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2016 IDEC CREATIVE SCHOLARSHIP AWARDS

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Best Presentation, Scholarship of Teaching and Learning
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   *Using an Unmanned Aerial Vehicle (UAV/drone) to Improve Student Engagement with Building Construction, Systems and Codes*

Best Presentation, Scholarship of Design Research
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   *Evaluating Living and Learning on Campus: Beyond Twin Beds and Communal Showers*

Best Poster
   Jessica Walton – Virginia Commonwealth University
   *Design Thinking: Providing Opportunity for Underserved Communities with the Design Discipline*

Members Choice
   Roberto Ventura – Virginia Commonwealth University
   *Let’s Build a Cathedral Together: Improv, Collaboration, and the Design Process*
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CREATIVE SCHOLARSHIP
Boreas: Origami Inspired Rhythm and Algorithm

Jiangmei Wu
Indiana University

ABSTRACT

Origami has inspired many designers and engineers to come up with novel ways to fabricate, assemble, store and morph objects and structures that are safe, efficient and energy saving, from collapsible medical stents for hearts to airbags for cars. However, coming up with flat foldable and collapsible volumetric design of any arbitrary shape is continuing to be a great challenge to designers. Boreas project attempts to understand how to combine origami principles and algorithm based design process in form-finding, fabricating and assembling collapsible volume in a case study of folded light art.

The seed for the form genesis of Boreas is an origami Waterbomb module, a flat-foldable origami tessellation whose creation is credited to computer scientist and mathematician Ron Resch. In Boreas, this Waterbomb origami module is transformed by a simple truncating operation and is further digitally manipulated. Through an algorithm based design process this simple module seed is rhythmically repeated in a series of definitions and mathematical functions in the software program Grasshopper so as to create complex assemblies that is flat-foldable and collapsible. By changing the mathematical parameters in the algorithmic structure, a myriad of distortions and transformations are generated in order to study the relationship between form, structure, and global flat-foldability. A symmetrical design is chosen for final fabrication in this case study. Symmetrical design results in a more simplified fabrication process and an overall reduction of material consumption. 128 three-dimensional modules, of which only eight are unique, are unrolled into two dimensional shapes, modified by adding assembly details, and nested onto large sheets of High-Tec Kozo for digital cutting.

This entire digital workflow is accomplished through the very same algorithmic structure that generates the forms, thus streamlining the process from form finding to digital fabrication and
assembly. The resulting two dimensional forms are then folded by hand and assembled with small plastic buttons. Hi-tec Kozo is a type of tear-free Shoji paper, which has a three-layer structure, with eco-friendly polyester film as core and Kozo Washi on both sides. Kozo Washi is a type of renewable material that is made from the inner bark of Kozo, a type of mulberry tree that can be sustainably harvested each year. Unlike conventional paper manufacturing that contributes heavily to water, land, and air pollution, the manufacturing of Kozo Washi borrows from traditional hand-made paper processes and techniques and uses very little chemicals. The result is a type of paper that is much stronger and greener than conventional paper.

Boreas is part of the Anemoi Light Art collection. Visually similar to the soft and swaying body structure of the sea anemone (in Greek, Anemoi means “winds” and Anemone means “daughter of the wind”), Borea, doesn’t require any structural support to hold up its volumetric frame. When suspended and illuminated, Boreas sways into ephemeral and gentle patterns of light and shadow, softening their surroundings with pristine, mathematical geometry and rich, natural textures.
Anemoi Light Art

BOREALIS

Inspired by mathematician and computer scientist Ron Resch’s flat-foldable Waterbomb tessellation. Boreas is realized through combining algorithm-based digital design and paper folding processes.

A 3 by 3 array of Ron Resch’s flat-foldable Waterbomb pattern.

By changing the mathematical parameters in the algorithm structure, a myriad of distortions and transformations are generated.
Anemoi Light Art

BORreas

Fabricated by nesting and cutting only 8 unique pieces of two-dimensional light-weight material, the manufacturing of Boreas represents a minimal carbon footprint and ecological impact.

Total:

128 x

Truncated origami Waterbomb module

Stainless Ring

Stainless Bar

Stainless Nuts and Bolts

Plastic Cap

LED E27

warm white 3000K.

360 degree viewing angle

Eight unique panels nested and ready for digital cutting
The main material is a type of tear-free Shoj paper called Hi-tec Kozo, which has a three-layer structure, with eco-friendly polyester film as core and Kozo Washi on both sides. Kozo Washi is a renewable material that is made from the inner bark of Kozo, a type of mulberry tree. Kozo plant grows more than three meters in a year and can be sustainably harvested each year.

The flat-packable characteristic is the result of algorithm design and mathematical origami. It allows Boreas to be assembled first and shipped in flat packages, thus further minimizing the carbon footprint for shipping and transportation.
Anemoi light art at Toyota Civic Center, Toyota City, Aichi Prefecture, Japan, 2015
An installation view of Boreas at Toyota Civic Center, Toyota City, Aichi Prefecture, Japan, 2015
An installation view of Boreas at Toyota Civic Center, Toyota City, Aichi Prefecture, Japan, 2015.
An installation view of Boreas at Toyota Civic Center, Toyota City, Aichi Prefecture, Japan, 2015
Detail showing part of metal ring assembly
Travel Desk: A Site Specific Installation Merging Art and Furniture Design

Jonathon Anderson
Ryerson University

ABSTRACT

Travel Desk was created as part of a public art commission at a major International airport. The commission was unusual for an airport as it offered a residency period during which the submitting artist could explore various aspects of the airport before finalizing the project outcomes. As a result, the first phase of the project consisted of ten typists, dressed as flight attendants, and invited the public to dictate travel stories. These large-scale performances were held during opening ceremonies of the airport’s new terminal and collected hundreds of stories.

Documented stories stimulate an international and ongoing dialogue with local and traveling communities through the creation and installation of site-specific art. These stories became the material for the second phase of the project, a 20-foot-long table made from urban harvest eucalyptus wood. This portion of the project was realized through an interdisciplinary collaboration between the artist and an interior design educator. The tabletop features laser etched excerpts from the collected stories. Travel Desk reminds us how initials carved into a tree trunk along a favorite trail or wooden picnic tables at a beloved spot serve as poignant reminders that we were here. It also provides an indelible physical mark in an increasingly transitory, digital world.

Travel Desk underwent several design iterations that considered accessibility, the flow of installation space, material choice, fabrication technique and graphic representation of the artwork. The final revisions manifested after a rigorous structural engineering review. The table was co-fabricated in two shops, where one shop was mainly focusing on woodcraft and the second shop focused on laser etching the tabletop. The two fabricators carefully worked...
together to not only achieve the drawing specifications but also to troubleshoot any unexpected situations. The presentation will present the first phase of the project in the form of a documentary style video, followed by visuals of the design process from concept to realization. We will conclude by presenting how the restrictions associated with public art in an interior environment posed an interesting challenge to the development of furniture.

Theorist Tim Ingold talks about two models of travel, transporting and wayfaring (2007). In transporting you’re dealing with point A to B, where people often do not perceive space or objects around them and the little nuances that make a place. Wayfaring is the act of exploring a place and opening yourself to unexpected moments. The airport provided an ideal context to ask people to step away from transporting and instead think about wayfaring. Travel Desk looks to provide those unexpected moments of interaction, both in performance and permanent installation. Travel Desk was permanently installed outside the US Airways check-in counters in January 2015. The table provides the interior space with much needed seating and establishes an iconic meeting place for visitors to partake in wayfaring activities without losing sight of the artwork and the etched reminder of past performances and stories.

REFERENCES (APA)

Travel Desk performance
I was a ticket agent for American Airlines. A man came up to the counter running for a Dallas flight, and we were told no runners to the gate. His ticket called for an add-collect. He refused to pay; he said, "Don't make me miss my flight." I said, "Buy a new ticket, and you will make the flight." He refused and insisted I put him on the flight as the ticket holder. He raised his voice, and another customer nearby said, "Don't be an asshole. She's only doing her job." My customer then turned and said, "Don't call me an asshole" as he went for the man, taking his swing at him. I immediately reached for the phone to call Harbor police, as a fist-fight had ensued. They appeared in minutes, demanded my customer get on his knees, hand s behind his back. They told him he was not going to Dallas on this flight today. He was to leave the airport immediately. The next thing I knew, I was to appear in court as a witness. Louise Oliverio

In Mazatlan, Sinaloa, during semana santa, I took a taxi from the Carribel Beach Club to the airport. I was in the back of the cab; and the driver wasn't feeling well. The drive to the airport was about 20 miles. At one point, the driver pulled the cab over to the side of the road. He got out, and staggered over to the side of the road. He knelt over the ditch, and proceeded to vomit.

