enrich the education of interior designers. We could also address questions of follow up sessions at subsequent IDEC Conferences.

One of the assumptions of the proposal is that there is a wide disparity of knowledge and comfort around the discussion of critical contemporary theory. The desire is not to “dumb down” the subject but to present grounded examples of the use of theory to demonstrate its value and inspire the audience. A discussion of theory that is more generally familiar eg. Gestalt theory will be included to provide context and provide a bridge to more difficult concepts.

Another assumption is that there is an audience for such a presentation. Given the gradually increasing reference to theoretical constructs in media, movies and contemporary literature we are being bombarded with the subtext of the Post Modern message. There are also an increasing numbers of papers presented each year at IDEC that draw references from the diverse body of cultural/literary/media theory.

Conclusions

The outcome of the Panel presentations and the discussion that might be generated is difficult to anticipate. It will be recorded and documented and made available to the participants on-line. It will hopefully provide a broadening of the discourse of Interior Design that will enable the eventual [re]framing of the epistemology of our discipline to respond to contemporary theory.

References


Security has become a paramount concern within the built environment due to the acts of violence occurring around the world. Issues of security have become a critical overlay in almost every major design project. It is important for design educators to enlighten future design professionals to security issues and concerns, by understanding that if security is considered from the onset of a design problem, the outcome is a more sustainable and effective design solution, with a seamless connection between security and other functional, social, aesthetic, and economic considerations.

Current security frameworks, as outlined in “Building Security through Design—A Primer for Architects, Design Professionals and Their Clients” (2001) provides four frameworks of analysis to identify security needs; Asset analysis, Threat analysis, Vulnerability analysis, and Risk analysis (p. 8-10). These frameworks take an economics approach in their focus, primarily analyzing the likelihood a structure is to be targeted, and the value of the assets that may be affected. Such frameworks are widely used by various government and public agencies, which negatively impacts the human experience of place, and certainly affect the core of what an interior designer does. As Interior Designers primarily focus on the creation of spaces and places for people’s activities, aspirations, and growth, a component that addresses human factors, human resources, and value rich experiences must be included.

Currently, the federal government, members of the architecture and landscape architecture design communities, along with many security companies and personnel, have attempted to address these urgent security concerns by establishing a dialogue on security issues, providing security guidelines and mandates, and offering an array of security related products. To date, the protection of the public’s safety has mainly involved attention to fire safety and structural integrity. To broaden this area of responsibility, interior designers need to explore design approaches and solutions that offer occupants further protection from many other types of threats and hazards. These designs will need to take into account possible threats to security as well as safety in the traditional sense, whether in public spaces, the workplace or the home.

Interior Designer’s, as vital members of the design team, must become aware of these issues and begin the process of assuring their contribution to this important dialogue. Interior design educators can influence the ways in which future design professionals have a positive impact on the health, safety and welfare of the public in its contribution to the 21st century dialogue on design security within the built environment.

According to the Foundation for Interior Design Education and Research (FIDER) Professional Standards 2002, Standard 2, Professional Values, indicates; 1) interior design programs must incorporate learning experiences that address client/end user needs and their responses to the interior environment, 2) students must understand the designers ability to affect people and the environment and 3) programs must integrate a global perspective and approach to thinking and problem solving. In addition, Standard 6, Building Systems and Interior Materials, states that students demonstrate that design solutions affect and are impacted by security.
systems, and finally, FIDER Standard 7, *Regulations*, states that students apply the laws, codes, regulations, standards, and practices that protect the health, safety, and welfare of the public.

The addition of security design issues into interior design curricula, and a thoughtful integration of these concepts into the design process, not only addresses criteria established by FIDER as a fundamental component of the profession of interior design, it provides students experiential learning experiences involving critical issues that have become a recognized priority in the design of commercial architectural and interior design projects begun since September 11, 2001.

**Process**

A team of interior design educators, from different programs, at opposite coasts, both pursuing scholarly investigation into issues critical to the interior design profession and its role in the design security dialogue, implemented design and security issues into two semester long courses within their varied programs. One course, designated as a “Special Topics” seminar, entitled; Design & Security in the Built Environment focuses solely on an array of complex issues related to design security. The core concentration and objective of the course was to examine design and security issues related to the built environment, while exploring the interior designers ability to create spaces and places for people’s activities, aspirations, and growth, address human factor and health, safety and welfare issues, with an integration of security and its impact on the built environment.

Within the Special Topics course successfully created an increased awareness and understating of design and security issues through; guest speakers (including professionals from architecture, security personnel, building codes specialists, insurance risk management, security systems specialists, and state and national members of the Office of Homeland Security), critical reviews of successful design security case study’s, behavioral mapping and observation exercises, site visits to large public spaces, corporations and federal buildings, a Design Security Journal, included photo documentation and analysis of existing security conditions, as well as, readings, assignments and participatory discussions related to the role of the interior design professional in the design and security dialogue.

The companion course, formatted as a traditional interior design studio, focused on a semester long design project for a Native American Community Center. In this project students worked with actual clients through the entire design development process from site analysis, schematic design to design development. This complex project, dealing with specific issues of interior “zones”, from “off-limit” areas, specific entry areas, to a variety of public spaces and open areas, afforded students the opportunity to analyze and implement a variety of security solutions for this large community center. Cultural mores within the Native American society, as well as issues related to cultural rituals and ceremonies that occur within the space, provided an additional design challenge for students as they strove to overlay a variety of transparent design security solutions throughout. The Native American Community Center project provided to be extremely successful in its multifaceted approach to issues of design and security in the built environment and illustrates security design solutions from a multitude of perspectives.

The major purpose of this presentation is share with fellow design educators the importance of educating design students to become aware of design and security issues and to more fully appreciate the valuable role the interior design profession plays in the health, safety and welfare of the public as it relates in issues related to design and security within the built environment.
The presentation will highlight course outcomes from both the Design & Security seminar course, and the Interior Design Studio course, through student generated design concepts and solutions in the following applications; a “real” project as seen in the Native American Community Center, additional case studies and analyzes of existing sites and structures, and designs solutions found through the integration of security solutions into historical, retail, commercial and healthcare environments. The successes of both courses will be thoroughly presented and discussed, and recommendations made, for pedagogical opportunities that design educators can use to implement design security issues into existing program curricula. Attendees will receive detailed handouts of course projects, assignments, reference materials, resources and related information.

Summary

The interior designer’s commitment to protect the health, safety, and welfare of the public through her/his work demands that we become effective leaders and contributors in the creation and implementation of the new security guidelines and measures as they relate to the built environment in general and the interior domain in particular. As we grapple with the impetus of new heightened risk awareness demands, and the willingness to consider safer design alternatives, it is our responsibility to provide cutting-edge information, education and service to our students and society concerning security design options.

As new emerging security and safety standards and regulations are developed, new standards of care should be drawn upon and used as reference points, similar to the NFPA Life Safety Code or the ADA Accessibility Guidelines for Buildings and Facilities. These guidelines, eventually to be used by all design professions involved in, and responsible for the health, safety and welfare of the public, must include the expertise of the interior design profession.

In conclusion, improving security is the business of everyone involved with the built environment. The interior environment as a whole, as well as each building system and element, should support risk mitigation, reduce casualties, property damage, the loss of critical functions, and address human factors, as well as the public’s experience, of the built environment. Interior design educators play a valuable role in the process of educating students as to their importance in the security dialogue. The opportunity to educate future designers as to the importance of the integration of security solutions and its vital role in the design process of built environments for the 21st Century exists within all interior design programs. Design Educators must encourage students to make ethically responsible decisions concerning safety and security, by staying informed about emerging security technology and by devising ways in which that technology can be creatively and unobtrusively incorporated into the creation of the built environment.

References


Immersion of the Senses: Installation and the Interior as Art

Brad Whitney,
Virginia Tech

...‘intervention’, ‘interaction’, ‘interior art’, ‘ambient’, ‘event’ and ‘project’...
-Nicolas Oliveira, p. 28

These words describe a new art movement, words often used in the shaping of Interior Space. References made throughout Interior Design have mentioned theories from architecture, art, and the social sciences contributed to the development of the discipline. While most cite past or historical influences, several present-day artists are addressing topics significant to Interior Design as themes or subjects in their work to make statements of human conditions in a post-modern society.

Purpose

This paper discusses a new genre of art, called Installation, which emerged during the last decade. Installation is significant to Interior Design in that it is a form of art where artists specifically use interior environments, or theories pertinent to Interior Design, in the creation of their work. Their visual statements present a spectrum of observations, conjectures, ideals, criticisms and opinions about the layers of complex human interactions that occur within the spaces we occupy and create. Because of this, it is vital that designers are aware of the implications these statements have on the viewing public. In turn, this paper discusses how present day designers use similar conceptual approaches to create visual statements for retail and residential designs. Furthermore, by looking at these spaces where artists and designers have generated considerable conceptual impact, it is hoped that this paper will stimulate new methods for examining and understanding the many facets of Interior Design.