Afterward, the driver was feeling faint. He crawled into the back seat of the cab (where I was seated) and passed out.

I didn't know what to do. After several minutes passed I decided to drive the cab myself to the airport. When I got to the airport, I was turning late to catch my flight. The agent at the ticket counter escorted me to the plane, which was taxiing away from the gate. The captain had lowered the stairs in the back of the plane and the agent told me to go up the stairs and get on the plane.

As I climbed up the stairs, the plane began to move. I sat to the top of the stairs, and the door was closed. The engine was roaring. I started banging on the door so the flight attendants would know to LET ME IN.

I don't think they heard me knocking, because the engines were so loud. When the flight attendant turned and saw my face through the porthole, they were stunned.
Travel Desk fabrication of permanent installation
Travel Desk final installation in airport
Travel Desk details of laser etched tabletop
Built Drawings

Deborah Scott
Ohio State University

ABSTRACT

Designers and artists use drawing to see, to anticipate and to communicate but it is limiting to view drawing as a mere act of mark-making that represents intention in form. Jean-Luc Nancy (2013) theorizes that “drawing is the opening of form” and that the experience of drawing is an opportunity for revelation prompting potential and non-closure (p. 1).

Drawings in this series combine technological processes that produce drawings with laborious manual drawing activity in order to highlight the experience of drawing and make it visible. Each drawing in the series is the result of experimentation with the laser cutter’s potential to make marks and cut perfect contours that result in unpredictable outcomes. Incised laser-cut contour drawings of wooden school chairs underlie layers of gesso, pigmented wax and powdered graphite. When a torch flame is passed manually back and forth across the gesso surface in a manner that mimics a laser-cutter’s movements, melting wax wicks and finds areas of weakness in the layers in which to pool. Abstractions and new associations develop from the additive and subtractive techniques such as over-layering and scraping that have been used to transform the emerging digital drawing and the pointillist composition of black dots and the linear segments that are pulled to and that sometimes extend beyond the surface using highly physical, participatory, and indeterminate activity.

The notion of technological cutting as mark-making and its association with construction materials invites us to view drawing as building-oriented more than as a mark-making activity. The tactile nature of this series of works suggests that the dimension of their surfaces be felt (literally and figuratively) as construction methods and image-making are conflated. In the end, these works critically challenge the relationship between drawings and three-dimensional
compositions by de-emphasizing the visual in favor of a larger sensorial experience of drawing. Invoking the theory of “ideasthesia” or “sensing concepts” as presented by Nikolic, these drawings embody the idea that cross-sensory modalities create complex semantic networks that extend visual experience by activating a range of our senses.

By invoking a cyclical process in which hand-drawn images that are incised by machines intermingle with direct hand processes that mimic the act of the laser to activate new imagery in a thick but malleable surface, these indeterminate drawings make visible Nancy’s proposition that drawing is a “gift, invention, uprising, or birth of form” (p. 3).

REFERENCES (APA)


Built Drawings: Hive II (Sit, Seep, Weep)

Built Drawings: Hive II (detail)
Built Drawings: Hive 1

Built Drawings: Hive 1 (detail)
Built Drawings: Cluster

Built Drawings: Cluster (detail)
Design as Art • Creative Scholarship

who:ru

Brian Kelly
University of Nebraska-Lincoln

ABSTRACT

“who:ru” (who are you?) was inspired by social media, cartography, and information graphics. “who:ru” is an emergent piece that worked through the interactions of attendees to a regional tech gathering. The intent of this installation was to explore releasing some degree of authorship, and to allow a piece to grow within specific parameters.

To this end, a large scale map of the United States was temporarily projected onto a gallery wall for geographical reference locating the top 50 populated US cities. A single connective string was used to tie them together in sequential order, simultaneously referencing the outer edges of the US through Gestalt effect. Night time satellite imagery of Earth served as a point of inspiration for its ability to communicate density and activity through only points of light. Similarly, each participant was represented through a map pin with demographic information. Attendees were encouraged to locate a custom profile map pin on the city where they were currently working. This profile pin identified each person’s area of work emphasis (architecture, web design, graphic design, startup, advertising, etc.), gender, and number of times they have attended the gathering.

This installation was a twist on social networking except, rather than having a virtual presence, connections are tangible and manifest the conference demographic. Eventually, the projected lines of the map, which we understand as borders between states, were removed. At that point, the only remains were the avatars of people and their relative connection. Data collected was translated into a set of information graphics illustrating the conference demographic.
“who:ru” (who are you?) was inspired by social media, cartography, and information graphics.

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01: Installation process with projected image
02: Top 50 populated cities mapped and connected without national or state bor-
<table>
<thead>
<tr>
<th>City</th>
<th>Population</th>
<th>Population Change</th>
<th>% Below Poverty</th>
<th>Total Land Area</th>
<th>Persons per Square Mile</th>
</tr>
</thead>
<tbody>
<tr>
<td>Omaha, NE</td>
<td>0.215,570</td>
<td>2.9%</td>
<td>16.6%</td>
<td>22.1%</td>
<td>2,119</td>
</tr>
<tr>
<td>New York, NY</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Philadelphia, PA</td>
<td>0.547,607</td>
<td>0.3%</td>
<td>16.6%</td>
<td>27.1%</td>
<td>1,302</td>
</tr>
<tr>
<td>Detroit, MI</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nashville, TN</td>
<td>0.624,496</td>
<td>3.5%</td>
<td>13.6%</td>
<td>1.26%</td>
<td></td>
</tr>
<tr>
<td>Oklahoma City, OK</td>
<td>0.464,310</td>
<td>1.0%</td>
<td>18.8%</td>
<td>5.6%</td>
<td></td>
</tr>
<tr>
<td>Kansas City, MO</td>
<td>0.452,094</td>
<td>2.8%</td>
<td>14.8%</td>
<td>1.4%</td>
<td></td>
</tr>
<tr>
<td>Mesa, AZ</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
04: Interaction instructions to participants with custom fabricated profile elements

**Hey... who:ru**

We want to know who you are and what you do. Grab a map pin and let’s get started creating your profile!

**01: What do you do?**

Select a colored map pin which most closely represents your area of work.

- Blue: Design
- Yellow: Business/Marketing/Advertising
- Green: Social/Political/NFP/NGO
- Red: Academic
- White: Science/Engineering/Technology

**02: Male or Female?**

- Female
- Male

**03: stripes?**

How many times have you been to this conf? Are you a seasoned veteran or new to the scene? Choose a disc with the number of years you have been here.

**04: Where do you work?**

Locate your profile pin on the map in the place where you move a mouse, receive mail, or are otherwise productive.

**05: Wanna connect?**

- Camera
- Twitter
- whoru
06: Collection and compilation of demographic data
07: Social media interaction
09: De-install
Autonomous Botanists

Nicole Koltick
Drexel University

ABSTRACT

The Autonomous Botanist project explores the development of robot that performs relatable yet artificial activities and speculates on the potential for robots who do not serve primarily pragmatic aims but rather ones who have “hobbies”, aesthetic viewpoints and a novel set of behaviors to enact these activities. The project sets up this series of nested relationships to speculate and examine ideas of the beautiful and where exactly agency lies in the creation of such beauty.

This project seeks to explore the poetic and aesthetic potentials of a newly designed robotic species. In developing a more empathetic, nurturing, beautiful species of robot the project seeks to provoke dialogue surrounding the role of future robots in society; how they may look, act and relate to their environments and ours. The robots in this project, called NESL (Nurturing Emergent Synthetic Life) perform synthetic gardening activities. They “plant” crystal seeds of varying colors which over the course of a day grow and bloom into beautiful and delicate formations throughout the landscape. In addition to the development of the robot species, there is a full scale synthetic environment installation for the robots to occupy. The landscape is conceived as a dynamic ecology; its ponds fills with fluid and there are membranes which expand and contract across the surfaces to interact with the crystals and robots contained within.