Context

“In the seventies and eighties, we lived in a society of spectacle; in the nineties, the society of participants; and now we are developing a ‘society of interactors.”
-Alicia Framis, p. 87

Installation art is uncompromisingly immersive placing the individual in situations where action, either physical or mental, must take place. Unlike traditional works of art where the individual is mostly observer, Installation art requires the individual to participate. This break from traditionally viewing art is significant in that it parallels the design process where the individual is also the raison d’être. Crucial to every Installation is the concept – often expressed affectedly using metaphors, allegories, or historical references to present a visual discourse centered on the individual and the individual in, or removed from, their spatial context. Described by Hal Foster as “debate specific, Installation is not defined by any traditional media or technique but instead it is defined in terms of the message it conveys through whatever means the artist chooses to use or manipulate” (Foster, 1998).

Since most Installations incorporate any number of methods, materials or technologies there is one significant physicality that Installation artists must consider: the space where their work is presented. Because of the necessity to work within an interior space, Installations
frequently become laboratories where artists dissect various activities occurring within interior environments. Here, artists question, explore and address aspects of human interrelationships on many levels: states of being; spirituality; gender; or social, cultural, and political systems. In doing so, works not only make statements about human conditions but, since these statements are made within the context of an interior, they also require examination of the interior environment and how it identifies (or not) with the artist’s message.

Review of Works

“…the total artwork which envelops the viewer in a hermetic and narcissistic space.” - Nicolas Oliveira, pg. 4

Installations immerse the viewers into the work. In *My private sky* by Borre Saethre (see Fig. 1), art critic Ina Blom uses the terms ‘immersive mode’ to describe his work as an “experience where subjective awareness merges with the artwork to create a new, more powerful, experience of [sensual] totality” (Blom, 2001). She further comments on Saethre’s piece, “that it is a ‘non-place’… rather, it is part Interior Design and part filmset. The work identifies with its retro-futuristic chic, recognizable from film and television…it’s aim is to elicit sensual pleasure through sensory manipulations and is significant as it mirrors developments in contemporary life” (Blom, 2001). Saethre says his work “focuses on our permanent and innate desires for comfort, relaxation and luxury” (Oliveira, 2003, pg 60). The work demonstrates a conceptual finesse in creating a space with dramatic sensuality through light, texture, color, and emphasis – techniques Interior Designers use to create sensual places for socializing. Yet, its severe aesthetic intentionally excludes the spirit that facilitates an intimate connection between space and viewer. See also Thomas Demand’s *The Real Simulations* (Karmel, 2001) and Damien Hirst’s *Love Lost* (Oliveira, 2003, p. 146).

Additionally, Installation explores the notion that the viewer is now interactor. This shift of identity (from observer to participant) affects the artist and their chosen concepts. Christoph Buchel’s *Untitled* (see Fig. 2) is a vast sequence of Installations – roughly 2,152 square feet of gallery space – where each piece is a ‘set’ of a larger ‘scene’. His most noteworthy component is the set of a schoolroom with folding chairs, chalkboard, trashcan, institutional fluorescent lighting, VCT flooring, and a loudspeaker all placed within a room with a four-foot ceiling. To simply observe the out-of-proportion space is like knowing a book by its cover so Buchel demands interaction from the viewer. Once in the space, the viewer must crawl through each scene. Here, the viewer is teleported back to childhood memories, where, when sitting in folding chairs, feet could barely touch the floor. However, the viewer cannot remove their present day adult selves from this analysis and it is because of the interaction that Buchel demands, along with the careful selection and placement of familiar objects in a very short room, the artist forces the ‘interactor’ to feel tensely awkward, just as most of us felt during middle school. See also Tacita Dean’s *Fernsehturm* or *Television Tower* (Dean, 2002).

*Imagine that you are moving* by Julian Opie (see Fig. 3) is a work Installed in public space that also engages the viewer. Commissioned and installed in Heathrow Airport in 1997, hanging in a waiting area are several lightboxes that run the length of the entire space. Painted on these lightboxes are stylized murals of the British landscape. Because of the scale, these images dominate the whole space. As the traveler waits for boarding, resting in the slick black leather waiting chairs, the murals on the walls slowly move by since the landscape is on a
continually moving scroll. “The viewer remains static but the landscape moves on” (Oliveira, 2003).

Interior Designers are also creating spaces with significant conceptual impact using metaphors, allegories, ironies, and dramatic spatial affects. One example is the Vikto & Rolf Boutique in Milan where the interior was created to be upside down (see Fig. 4). Designers Siebe Tettero and Sherrie Zwail experimented with illustrations wrong side up to better visualize the turned over space. “Details typically associated with ceiling versus floor would need to be plentiful – minimalism was out [because] people had to be familiar with the visual vocabulary so everyone recognizes things as being inverted” (Philips, 2005). They chose a Neoclassical style because the architectural elements are universally recognized. Preparing the shopper for the interior surprise, the doorknob to enter the shop is at eye level because the entry is upside down. Ceilings inside are parquet “floors” with attached chairs, tables, and lamps that appears to ‘rise down’ from the floor. Upended archways divide the space and serve as “curved seats for shoppers made lightheaded by the scene” (Philips, 2005). Because the concept is so effectively executed, many shoppers remark of being disoriented. See also “Look Out!” (Cohen, 2003) and “Singing in the Rain” (Young, 2005).

If the design concept were to ever be compromised, then The Gerald Henderson House in Las Vegas (see Fig. 5) would completely collapse. Henderson, a pioneer for designs of Cold War-era subterranean architecture, designed his home to be entirely underground and the house underneath Las Vegas is as insanely surreal as the city above it. To enter the house, one enters an elevator and “as you exit the elevator, one finds oneself ‘outside’ again…one of the first in a series of spatial and sensory disorientations to come” (Vanderbuilt, 2003). Unlike the barren landscape above surrounding Las Vegas, after leaving the elevator “one walks onto a slightly faded green carpeted ‘lawn’ [with a] series of palm and evergreen ‘trees’ that run floor to ceiling” (Vanderbuilt, 2003). These vertical elements hide columns and steel support beams. There is a blue sky with white puffy clouds painted on the ceiling. What is more, as one walks across the ‘yard’ and steps onto the patio, one enters the house through sliding glass doors – “reminiscent of the San Fernando Valley 1960s modernism, Brady Bunch style” (Vanderbuilt, 2003). All the windows either look out to the ‘landscape’ or are painted with illusions of pastoral scenes of farmlands and mountains. Yellow shag carpeting, padded walls, ceilings of silk wallpaper, Venetian glass chandeliers, and odd assortments of antiques and retro furniture incite the feelings of decadence gone mad. This is an example in the extreme where everything is so artificial one cannot help but admire the unyielding concept that carries through the design. See also Ana Laura Alaez, Prostibulo or Brothel (Oliveira, 2003, p.183) and Wok Media, “Running with scissors” (Kabat, 2005)

Process

“Despite yourself…you’re impressed by the fact that you’re going to completely disappear.” - Marcel Duchamp, 1987

My expertise as both artist and Interior Designer fueled this inquiry. The following specifically describes my research process: 1) readings on Installation work written by recognized critics of art and published in nationally recognized art papers, journals, books and magazines; 2) readings of reviews and articles on retail and residential design work published in professional design magazines and journals; 3) readings of statements on work written by
Installation artists and designers; and 4) my critical analyses of viewed Installation pieces in galleries and design concepts implemented in retail interiors.

Discussion

“[Installation] has led artists to examine the boundaries of other disciplines.” -Nicolas Oliveira, pg 5

Because certain aspects that are pertinent to Interior Design are frequently broadcasted in the delivery of Installations, it becomes vitally important for designers to be cognizant that some of these messages carry serious implications in how our discipline is perceived and understood. These artist question fundamental notions about human spaces, question what is exactly our relationship to the walls that surround us and how these pre-determined spaces affect our relationships to one another as well as to the development of our own identity. In turn, they use space and aspects of interior environments to affect the emotions of the spectator. This is very intriguing as we use similar visual cues to initiate a response from the occupant. Although art taps into deeper levels of human consciousness, either elevating our senses to marvelous beauty or forcing us to confront dark secrets, designers work on a similar plateau but not to the extremes often encountered in Installation work. Maybe by looking more carefully where Installation and Interior Design intersect, both groups can better inform one another in how to effectively forward the awareness and evolution of our culture.

Conclusion

“…Installation returns us to the body of the spectator, a space that is sentient and active: The Empire of the Senses.” -Nicolas Oliveira, pg. 5

The works presented are only a glimmer on the visual spectrum in communicating an idea. In their work, these artists and designers only hint to the multitude of interrelationships that occur in the spaces we occupy. Their unconventionality in using the visual vocabulary creates statements that transcend to interior art. The transcendence they facilitate immerses our whole being, helping us experience existence with a stronger understanding and clearer insight. These works ask questions beyond the moment, they essentially ask the question: what’s next?
Figure 1 - Saethre, B. (2001). *My Private Sky*. 
Figure 2 - Buchel, C. (2001).
Figure 3 - Opie, J. (1997). *Imagine That You Are Moving.*
Figure 4 - Horsting, V. & Snoeren, R. (1999). Viktor and Rolf.
Figure 5 - Henderson, G. (circa 1970s). *Underground House*. 
References