The project has a variety of components which are explicitly designed and fabricated; custom robots, the robots’ skin, the terrain, the base crystal seed formations, and the range of potential crystal colors. These are developed through a variety of software techniques both algorithmically generated and explicitly modeled. These techniques invoke biological
precedents yet the outcome due to the shift in materials and their synthetic make up, results in something which seems highly familiar and yet incredibly singular. As a design research method, the development of design fiction proposals affords the designer the opportunity to put forth scenarios which allow the viewer to experience the future in novel ways.

One of the primary strengths of this current project lies in its full scale material tangibility. One could quite easily describe or diagram such a scenario. But in the actual design and building of the speculation, many additional layers of the project are able to be developed and examined. This project is interested in presenting to the public a new type of robot which has no pragmatic or rational purpose. Rather NESL’s activities are simply to garden and cultivate a beautiful environment. Their role in shaping this beauty is varied and yet indisputable. While they are programmed by humans, the stochastic outcomes that are set up in the project and engaged through material and chemical processes ensure that multiple non-human agencies supersede the underlying programming of the piece.

By pairing the computational with the material and producing a tangible synthetic ecology, this piece allows viewers to experience a variety of non-human agencies intersecting with aesthetic outcomes. As a tangible artefact of design fiction, this project navigates the lines between art, design, technology and philosophy to examine future issues of robotic agency including empathy towards robots and the creative potential of robot behaviors and aesthetics.
Robot chooses Crystal Seed based on specific color parameters.

1. Robot Gardener Places Crystal Seeds
2. Ponds Fill With Solution
3. Seeds Are Hydrated And Formation Begins
4. Air Bladder Inflates Surface Terrain, Crystals Tumble
5. Crystals Mature In Secondary Locations
6. Crystals Populate Terrain
The First Supper

Mark Nelson
University of Wisconsin-Madison

ABSTRACT

Two families move to a new place, far from their old homes. One family has matching dishes and chairs. The other family has pieced together their table settings, doing what they can. Nevertheless, both celebrate the first day of a new life, joining together as they look to the future. However, the past is never far away, either as reminder or as memory, the past always in view when looking forward to the horizon. Memories can become cleansed, sanitized, but they keep coming, returning to the surface no matter how often they are pushed back into the washing machine. Over time life, like nature, wears away the differences between those who start with more and those who have a little less, and it is ultimately a story about who stays together into the future. Each new day becomes a First Supper as the future beckons just over the threshold.

The First Supper is an installation in a corncrib that is part of a row of ten corn cribs adjacent to community gardens and fields that are part of a new county park. A woman donated her family farm to the county, and it is being converted into a unique site that is both symbolic and practical; Hmong farmers grow vegetables, other farmers grow corn, young people learn job skills, while others come out to watch and celebrate the passing of the seasons with apple cider or bouquets of flowers. The corn cribs are a powerful figure on the landscape with potent symbolic and mythical properties, referencing an individualistic agrarian culture that is metamorphosing into new forms. While they once stored corn, the cribs now store memories and dreams. My installation consists of multiple pieces that reflect different aspects of settling into new places. It is a commemoration of my own childhood as a military dependent, moving every few years and constantly having that First Supper in a new house, a new trailer, a new barracks or a new mess hall. I found myself remembering a past that I had forgotten about as I
put together the pieces for the installation. Christmas in a travel trailer. Sleeping on the floor. Eating in a mess hall. Sharing bathrooms with other families. Living for months in a house with no furniture other than mats on the floor and two chairs. Getting used to new foods, new smells, new climates, meeting new friends.

The corn crib represents a place to return to, while at the same time it does not completely shut out the elements, and holds multiple families, lives and dreams in a close embrace. It is a celebration of making do with what you have, and weathering whatever storms come your way. In addition to the dining table, there are several other intertwined elements to the installation. The washing machine is both reassuring and ominous. It promises to clean the past, rinsing and spinning away unpleasant memories, while at the same time it has the potential to gobble up everything and eliminate good memories as well as bad. The table with the head on it is like a security blanket, offering comfort and presenting a familiar face, while also symbolizing the way time defaces memory, wearing away over the course of a year. The tower of chairs is the reminder of the Last Supper in the old home, never really usable but always hanging around and threatening to obstruct the view. The chandelier and decaying wood items on the ground always have the potential to become something new, but can just as easily clutter the present, and eventually sink into disrepair.

Most of the elements for the installation came from St. Vincent DePaul's Dig and Save Store, which is where things go when they do not sell at the regular thrift stores. These are things that were rejected by people who often had little to begin with. The installation has been up for almost a year, and some things show the effects of time and weather, while others are surprisingly unchanged. The installation evolved as a response to the site and the materials, and the narrative came as things evolved.
Digitally Imprinting Craftsmanship: An Emotional Link Between Functional Design and Sculpture

Felicia Dean
University of North Carolina at Greensboro

ABSTRACT

During the summer of 2015 I attended a sculpture residency in Italy. The purpose of the residency was to investigate how my previous experimental processes of furniture making could be extended to sculpture.

Conceptual Formulation
My intent for the work I created during the residency was to blur the associations users have of art, design, and craft through the application of material experimentation and digital fabrication. My approach investigated whether or not the sewn fabric abstractions used in my previous work transferred to marble sculpture through the use of 3D scanning and a 7-axis robotic arm. Additionally my work informed my previous and future furniture design research of the potential for the fabric manipulation techniques to act as a communicator from the maker to the viewer/user.

Idea Generation
Over the past 5 yrs I have created a body of work that transforms the definition of upholstery and the application of textiles to furniture into a contemporary design approach. My research has investigated the possibility of generating three-dimensional forms and surfaces for upholstered furnishings by incorporating surface relief construction methods from fashion design sewing and patterning techniques. These apparel design approaches are referred to as fabric manipulation techniques. The fabric manipulation techniques allow for textiles to be constructed into undulated and organic topographical surfaces. My treatment of the applications positioned upholstery fabrication beyond a two-dimensional manufacturing
procedure by exploring its potential as a design element and artistic process. The result has been a collection of work that embodies both functional and sculptural form. The inspiration for my previous works developed from my process driven design approach merged with material experimentation. For the work, I sought to include my past process research while identifying a personal connection to the idea and form generation. I combined my experimental research of materials and sewing fabric manipulation techniques with inspiration I received from the geometry of a Blue Hole, located in Long Island, Bahamas. The paternal side of my family is connected to the land, as it was named after the family in Long Island, Bahamas. This natural wonder inspired not only the final sculpture's form but opened my eyes to my family's history.

Creation Process
My research started with adapting previous hand sewn fashion abstraction techniques to a smaller scale form which was inspired by the geometry of the Blue Hole. This resulted in an undulated formed textile surface treatment which was 3D scanned in order to transfer the handmade form into a digital file format. The scanned textile form was merged with a digitally crafted 3D model of the simplified geometry of the Blue Hole. The final digital file was emailed to the engineer at the residency to begin the stone carving process with the 7-axis robotic arm. Before my arrival to the residency, a rough cut enlarged version of my sculpture was completed by interfacing my 3D digital file with the machinery. The robotic arm drilled marble out of the stone block by positioning itself at various angles. Once I arrived at residency I hand carved and hand sanded smooth the rough surface cuts left on the sculpture by the robotic arm's milling process.

Method Used
The methods of making used for the work included both digital and handmade ways of making. A fabric pouch that had a sewn fabric manipulation technique was foam injected. This fabric foam object was scanned and merged with additional digital geometry using Rhinoceros. The final sculpture was created from rough milling the form out with a 7-axis robotic arm, a bit of sanding with pneumatic tools and a month of sanding by hand.
With empowerment and dignity in mind: a New Multi-service Emergency Shelter for Homeless Men and Women

Kenan Fishburne
Florida State University

ABSTRACT

In early 2014, community brainstorming began for a new homeless shelter. Two interior design professors (the authors) were asked to join the design team’s architect and interior designer on the project, with the goal of offering practical ideas and advice informed by their previous shelter design research (hence, this proposal’s category of ‘interior design as an idea’). Working together with the design team, donors, residents, case workers, and the shelter director, the authors proposed a programmatic focus on resident empowerment and dignity, ideas aligned with the owners’ aspirational intentions and a dominant theme in research regarding trauma-informed care.

The choice of programmatic focus is important for shelters, as research by others suggests that homeless residents draw inferences from a shelter’s built environment and its support or suppression of their dignity (Chapin, 1951; Miller, 1992; Miller & Keys, 2001). This in turn, may affect residents’ self esteem and ability to secure stable housing and employment (Burn, 1992). Miller & Keys identified two categories of opportunity for supporting dignity within their research: (1) interpersonal transactions and (2) person-environment transactions (2001). These two ideas are represented in this solution.

The concept of ‘windows of opportunity’ was chosen to reflect a sense of optimism, purpose and potential progress for residents. This idea guided general design guidelines and/or detailed specifications in art, signage, color palette, materiality, furniture space planning, millwork
Design as Idea • Creative Scholarship

design, and lighting. Theories of psychology, illumination, color, art, territoriality, and proxemics influenced these choices.

Fourteen months and hundreds of pro bono hours later, the solution exhibits details by the authors both broad and local in scope that support resident empowerment and dignity through three different means important for this population, explained in the table in the accompanying PDF file. Specific features supporting empowerment and dignity are provided in photo captions with the symbols described in the accompanying images.
Table 1 (in support of the project summary). Design strategies, symbols in photo captions, and need justification of project priorities.

<table>
<thead>
<tr>
<th>Design strategies that support empowerment</th>
<th>Symbol in caption text</th>
<th>Justification for need</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spatial orientation</td>
<td>🔄</td>
<td>Most residents will be new to this facility and in crisis. Residents’ cognitive load/distraction is high, and they require intuitive navigation.</td>
</tr>
<tr>
<td>Human engagement</td>
<td>🤝</td>
<td>Some residents may have been verbally and/or sexually abused and avoid contact. Re-engagement with others is important to rejoining society.</td>
</tr>
<tr>
<td>Positive message</td>
<td>🗣️</td>
<td>Homeless persons are often derided with little positive support offered by others. The places they inhabited before accessing the shelter such as cars, the woods or sofas of friends can be similarly hostile.</td>
</tr>
</tbody>
</table>
Figure 1. The intake area combines intuitive signage, approachable colors, well-scaled lighting and friendly curves. Durable corrugated metal repeats throughout the project and injects a casual feeling. The custom art piece by an art professor embodies the author’s empowering concept through “doors and windows of opportunity”, lending human scale and providing an important wayfinding cue at this central intersection.
Figure 2. The corridor to the dining hall incorporates friendly streetscape and “storefront” effects. Flooring design features ‘welcome mat’ entrances at the case managers’ office doors, prompting meetings with residents who have been known to avoid contact, and who will naturally use this corridor as they wait for the dining room to open.
Figures 3 and 4. Inside the dining hall, a translucent ceiling sculpture selected by the architect provides a soft orange, sun-like color wave that invigorates a straightforward ceiling. Green evokes nature and health and complements the red chairs and wood-tone table tops. Four tops provide flexible community eating arrangements and stacking chairs permit for special activity room setups.
Figure 5. The Men’s and Women’s Wings are introduced with bright way-finding colors (blue as shown here for women, and green for men) in order to ease the cognitive load of residents who can be frustrated and distracted. The communal computer area includes art depicting the original shelter’s humble beginnings and features swivel chairs that right themselves to preserve visual order. This area is intentionally light controlled for ease of computer use. An elevated shelf permits residents to maintain close control over their possessions, easing security concerns. Uplit signage agrees with findings from situated cognition research that suggests people associate virtue and charity with vertical light direction.
Figures 6 and 7. Embodied cognition theory identifies that people tend to associate forward movement with achievement. The Women’s Wing (blue) and men’s wing (green) corridors continue the use of curving forms to inject friendliness and a sense of journey. Large seating benches strategically placed by window views prompt community through impromptu meetings. The gold accent wall indicates an information area where staff help can be found with sleeping dormitory questions as well as towel checkout.
Figure 8. Both men and women’s bathrooms incorporate inspirational quotes at this natural place of morning lingering. Empowerment is subtly reinforced through side illumination of lighting at mirrors that results in fewer shadows under the eyes and nose, making residents feel better about their daily appearance.

Figure 9. Per shelter policy, sleeping quarters are 20-40 beds per room. To inject a sense of ownership, future signage is planned that both identifies the bed’s number to its resident and also permits them to claim the space by writing their name on an integrated chalkboard. For this population, territoriality can be assistive to a positive sense of personal control.
Figure 10. A new art piece entitled “Blue Skies Emerging” designed by one of the authors is planned for the dining room entrance corridor. Its three-dimensional nature will be slowly revealed to residents who wait in the dining room queue line below 📢.
The Waiting Game

Jonathon Anderson  
Ryerson University

ABSTRACT

‘The Waiting Game’ is a small park installed in a downtown parking spot. This parklet is a response to two issues in Downtown Las Vegas: a lack of green space and overcrowded restaurants. The parklet is adjacent to a recently refurbished building containing new restaurants from established and popular chefs. It brings new park space to an impoverished downtown and helps make the dining experience more fun and educational.

During the beginning phase of the project, we worked with community members and organizations. Two community non-profits offered to partner with two practicing academics from Interior Design and Architecture, to not only design but to build the parklet. The non-profits advocate for people living and working in downtowns to connect with nature. They felt the parklet would help their initiatives, and a corporate partner interested in the environment around the building wanted to extend the interior space for their tenants into the street. The result gives a small park space to the downtown community.

For the parklet program, the community wanted a table with seats and an area for standing and having cocktails. As a result, The Waiting Game was designed to be an extension of the interior restaurant spaces and is a public park providing shade from the desert sun. Realizing the inherent design challenge of making a lasting parklet, we turned to durable materials and innovative fabrication methods. Tables, chairs, planters and a deck were built from composite decking. The tables and chairs were wrapped in Corian – typically an indoor countertop material. Las Vegas is a hot environment, and Corian’s durability in the heat made it an excellent material to use as the finish surface on the furniture. The Corian tops were also receptive to digital fabrication methods. We laser-etched game boards on the table surface, so
people could check out games from the local restaurants and play them while they waited for a table or brought their food outside. We inscribed messaging about nature and the indigenous species people could see in and around Las Vegas. The table had a map of the Las Vegas metropolitan area and region with directions to parks, and the chairs and vertical surfaces had digitally etched drawings of the species with interesting facts about them. We placed links to social media sites for people to be able to learn more about the parks and ecosystems around them, extending the park into the virtual realm.

The shading canopy construction included painted steel and polycarbonate panels. A graphic scheme cut from colorful translucent vinyl and adhered to the polycarbonate panels draws attention to the parklet in the busy downtown environment. As the sun moves, the colorful design paints the street, parklet surfaces, and sidewalk. This visual interest and carefully designed furniture provided a space welcoming, comfortable and needed by the growing Downtown Las Vegas community.
The Waiting Game
MT. CHARLESTON

- 45 minutes from parklet
- Cool mountain air and alpine forest environment
- Hiking, biking, skiing and wildlife viewing
- See photos and more at: nature.org/ParkletVegas
etchings and education
painting the street, sidewalk + parklet with color graphics
extending the interior space into the street and giving park space to the downtown community
Hybrid Furniture: Wrapt

Deborah Scott
Ohio State University

ABSTRACT
Utter the word furniture and connotations for function arise. Furniture labels such as “end table” or “coffee table” add specificity that infers context, relationships to space, additional objects within the space and connections to the body. These classifications enable us to communicate about design intention and applicable meaning and roles, but they are limiting. Standards surrounding furniture design may be challenged by today’s spatial needs and current social conventions that call for the creative re-thinking of form.

This re-conception of furniture and its relationship to space and human activities requires us to set aside some notion of what is known. As Arthur Koestler (1964) notes, “the creative act does not create something out of nothing. It uncovers, selects, reshuffles, combines, and synthesizes already existing facts, ideas, faculties, skills. Typically, the more familiar the parts, the more striking the new whole” (p. 121). In other words, a creative re-consideration of furniture invites discovery through renewal.