A Chemical Primer

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Statement of Purpose

Evidence that human activity and invention are negatively affecting human and environmental health is compelling (e.g., Janssen, 2005). IDEC took a step toward acknowledging the contributions and responsibilities of designers to this condition by adopting a resolution in 2005: “Be it resolved that IDEC supports socially responsible design including the cradle to cradle paradigm as an integral part of interior design education.” To some authors such as Papanek (1985) and Whiteley (1993), social responsibility in design includes ecological design, which seemed to be at the core of the IDEC resolution. But how do educators teach students to design interior environments that are socially responsible? -- ecologically healthy? How do educators educate themselves about this? What is the fundamental information necessary to make informed decisions about materials that impact ecological health? The purpose of this poster presentation is to acquaint interior design educators with a “chemical primer,” an introduction to complex material that provides a framework by which to consider particular substances or chemicals. The objectives of the session are:

· to describe three categories of chemicals known to be harmful to human and environmental health,
· provide examples of substances representative of each category, and
· identify typical applications or materials in which these chemicals may be found.

In addition to a handout describing the chemical families, samples of materials that typically harbor these substances will be available during the poster session. Also available will be a list of resources that support designers’ selection of products and materials for interior environments.

Framework

As a profession bound to protect the health, safety, and welfare of the public, knowledge of the dangers and responsibilities, perhaps even liabilities, of materials is critical. This knowledge begins not in practice, but in education, as students who are tomorrow’s designers learn about materials and begin making responsible, informed choices in the design and development of interior environments. Thus, interior design educators also must become aware of the nature of chemicals and substances found in materials of interior environments.

Review of Literature

Three broad descriptors of chemicals known to harm human and environmental health are persistent bioaccumulative toxins (PBTs), volatile organic compounds (VOCs), and phthalates. Chemicals of these types cause conditions that may be short term such as eye irritation, chronic such as an allergy, or terminal such as cancer. Importantly, these
chemicals may be absorbed through the skin, inhaled, or ingested, and all are pervasive in interior and exterior environments.

PBTs accumulate in fatty tissue and not only magnify up the food chain, but also cross generations (BodyBurden, 2005; Persistent bioaccumulative, 2002). These substances that convey easily from air, land, or water, include polyvinyl chloride (PVC) which is used in flooring, wall-covering, and products valued for moisture resistance such as pipes and small appliances. Effects of PBTs on human health range from eye irritation to nervous system damage to cancer.

Some PBTs such as PVC are also VOCs, substances that are measured as organic gasses (Sources of indoor air pollution - organic, 2004). VOCs are the primary source of indoor air pollution and include formaldehyde which is commonly found in household products such as paint and wood preservatives and also in pressed wood products used, e.g., in cabinetry (Sources of indoor air pollution-formaldehyde, 2004). Importantly, the EPA reports that levels of VOCs average 2-5 times higher in indoor than outdoor environments. Health effects are directly related to the amount of exposure, but range from allergies to nervous system disorders to cancer. Specific examples of PBTs and VOCs include:

- Polychlorinated biphenyls (PCBs; Polychlorinated biphenyls, 2005), mixtures of organic chemicals that are non-flammable, chemically stable, and have high insulating qualities, making them ideal in industrial and commercial applications including paints, plastics, and rubber products.
- Dioxin describes a group of chemicals including 2,3,7,8-tetrachlorodibenzo-p-dioxin (TCDD) that are endocrine disruptors, reproductive toxins, and carcinogens (Draft dioxin, 2005). They are formed as by-products of industrial processes including incineration, bleaching paper and pulp with chlorine, and production of materials such as pesticides and PVC.
- Furans are comparable in toxicity and production to dioxins, although the chemical structure varies somewhat (Furan, 1998). The most toxic furan, parallel to TCDD, is TCDF, 2,3,7,8-tetrachlorodibenzofuran.
- Metals like arsenic, mercury, lead, and cadmium all are known to affect the nervous system, liver and kidneys, and are associated with developmental delays, lowered IQ scores, and cancer (Zadorozhnaja, Little, Miller, Mendel, Taylor, Presley, & Gladen, 2000). Mercury often is found in typical household items such as batteries, cameras, small appliances, and electrical switches. Cadmium enters the environment from mining, industrial processes, and incineration, and is used in batteries, pigments, and solar collectors. For those involved with the built environment, most exposure to arsenic is through pressure-treated lumber and exposure to lead is through paint.
- The most well-known organochlorine insecticide was exposed by Rachel Carson (1962) in her book, Silent Spring. DDT (dichloro-diphenyl-trichloroethane) and organophosphate insecticides are most likely to enter the body through the food chain. But knowledge of pesticides is important to those designing interior environments who look to natural fibers to avoid the problems associated with synthetic materials. Yet cotton fields, e.g., are reported to receive 25% of all
pesticides used in the United States. These pesticides are absorbed in the body, create an environmental hazard, and are deadly to many cotton farm workers.

- Brominated flame retardants (BRFs) such as polybrominated diphenyl ethers (PBDEs) are used to reduce the risk of fire in furniture, textiles, and electronic equipment. BRFs are suspected endocrine disruptors that produce dioxins and furans when heated. They typically are found on clothing and blankets such as infant sleepers and bed linens (Janssen, 2005).

- Perfluorochemicals (PFCs) are a family of manmade chemicals that have been used for decades to make products that resist heat, oil, stains, grease and water (Perfluorochemicals, 2005). Common uses include nonstick cookware, stain-resistant carpets and fabrics, and fire-fighting foam.

Recently, attention has focused on another family of chemicals, phthalates, which are used to soften plastics. In healthcare, phthalates are found in medical devices and equipment including naso-gastric tubes, catheters, and intravenous bags and tubing (PVC devices containing, 2002), but phthalates also are found in common items such as nail polish, toys, and floor covering. These “plasticizers” are reported to suppress the immune system, damage organs and the nervous system, and impair reproductive health (“New Harvard study”, 2005; Swan, Main, Liu, Stewart, Kruse, Calafat, et al., 2005).

In summary, PBTs, VOCs, and phthalates which negatively affect human and environmental health are found in everyday items ranging from phone cords to carpet. As professionals charged with protecting the health, safety, and welfare of the public, developing an awareness and knowledge of harmful substances such as these are critical. Some resources are available to assist, but until a clearinghouse of substances and materials is developed, designers are left to educate themselves.

Process

A number of organizations maintain websites that list ecologically healthy materials based on particular criteria. These sites include: GreenGuard, GreenSeal, GreenSpec, GreenPop, and Energy Star. Each site is helpful, and each site is limited. GreenGuard, e.g., describes substances in terms of VOCs, but does not address the performance of products. GreenPop does address performance, but does not offer direction toward an alternative product if performance is low.

In June 2005, McDonough Braungart Design Chemistry (MBDC) released a product certification process (Cradle to cradle, 2005) that evaluates impact on human and environmental health across the lifecycle. Products may be evaluated in a pass-fail assessment as a technical or biological nutrient, or positioned along a cradle to cradle trajectory. Regardless of whether certification is the objective, the criteria used in the assessment process provide a useful filter for designers regarding the risk of a product. Materials of little or no risk are rated “green,” of low to moderate risk are “yellow,” of high risk are “red,” and when a designation cannot be made, these materials or substances are considered to be “grey.” Using this system, substances and materials that would
appear in the “red” category have been described in this proposed presentation generally (e.g., PBT), specifically (e.g., PCB), and in application (e.g., in paint).

Discussion

Asking interior design students, educators, or practitioners to understand all this (and more) is a tall order. It is further complicated by questions of the effects of trace amounts of chemicals or extent of exposure. Making the quest even more difficult are chemical companies that are not required to report how their compounds are used or where they might appear in the environment. Yet interior designers have little choice but to begin the process of knowing the dangers and responsibilities, perhaps even liabilities, of decisions involving the design and development of interior environments. And this includes making informed decisions about substances and materials that affect human and environmental health.

Conclusions

The development of the “chemical primer” to date focuses primarily on substances that are harmful. Information regarding materials on a “green” list is as important or, perhaps, more so. One purpose of proposing a poster presentation is to exchange with colleagues information regarding chemicals other than those that are harmful. The intention ultimately is to compile a list of chemicals, substances, and products, whether “green, “yellow,” “red,” or “grey,” that interior design educators, students, and practitioners may consider as they specify interior materials.

References


Stone into Wood: Carpenter Gothic Architecture in British Columbia

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Purpose

The purpose of this project was to research and document the elements of Carpenter Gothic architecture expressed in ten churches in British Columbia, Canada. Carpenter Gothic architecture traces its origins to Gothic Revival architecture in England. The province of British Columbia is generally recognized as one of the most prolific areas of British influence in North America. Therefore, the study of Carpenter Gothic as an expression of Gothic Revival could best be accomplished in a near-British context. Carpenter Gothic architecture in the United States is not associated with the more purely British context as found in British Columbia. The Anglican Church of Our Lord, (see figure A) an example of Carpenter Gothic architecture and the oldest living church in Victoria, British Columbia, was constructed in 1872. The Anglican Christ Church in Alert Bay on Vancouver Island (see figure B), built in 1887, is remarkable in its use of complex trim. The Roman Catholic Church of the Holy Cross at Skookumchuck, (see figure C,D) dating from the early 1900’s, is a masterful integration of hand-crafted folk art and Carpenter Gothic architecture. This research examined and documented these churches and others of like character. Of particular interest were expressions of ornamental and architectural elements in the context of a North American Province with strong British influence. An additional focus was the expression of Carpenter Gothic based upon availability of local construction materials and tools, cultural influences and idiosyncratic interpretations of this style.