Wrapt renews the notion that furniture pieces are interdependent. It advocates for vacillating functionality, hybridization and visual and physical movement in a table form. It is a retort to reliance on pre-packaged design for the interior. This table adapts, bends and blends end-table and sofa table dimensions and functions and by extending around a seating unit, offers additional opportunities for display. Its form is a response to the proliferation of the open floor plan, the lack of differentiation between entrance and living space, as well as the lack of definition of circulation paths in the contemporary interior space.
Challenging conventional expectations of what is front and what is back, this table addresses the nondescript sofa back-side and breathes life into it. Upon entering this home, visitors are met with a dynamic linear cherry plane that wraps around a plain Gus Modern sofa. Designed transitions in the plane enhance its dynamic movement and they are accentuated by shifts in grain direction and in horizontal and vertical angular movements. Details in the mitered joinery highlight the points of turning. The legs are designed to emphasize a lift and push as they encourage the perception that the table leans into the sofa to accentuate its literal and non-literal dependence on the sofa. The side extensions support functional needs (as a place to set thing) while adding a sense of mass to the sofa. Dimensioned to fit precisely around the sofa, the two pieces combine to create a complete new unit.

REFERENCES (Other)

Side View

Front/Back/Side View
Erfindsam

Sean Solley
New England School of Art and Design, Suffolk University

ABSTRACT
Despite Berlin’s status as the German capital it remains, for the moment, a melting pot of international artisans enjoying access to affordable homes and work spaces. During a one year sabbatical I examined the cities Open Workshops; a network of co-operative spaces catering to the Maker community. I was particularly interested to examine how digital fabrication has altered Germany’s traditional overlap between technology and craft.

In collaboration with my wife, we developed a series of furniture designs that could be fabricated or “hacked” at these workshops. Each design invites “controlled “ modification. Unlike typical forms of consumption, we believe participation enhances pride of ownership and may keep goods out of the landfill. The process began by focusing on the unique possibilities of Laser cutting, 3D printing and CNC milling. The Arduino Microprocessor, with it’s simplified programming language, enabled us to control our lighting designs electronically. Berlin’s many recycling initiatives enabled us to employ materials exclusive to the cities commercial surplus depots. The re-purposing of resources by digital fabrication became the focus of our work. The resulting furniture and lighting designs, entitled Erfindsam, were fabricated at the FabLab Berlin and exhibited at the DMY International Design Show in June 2015.

Erfindsam is a German adjective, describing the innate human ability to seek out, modify and improve. Each product is designed as a series of component parts that enable non-designers to incorporate the following modifications: The materials must be a plentiful bi-product from a manufacturing process. The designs should be easily assembled; with equipment available from a local hardware store. Fastenings and supplementary components should be manufactured using local 3D printing, CNC routing or Laser Cutting services. The designs advocate for the
support of regional resources and greater reuse of local waste supplies. In recent years cities like Berlin and Barcelona, have promoted Maker spaces as a means to increase local manufacturing and reduce the environmental burden of transporting goods. In the USA, the rise of digital fabrication has revealed a lack of qualified machinists. This has prompted former hubs of industry to invest in their trade schools and develop programs for re-training of the unemployed. These current trends lead us to believe that good design has the potential to be fabricated by communities who would otherwise be denied a foothold on the economic ladder.

At present we are exploring these ideas with disability advocates, marine trade representatives, Departments of Correction and Community Colleges. The economic advantages of local manufacturing reveal a network of unexpected stakeholders. As educators we should expose our students to such complex topics by creating interdisciplinary studios; these would enable designers to appreciate the political and economic factors behind their work. To achieve successful sustainable design strategies we must also enable the customer to understand the environmental impact of their choices. Digital fabrication reveals a way to assume responsibility for the design, manufacture and life cycle of the objects we own.
Erfindsam Collection Berlin

Each of our new products adhere to the following three rules:

The materials must be a plentiful by-product from a manufacturing process.

The resources should be assembled with tools and materials available at the average hardware store.

Fastenings and supplementary components should be manufactured using local digital fabricators; such as 3D printing, CNC routing or Laser Cutting services.
WLK Lighting

The WLK Light comprises of a textile chord strengthened with wire and stabilized with an acrylic diffuser. Every light produces its own unique play of color, light and shadow.
PYL Light

The PYL light comprises of a series of timber towels dressed with textile chord and braced with acrylic collars. The combination of these elements produces a self supporting structure that produces color light and shadow.
PCH Chair

The PCH chair is made from Multiplex plywood and Linoleum. To maximize the use of surplus materials each component is CNC milled to form a kit of parts. The smaller components are combined using tension bands thus avoiding the use of adhesive and mechanical fastenings.
The STG lighting prototype employs high power LED diodes to produce a power low energy light source. The on-board microprocessor enable the light to react to variations in natural light or follow specific instructions selected by the owner.
STP Stool

Inspired by the German “hocker” the STP employs materials and fastenings similar to those of the PCH chair. The rubber tension straps ensure a strong stable form.
The STP Project

This simple but versatile stool has been designed to introduce makers to the CNC router over sixteen sessions.
TPC Chair

The TPC exploits the structural qualities of carpet to produce a flexible and supportive lounge chair.
Creating furniture holds the opportunity to express my theory of humans-object relationships and dwell in the satisfaction of making. Furniture is first an object of utility, but many people choose furniture to suggest more about their identity than how functionally successful an object might be. Considering how humans relate to their objects, I strive to craft furniture that satisfies both beauty and use-value, while planning for an object’s functional effectiveness over its lifetime. The process of Making and using my hands to craft an object is one of the most satisfying aspects of my work. I tend to be fastidious about every proportion and detail, celebrating the machine-like quality of the object’s assembly. I use all the tools available to me, hand, mechanical and digital, to design furniture.

3D printing has exploded internationally and opened new avenues for design and making. Chair 29 showcases my entry into this new frontier of Making. With my love for Making, I designed a chair that other users could also share in the satisfaction of making, customizing and assembling their own chair, yet still have high quality aesthetics and ergonomics. 3D printing is the future of making. Rather than searching the shelves, a 3D printer gives an individual the power to create and make what they need or desire. As with my previous furniture pieces, the mechanical connections are celebrated rather than hidden from sight. To address the size limitations of 3D printers, the chair is assembled from 29 individually printed pieces. Each part can be printed from a 11”x 8” x 8” printer bed. To add flexibility to the chair, alternative bases can be crafted and mounted by the user. The mounting studs located under the seat act as both an attachment for the 3D printed legs or a stud for screw mounting a metal or wood base.
The programmatic goal was to create a comfortable and ergonomic lounge chair designed to accommodate the use of digital devices that can be printed by a consumer level 3D printer. To create an ergonomic chair for using digital devices (like a tablet), the chair has a pronounced lumbar support and high arm rests. Organic and mechanical describe Chair 29’s silhouette. The form was inspired by the proportions of the Eames plywood lounge chair, one of the most comfortable non-upholstered chairs to date. The organic profile of Chair 29 is complemented with subtle angular lines of the legs and chamfered edges. The 29 parts are fastened with stainless allen head bolts, adding to the mechanical maker look. The legs are bone-like in section giving the 3D printed legs superior strength. For even more additional strength, tubular shafts are incorporated into the leg design to add surface area and to accept an optional steel rod for increased stiffness.

Chair 29 is in the prototype testing phase. All the details have been developed and most recently I printed a 3D scale model at 3”=1’. I am moving forward with full-scale testing and investigating additional upholstered possibilities.
Quarter scale 3D-printed model

Chair 29 - 2015
Exploded view
Initial sketches

Chair 29 - 2015

- The back reclines back
- Strong lumbar
- Chair springs back (chair must be low enough to push back with your legs)
- Wood skeleton
- Pays seat back.
- Bumpers on that can be cranked tighter.
- Elong on edge.
- Bubble drafts
- Unpopped hole for optional LED mount
- Hollow shaft for optional steel tube.
Surface Effects: From Object to Atmosphere

Clay Odom
University of Texas

ABSTRACT

The work outlined here is focused on PRODUCTIONS of atmospheres, experiences and effects, that are explored and generated through objects that are the result of design processes, material manipulations, and formal-spatial interventions. The work is an on-going set of installation based projects engaging in theoretical exploration of material, formal and spatial effects. These glamourous and phantasmagoric effects are produced when object-generated spatio-contextual relationships are placed into tension with subject-oriented effects as emergent phenomena and prescribed outcome. Rem Koolhaas has stated that, ‘PERFORMANCE is not function. What role does the building (object) play, and what kinds of scenes does it trigger? ... what does it create? What does it sponsor? And what does it stimulate?’