Framework

Upon completion of the photographic documentation and site interviews, a power point presentation was created to integrate into a History of Architecture and Furniture university curriculum. Also planned is a presentation to University faculty during an annual Scholarship Symposium, as well as guest lecturing to several University Religious classes.

Review of Literature

An initial review of the literature revealed that sources of information on the churches were limited and dated. Although historical facts remain constant, new perspectives are valuable in research. A literature review at the British Columbia Government Archives failed to review information other than references cited in abstract. As a result, it became more important to interview both clergy and parishioners of these churches.

Methodology

The main course of inquiry in the research was to determine indigenous cultural elements and materials and tools availability influenced the manifestation of the
architecture. Locating and verifying the existence of Carpenter Gothic churches proved to be a challenge. Many of the churches that held particular interest had either been destroyed through fire or deteriorated to rubble from disuse. Once structures of interest were identified, gaining permission for access was often challenging. Several of the churches were on Reserves and required Tribal Chief approval. Eventually, ten Carpenter Gothic churches throughout British Columbia were identified as research subjects, including three on Vancouver Island. Interiors and exteriors of each church were then photographed and a minimum of one church representative was interviewed.

Results

Analysis of photos and interviews revealed several distinct characteristics of Carpenter Gothic style in British Columbia. Those churches built on reserves with the original intent of serving the aboriginal population had interwoven their cultural symbols within the Christian tradition. The church materials were dictated by what was in close proximity to the building site. Tools were those typically used during this period. In attempting to duplicate the stone Gothic ecclesiastical style of England, design elements necessary to maintain the integrity of stone buildings (e.g. stone buttresses) were duplicated in wood as purely aesthetic features. All the churches had English influences, but each had unique features that separated one from another.

Summary

Several avenues of further investigation have been identified as a result of this research. The first is to locate and document examples of English Gothic Revival architecture most directly related to the Carpenter Gothic churches in British Columbia. The objective of this inquiry is to identify the particular points of origin and inspiration of the founding architect and/or congregation. A second line of inquiry is to compare the Carpenter Gothic architecture expressed in churches that are the subject of the current research to others of the same style and material origin found in the United States. Documenting similarities and differences north and south of the Canadian border would help isolate British influences on Carpenter Gothic church architecture in British Columbia in such a way that defines it as a unique historical building heritage in North America.

References


Fostering Creativity within a Classroom Scenario

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Purpose

The purpose of this presentation is to demonstrate the effectiveness of implementing a creative project within a History of Interior Design course. History of Design courses provides a wealth of knowledge / background to interior design students, but the presentation of information may often be uninspired. In developing the project, answers were needed to questions: is there a better way to teach a lecture course, what is currently being done in classrooms, what could be done within the classroom, how would this be accomplished, and would it be effective.

The development of this project was intended to create a lecture course that was more interesting and interactive with the students. When students participate, they find more value within a class. Historically, rote learning and memorization were the standard method for teaching a lecture course. We now know from research that all students learn differently; therefore, new approaches to teaching need to be developed.

Project Goals

- To explore an historical building / person from a more intimate / personal view
- To allow students to ‘teach’ a unit to the class
- To encourage collaboration between students
- To place the responsibility for learning on the students
- To encourage creative presentation that will engage the audience

Framework

Much research has been directed at comparing the effectiveness of the lecture with other methods of instruction (Alexander and Davis, 1977). Interior design students tend to be very visual learners. The information provided within their History of Design courses will need to be applied within their professional career. It is important that the information is learned and not memorized. Role-playing of the student in Interior Design History provides depth of the topic for the team and the class (Cruickshank, Bainer, and Metcalf, 1995). The objective is that because of the technique used to provide the information, students will retain the information.

Review of Literature

The need for alternative methods of teaching within a lecture course is evidenced by history. During the late 50’s and 60’s teaching was emphasizing problem solving and discovery based on travel in space. In the 60’s, learning was dealing with diversity. From the 70’s to the present accountability became the buzz word. As stated before, History has a way of dictating the method of teaching. A review of The Act of Teaching revealed that our teaching model is based on the way we were taught, and we now have
to re-evaluate our methods (Cruickshank et al). In the guide, *Choosing Instructional Techniques*, common instructional methods were discussed and why educators make these choices. The information revealed that there is no single method that will effectively accomplish all of the goals required of higher education. As an educator we must choose a variety of methods that will be effective and productive for each individual course (Alexander et al.). “Presentation of information is one of a teachers most important and instructional functions” (Rosenshine, 1987).