In this way, productions may be considered as a new condition of performance where design process and outcome is not focused on traditional notions of function. Productions are also transformative in some way; transforming light, surface material, and form as well as transforming space/experience. How are depth and surface explored through research into light? Instead of focusing on traditional notions of use/function or notions of the poetic, we begin by asking simple questions regarding Depth and Surface as related to the poetic, we build on this trajectory of investigation that moves from issues of objects to issues of surface that ultimately generated emergent spatio-atmospheric effects. These productions, effects of light and space, were then re-engaged via surface and form as means of expanding the temporal, subjective potentials of the work.

Description
Using a system comprised of geometries and projections, the project expanded on concepts surrounding the generation of effects and spatial experience expanding on concepts of caustic, interference and the production of patterns as ephemeral, transforming and contemporary approach to the production of glamour as both material, surface affect and magical phantasm.

Context
The existing site is engaged as both a generator and armature for installation. The work expands on the use of rigging as both a physical infrastructural link, tying literally to the existing conditions, and as an extension and material exploration of caustic patterns of productive interference.

Material/Surface
Extending concepts and tests generated previously we propose to further develop the light-weight, reflective surface both for its ability to produce reflective caustics and for its ability to dematerialize. In addition, develop the construction of this surface through the same methods, exploring and investigating how surface articulation may be linked both to textural and lighting effects. This was developed done through laser cutting and seaming patterns. Finally, inflatable of iteration 01 as larger form-based surface articulations rather than as a logic of unit aggregation.

Conclusion
This work can be seen as an on-going exploration of speculative practices situated between contemporary theoretical references from the work of Gernot Bohme (Atmospheres) and Graham Harman (Object Oriented Ontology). Finally, the proposal is understood both a design methodology and material procedure. Ultimately the negotiation of process and method generates conditions that supercede constituencies of the system to produce wonder.
PROPOSED INTERVENTION

EXISTING STAIR

CAUSTIC PATTERN BEGINNING

PROCEDURAL PLANS

LINK TO EXISTING

GENERATE LOCAL PATTERN

CAUSTIC LINENWORK

PROJECT TO FORM

PLAN

"caustic" pattern developed as both generator and material proposition

BSA STAIR
GENERATIVE, PARAMETRIC PATTERNING STUDY
EXPLORING THE PRODUCTION OF CAUSTICS SIMULATIONS
VIA VECTOR-BASED PARAMETRIC TOOLS
THE HIDDEN AND PROPOSED DRIVERS FOR EFFECTS OF SPACE, LIGHT, AND EXPERIENCE
SPATIAL OBJECT AND SPACE-PRODUCING OBJECT CAN BE EXPLORER THROUGHOUT THE LOBBY
8’ minimum clearance

INTERIOR GENERATED

RIGGING
‘INTERIOR’ CONDITION WILL PRODUCE EFFECTS ON GROUND AND CAN BE EXPERIENCED BY VISITOR STANDING UNDERNEATH
INFLATED SECTION

RIGGING @ CEILING, BELOW BEAMS
MATERIAL SEAMS AS RIBS AND ENHANCEMENT OF SURFACE TEXTURE
CAUSTIC SURFACE
ARTICULATIONS LINKING OPTICS,
MATERIAL AND ASSEMBLY
SURFACE EXHIBITING ORNAMENTAL
AND DECORATIVE POTENTIALS
MATERIAL STUDY
POLISHED STAINLESS STEEL, LASER CUT AND FOLDED
Material Expression on the Ground Plane: Domestic Grounds

Nerea Feliz
University of Texas

ABSTRACT

“...Beginning as highly coded, decorated, and staking the claim of civilization of the raw ground, the floor has progressively gained complexity in section (false technical floor) in inverse proportion to the simplification of its surface details.” 1 The standardization of buildings components has often led to the gradual homogenization and banalization of the floor plane. The fact that in most cases the design of floor finishes, and interiors surfaces, has move hands from designers to manufacturers, has frequently reduced the practice of Interior Design to the selection of standardized finishes from a catalog. It is critical that as designers, we persist inquiring about the essence of these surfaces to continue to improve their performance and their material expression.

Domestic Grounds seeks to disclose the potential for tactile stimulation of floor design. Arriving home and taking off our shoes is not a random impulse. Walking barefoot is an ancestral human experience. In the shoeless paradise of the domestic environment, alternating rugs, wood boards and tiles: softness and hardness, warmth and cold, the floor plane is already a celebration of tactility. If we strategically reconsider the way we apply material and form in the design of floors and floor coverings, we can radically increase the performance of these surfaces to include restorative properties and amplify the sensory experience of domestic circulation. In recent years there has been an emergent popular interest in the benefits of walking barefoot followed by a growing amount of literature and professional research on the topic.

This study inquires how floor surfaces in the domestic environment have the potential to improve their performance based on these findings. There are multiple therapeutic advantages
to walking barefoot on uneven surfaces, such as: reduced blood pressure, stimulation of the immune and lymphatic systems and lower anxiety levels among others. According to the National Institute of Health (NIH), on average most sedentary individuals take from 1000-3000 steps per day. A lot of this walking can take place in the domestic environment.

Given that walking barefoot on the street can be a dangerous activity on many levels, the goal of Domestic Grounds is taking full advantage of our household walking routine to invigorate our damaged feet. This is the work of an ongoing material investigation initiated as a moderate imprinted concrete topography and resulting in a tessellated wood floor covering. The design was first modeled digitally and later crafted into a full scale prototype of a portion of the full proposal. Ergonomic principles informed the geometry. The abstract pattern, is composed of three different sized units ranging from ¼” to ½”, corresponding to the ranging scales of the feet’s sensory capability. Domestic Grounds advocates for a carefully designed and controlled return to our pre-shoe, barefoot walking origins. In a very literal way, as Winston Churchill once said: "We shape our buildings; thereafter they shape us."
Domestic Grounds:

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Notes:
Tessellated Floor Covering Prototype.
Tessellated Floor Covering Prototype.
Six Board Chest Project: Experiments in Open Making

Linda Zimmer
University of Oregon

ABSTRACT

A series of prototypes for a contemporary “six-board” blanket chest share intentions with their historic precedent. These are versatility in form and material, cheap and easy production, and ready availability through local production. The six-board blanket chest is a basic element of the Shaker furniture lexicon (Handberg) and other vernacular American furniture traditions (Figure 1).

These chests prioritize utility over decoration. Nonetheless, they are carefully proportioned and constructed. Often constructed of a single wide board cut into six lengths, chests are dovetailed at each corner and fitted with a fixed bottom and hinged top. Size, shape, leg form and inclusion of drawers, tills or trays all varied. Readily available wide softwood boards offered low cost and ease of fabrication but lack the surface qualities of hardwood. Consequently, painted surfaces were common in shaker chests while painted faux grain-patterns emulate more costly hardwoods in non-shaker versions. The elemental form and construction a six-board chest is ideally suited to a beginning design/construction project, whether traditional or experimental. Proportion and scale are an inherent design challenge as is the “logic” of construction including effective use of tools, materials conservation, precision, tolerance and techniques. In this case, the logic is dictated by digital drawings (Rhino), manufacturing techniques (CNC router), and materials (plywood). (Figure 2).

The prototypes shown here reflect their humble hand-made inspiration by reinterpreting hand-cut dovetail joints into simplified box joints. Birch plywood was carved to create machine cut “wood grain” (Figure 3). As in a carefully joined traditional six-board chest, grain pattern is
matched around box sides (Figure 4 & 5). Milk-paint finishes are deployed just as they were in shaker versions, however in digitally made prototypes, only the surface veneer is painted, exposing substrate in both the “end grain” and carved “grain pattern”. As of the writing of this abstract, three versions of the six-board chest have been cut and assembled each refinement leading to a more elemental design more efficient cutting and easier assembly. (fig 6.)

Logical fabrication directives that emerged from the prototyping are as follows. Registration/alignment on the CNC favors designs cut from one side only. Thus internal joinery was changed and the integral drawer was reluctantly abandoned in the third prototype. Distinct differences in “outside” and “inside” cuts mandate radius holes at inside corners this is seen in later prototypes (fig 7). Because early prototypes included symmetrical elements that could be reversed during assembly, joints alternate in later chests so all pieces are “handed” (fig 8). Finally, order of operations in the digital fabrication made it clear that plywood might be best painted prior to cutting, not after assembly as in a typical process. These logical directives are crucial in this project, since the intent is to provide a basic template that can be easily customized.

Indeed, future plans for the project include distribution of the source file to others for further re-interpretation and possible inclusion in the open making movement as typified by the Open Desk platform. Thus the six-board chest might become a new vernacular form, one that is modified and made locally, cheaply and in great variety.

REFERENCES (APA)

Six-Board Chest Project: Experiments in Open Making

Three generations of prototypes have been produced to date.
Figure 1. (for reference to precedent only) Green Painted Pine Blanket Chest sold by Skinner Auction House www.skinnerinc.com/auctions/2680B/lots/384
Figure 2. Simplified Rhino drawings for CNC cut of 2\textsuperscript{nd} generation prototype (red chest)
figure 3. White painted (first generation) six-board chest
Figure 4. White painted (first generation) six-board chest showing matched “grain pattern”

Figure 5. Red painted (second generation) six-board chest showing matched “grain pattern”
figure 6. White prototype (first generation) Red prototype (second generation) and Grey prototype (third generation)
Figure 7. Grey painted six-board chest (third generation) showing surface painting and radius holes at joints
Figure 8. Side of white (first generation) and grey (third generation) chests showing evolution of joinery. Symmetrical side panels (white) to handed panels (grey)
MUTATIONS: The DNA of Twentieth Century Design

Roberto Ventura
Virginia Commonwealth University

ABSTRACT

Background
In February of 2010, an architecture museum hosted a series of lectures entitled “Modern Love.” Still the most successful program ever sponsored by the center, the four-week series described the philosophical origins of modern architecture, its pioneers, and the impact they had on the built landscape. During the winter of 2012, the museum approached the lecturer about translating the series into an exhibit. Instead, a different show was proposed. Rather than focusing on modern architecture, an exhibit examining design more broadly could demonstrate to a wider audience how fashion, graphic design, and the built environment mutated, evolved, and mutually influenced each other during the last century.

Design Team
The lecturer, a faculty member at a local university, assembled a team of five undergraduates and one graduate student from three different design departments (interiors, graphic design, and fashion) to research, curate, design, and (partially) fabricate an exhibit encompassing twenty-eight important designers representing their respective disciplines in MUTATIONS: The DNA of Twentieth Century Design.

Exhibit Parameters
This collaboration called upon the strengths of each team member to give shape to the exhibit in a relatively short amount of time (three months) with an exceptionally modest budget (under $10,000, including fabrication, installation, and image rights) in a space with considerable limitations. The exhibit space at the museum, a beloved mansion on the city’s primary historic boulevard, served as a major revenue generator, as it is a sought after venue for
social functions, especially weddings. Therefore the museum preferred that exhibit work be wall mounted in order to minimize breakdown and re-install during event rentals. To maximize floor space, the exhibit was also to project no more than three inches from the wall surfaces.

**Concept**

Design all shares a common DNA. Through research generated by team members, the parallel threads of philosophy, material, and the challenge of modernity that influenced design became the thrusts of the exhibit. Using A, G, and F tags as metaphorical DNA building blocks, the team established a parti based on the genetics shared by architecture, graphic design, and fashion. Rather than develop a typical wall-mounted exhibit, the team broke the information into discrete panels which, when grouped by decade, read as complete units. The team felt strongly about having an interactive component to the project, but with the tight budget and infrastructural limitations ruling out a digital interface, an analog component was developed. Designers are recognized by the journal they carry, so the team developed a metaphorical sketchbook for each subject in the show.

This artifact was not intended to be precious; on the contrary, the exhibit invited interaction as a way for individuals to delve more deeply into the content. Student members devoted significant time to the project as part of an interdisciplinary outreach studio run by the university, but they also volunteered numerous hours during the summer after their graduation to complete the project. The commitment the designers made to the show was evidenced by the extreme popularity of the exhibit. Selling out days in advance, the opening heralded the most successful exhibition program in the history of the center. Not coincidentally, the MUTATIONS opening was also the occasion for the announcement that the museum would be changing its mission to focus not only on architecture but on the breadth of the design professions.
MUTATIONS The DNA of Twentieth Century Design

soup-to-nuts identity and curation
The DNA of Twentieth Century Design

Mutations: the DNA of 20th Century Design

The Virginia Center for Architecture is pleased to present Mutations: the DNA of the 20th Century exhibition. Sit atia sin coruscus et essit volore sin core sime que num aut omnissi berumqui optae nus inus quia voluptaquae volupta musciatur alit, con estianiae omnist, temqui berum rehene.

Here is no design without. There is no discipline without intelligence.

Paula Scher

Evolution sketches
Form follows function – that has been misunderstood. Form and function should be one, joined in a spiritual union.

Frank Lloyd Wright

Design is neither an assignment nor a material affair; it becomes an integral part of the stuff of life, necessary to...
MUTATIONS The DNA of Twentieth Century Design
There is no design without discipline. There is no discipline without intelligence.
RENAISSANCE MAN

In the Delphos gown, the innovations, craft and intellect of Mariano Fortuny (1871-1949) is in full view. A consummate craftsman, Fortuny sought a universal expression, as did the followers of Futurists and Constructivists. Unlike them, he embraced ancient, manual means and methods.

Son of the Spanish painter of the same name, Fortuny complemented that background with a formal education in chemistry and physics balanced with instruction by Auguste Rodin. Enraptured by theatre, Fortuny developed technical innovations in lighting, including the invention of the dimmer, revolutionizing the performing arts.

This technical and artistic intelligence combined with a pragmatic desire in the Delphos gown: to design a flexible garment for use in as many theatrical productions as possible. At home in classical and modern performances, the Delphos gown also transformed the wardrobes of Western women for the rest of the century.

Deceptively simple, the gown embodies the ethos of minimalist craft to which designers as varied as Mies van der Rohe and Massimo Vignelli adhered. Fortuny uses only silk, sheer and strong and readily malleable to the nuanced contours of the human form. Essentially a tunic, the simple silhouette necessitates minimal material connections, but when required, hand painted Murano glass beads celebrate the seam. Metal weights and threads guarantee the proper drape of the garment.

Each gown was hand-dyed and printed using ancient eastern and western processes. Using both natural and aniline dyes, the silk was treated to layered applications and combinations. Black prints and progressive variety when paired with the pleating to follow allowed infinite flexibility to silk, and progressive variety when paired with the pleating to follow allowed infinite variation.

Michelangelo wrote of the perfection required of the artist: ‘...the artist must be able to see the beauty of nature and the perfect man...’ The Delphos gown is a testament to Fortuny’s capacity to translate and celebrate beauty. As the gown stretches and contracts with the wearer, it becomes alive. Rather than hang like a bag, the construction encourages one to

1 sketchbooks

153
sketchbooks, humbly constructed
MUTATIONS The DNA of Twentieth Century Design
Slow Design: An Evolving Expression of Place and Personality

Tamie Glass & Ulrich Dangel
The University of Texas at Austin

ABSTRACT

Employing slow design principles, this transformative project has evolved over many years (designer’s involvement for the last four) into an architectural exploration of experimental materials and skillfully interwoven spaces. The hands-on team, inclusive of an engaged client who is supportive of the local design and arts community, has worked to orchestrate this one-of-a-kind home that simultaneously embraced the site and finely tuned programmatic needs of the interior.

The slowing of the design process allowed for the revelation of experiences that are often overlooked. Environments and artifacts were examined for their reflective and contemplative potential beyond their perceived functionalities and physical attributes. The inclusion of nature, understanding of the seasons, and the passage of time became the impetus for many decisions. Maintaining privacy and protection from the southern exposure and street, the dwelling focuses on near views while allowing for transparency to the north toward the greenbelt. Careful consideration was given to natural ventilation and daylighting with operable windows strategically placed for cross breezes that work in conjunction with motorized awning windows on the second floor to allow heat to escape. Structural, rammed earth walls containing local soils anchor the house and act as thermal mass and a backdrop to equally distinctive, timeless materials. Environmentally responsible, no-VOC paints and finishes and energy-efficient LED lighting were used throughout as standard practice.

The layout offers a gradient of zones with a series of back-of-house areas on the first floor that are separated from the public face of the house by a semi-private stair. The living and dining
areas were intentionally downsized to allow for a larger kitchen, which is supported by a scullery that serves as an overflow workspace. The second floor hosts private bedrooms and a shared family den and office. Universal design features, including an accessible ground floor bedroom and bathroom, provisions for a future elevator, and a ramped entry from the garage ensure longevity of the home for the owner. Custom metalwork and millwork integrate seamlessly with salvaged and reclaimed materials and artifacts, ranging from the sensible to the sentimental.