A review of *The Times Higher Education Supplement* and *Assessment and Evaluation in Higher Education* discussed the problems, solutions, and outcomes of courses based on conventional lecture versus action based courses. In observing satellite classrooms it was discovered that most students were sleeping or doing homework. It was evidenced that lecture based teaching is insufficient and students are learning when they actively participate (Lopez, 1999). Benefits to a variety of teaching methods are significant to student learning. Students find the course more meaningful when they are actively involved, and their approach to learning is intensified by the experience (Wilson, 2005)

**Process**

Students were to develop a paper / project on a topic selected from a given list. The topics were architectural buildings or persons in history taken from a History of Interior Design I course. This course is the study of historic architecture, interiors, and furniture from antiquity to the 1900’s. The students were to treat the paper / project as a story that they were to tell in which they were involved. The students were to describe an event that was happening within their space or to their person, while discussing architecture, interiors, furniture, colors, materials and costumes, and people that were part of the event. The project was to include social, political, and economic facts of the time period. The expectation of their presentation was to make the event come alive for the reader and allow them to visualize the experience.

This project consisted of two students’ per team. Team members were self-selected. Students in this course range from freshmen with no experience in presentation to second semester sophomores. When selecting their team member, students stayed within their own class. The project was assigned to teams to support the goal of creatively presenting historical information. Students are less apprehensive to present to an audience when working on a team.

Each team selected a topic from the given list (see Appendix A). All teams had the opportunity to select several topics of interest, do a background search, and decide upon their preferred topic. Selection of a topic was on a first come, first serve basis. Each team was required to research their topic and ‘teach’ a unit to the class. Teams and topics were selected the first two weeks of the semester, with presentations beginning the last third of the semester. All periods had been covered during the first two thirds of the semester. It was the team’s challenge to identify design attributes while creating the scenario that would engage the viewer.

Creativity was a major focus for these presentations. The goal was to challenge teams to find a way to present their findings in an alternative method to a lecture. How could they make the presentation interactive? How could they engage the audience and help them experience the presentation? Examples were given to help stimulate creativity.
Some suggestions were to create a diary, newspaper article describing an event, pamphlets, or brochures. Role-playing was a major component for each team. The possibilities for this project could be limitless.

Students were evaluated based on length of presentation, collaboration, breadth of information, and creativity. Teacher evaluations had to take into consideration the levels of ability of students. Teams were required to turn in an outline of their proposed presentation with a list of each team member’s responsibility, and get it approved by the faculty member. All projects were due on the first day of presentations to make every team equal. Team evaluations were done to give accountability to each of the members. The team evaluations counted for 20% of the final grade (see Appendix B).

Results

Fostering creativity and interest in a lecture course challenges most educators. The teaching component enhanced student’s appreciation for learning, and their verbal presentation skills. The varying degrees of skill had an effect on the breadth and depth of presentations. The success of the projects depended on the personalities of the students. As the semester progressed, some teams were reduced to one.

Each teams approach to a solution for their teaching unit was inherently unique and allowed the groups to express their concepts differently. Their design solutions combined with interesting historical facts engaged the audience. Scripting and smooth transitions were evidence of rehearsal. One student reported on the Parthenon, taking on the life of Goddess Athena Parthenos (Figure 1). The student immersed herself into the character, designing a costume and performing for the audience. Another team created a storybook about a fictional character named Eddie who went to England and traveled back in time to Warwick castle (Figure 2). These team members read the book with inflections as if Eddie were really speaking. Josephine Bonaparte was a topic in which the team designed a board to represent Josephine’s Roman tent bedroom at Malmaison (Figure 3). Marie Antoinette was a topic in which the team designed two pamphlets each depicting a different view of Marie Antoinette. The pamphlets were selected to represent how information was provided to the masses during this turbulent time period. The team members role-played as friends of Marie Antoinette’s discussing the information in each pamphlet.

While ideas for presentations were very creative, the implementation was not always successful. Several teams created scripts but did not learn them and read them word for word. The audience lost interest and did not retain any of that information. Several of the teams did not make sure all requirements were met before finishing and presenting their project. These teams left out historic costumes, visual aids, social, economical, and political information, or they failed to become the building / person. There was a clear indicator of success based on audience reaction and participation.

Summary

There is a need within a classroom scenario for action based learning. The selection of role playing provided a creative venue for this History of Interior Design course. The requirements of this project connected with interdisciplinary issues and could become a project comprised of a team member from two different disciplines. The
production of these presentations varied and would benefit from preliminary work on how to teach and present to a class. Presentations would target more continuous active involvement if done throughout the semester rather than at the end. This project encouraged students to adopt a more involved and fundamental direction of learning.

References