The team allowed plenty of time for research, observation, and intuitive changes during design and construction. Similarly, the owner eschewed the ready-made aesthetic resulting from the mainstream process of purchasing all new furnishings and specifying precise locations. Therefore, intimate interior spaces were carefully scaled, planned, and documented to allow the owner to furnish the home with unique, found, and handcrafted pieces and artwork that will be sourced over time.
SLOW DESIGN:
An Evolving Expression of Place and Personality

1. Parking Court
2. Storage
3. Garage
4. Entry Courtyard
5. Dining Room
6. Guest Bedroom
7. Guest Bathroom
8. HVAC Closet
9. Media Room
10. Media Kitchenette
11. Media Bathroom
12. Spa
13. Pool
14. Living Room
15. Kitchen
16. Fish Room
17. Pantry Kitchen
18. Powder Room
19. Attic
20. Mud Room
21. Utility Room
22. Elevator
23. Elevator Shaft
24. Closet
25. Bedroom
26. Den
27. Storage Closet
28. Office
29. HVAC/AV Closet
30. Master Bedroom
31. Dressing Room
32. Master Closet
33. Master Bathroom
34. Screened Porch
35. Roof Deck

1. Tree canopy maximizes shade to the south
2. Rammed earth walls anchor the house
1 Residence is embedded in the sloping site
2 View from guest bedroom into entry courtyard
3 Found grate by owner incorporated into the design
4 Sunken entry courtyard
5 Curved rammed earth wall provides privacy
1 Rammed earth construction provides thermal mass
2 12"x12"x2" end-cut hemlock flooring in living room
3 Rammed earth samples
4 Reclaimed Douglas fir ceiling feature
1 Main kitchen with scullery beyond
2 Folding doors open to pool
3 White oak cabinetry
4 Quartzite countertops and backsplash
1 Scullery with beverage station and china storage
2 Concealed stone-clad cabinet
3 Elevation of main kitchen
4 Main kitchen with view toward scullery and dog run
1 Folded steel plate staircase
2 Reclaimed steel cable railing
3 Upstairs study area
4 Built-in cabinetry in study area, continued in den
1 Master bathroom with feature granite slab wall and sunken tub
2 Granite, limestone mosaic, and bluestone mosaic in shower
3 Concept sketch
4 Elevation of master shower block
5 Nero Marinace granite slab sample
1 Master closet with custom millwork
2 Elevations of master closet
3 Elevation of dressing cabinet
4 White oak master dressing cabinet
1  Guest bathroom with universal design features
2  Guest bathroom with owner's copper sink
3  Media kitchenette
4  Media bathroom
5  Feature sink paired with family heirloom cabinet
6  Reclaimed Moroccan encaustic tiles
1 Found light fixture by client
2 Indoor-outdoor connection at master bathroom screened-in porch
3 Steel structure provides a sense of enclosure on the outside
4 Steel frame doors can fold completely open to extend the kitchen to the pool
Old Mill Hotel, Belgrade

Christoph Körner
Woodbury University

ABSTRACT

In the white city of Old Belgrade, Serbia, near the banks of the Sava River, the historic building of the “Old Mill” was transformed into a 4 Star hotel. The ambitious interior concept embraces and enhances the existing historical structures with new materials, colors and shapes, activating the original qualities of the cultural monument and hence creating a unique visual experience.

The main entrance of the hotel, with a lobby and a reception area, the bar and the restaurant, are located in the existing building complex. The newly built high-rises accommodate the guest rooms and suites, as well as the spa, fitness and service areas. The guest arrives on a slightly raised new plaza, which features old granite stones and wrought iron columns rescued from the Old Mill. A water feature breaks down the traffic noise. The lobby receives the hotel guests with an industrial, open and authentic atmosphere. Reclaimed materials, like bricks from the historical building, were cleaned, repaired and re-integrated. Also the backdrop of the reception counter was made from old machines. Although being transferred into a modern architectural language, natural materials, such as oak and copper, refer to the history of the site. Structurally necessary concrete incision were kept rough, in order to compliment the overall industrial look. These heterogenic materials and functions are then contrasted by a giant white structure, fusing them into a spatial continuum. Acting like a white canvas it displays their different ages and qualities, giving them new life.

This public and rough attitude of the Old Mill complex gradually shifts into a more private and soft environment in the guest rooms. The materials metal and stone are replaced by wood and textile generating a cozy and comforting quality. The concrete structure stays unclad as reminiscence to the industrial heritage and layered with a wall painting as an intellectual place.
for narration, interpretation and spatial extension. The interior of the rooms also feature enormous low windows, customized seating areas and an open and bright bathroom. There are 236 guest rooms and 14 suites with balconies on the top floors. The Old mill building also features a conference center with four meeting rooms, a great banquet hall and an exclusive business lounge on the top of this landmark building.

The overall concept of re-contextualization fuses the local heritage and the contemporary interior design into a singular whole: through grafting between old and new, the spirit of the Old Mill lives on in modern attire and becomes a new local landmark.
Builder Digs: An Office Space for a Construction Company

Kendra Ordia
Texas State University

ABSTRACT

Designer’s Statement
The driving force behind the interior design for a local branch office of an international construction management company was to create an environment showcasing vernacular construction typologies representing original craftsmanship and the uniqueness of the local culture through the use of reclaimed, utilitarian materials embodying an honest attention to detail. The 11,000 square foot tenant finish-out was completed in November 2014 and is located in an office park tucked in to the edge of the Texas Hill Country just west of Austin. The location was selected by the client as they desired to shift from an over-crowded and outdated office space unreflective of their corporate culture and growing project portfolio. They recognized the necessity to work in a more open and collaborative environment to strengthen communication and team transparency. Their new office space needed to allow for planned and sustained growth, integrate technology-rich collaboration zones, and flexible space to support functions ranging from safety training for 20 people to “all-hands” meeting with approximately 100 people. The interiors also needed to permit celebrating the success of the employees and local office without being overtly branded with corporate identity.

The execution of the design, documentation, and construction was an ideal collaborative approach to problem solving. Having previously worked with the construction management project managers on several other projects, communications were enhanced by existing relationships allowing the senior designer to define their space, arrive at solutions to reduce construction costs, and develop optimal schedules with the company’s management of their own project. With the construction manager becoming the client, it became even more
important that the design intent, drawings, and construction detailing withstand intense scrutiny. Furniture and finish selection were an important feature for creating an environment that was relaxed and not overly corporate; the space needed to be durable enough for the mostly-male employees to put their boots up on the table. Local fabricators were contracted for large rolling steel-framed partitions, a reception desk, light fixtures, and the charred wood ceiling.

Extensive amounts of reclaimed wood from a local millworker added texture to the lobby and meeting areas while the existing drywall at the concrete columns was stripped back to expose the structure. Standard ceiling tiles were removed from the open office area where coordination of MEP systems became a design feature highlighted against the concrete structure and suspended wood fiber panels installed to assist with acoustic control. Colors reflective of the brand are seen in controlled locations and become a visible feature breaking the zone of open workstations. A mix of custom and contract pieces combine to create industrial and masculine spaces.

The addition of an old wood bar salvaged from the historic Driskill Hotel in downtown Austin creates a distinctive center piece for daily casual meetings and larger office functions. The author worked as the Senior Interior Design for the entirety of the project and was responsible for concept development, space planning, FF&E selection, construction documentation and administration. Coordination for code reviews, MEP, and life safety were completed with consultants.
BUILDER DIGS: AN OFFICE SPACE FOR A CONSTRUCTION COMPANY

Texas Construction Typologies  Celebrate Built Connections & Craft  No-frills Masculine Aesthetic
By utilizing hybrid rendering methods, the Senior Interior Designer was able to quickly and efficiently discuss design decisions and direction during the schematic design phase. Unique branding elements began at the custom storefront entry which engages with the reception desk and decorative lighting overhead. Finish direction is also addressed through washes of color in the renderings supplemented by physical samples for review. The tenant’s space wraps around the building core as you move from public zones to open workstations pushed towards the exterior windows and private offices lining the back wall of the space.
The open workstations are broken up by various meeting and break-out spaces. The design for three of the huddle rooms take on vernacular design language specific to this region of Texas. Modern, architectural forms are wrapped in blackened steel as a minimally framed window wraps the corner and serves as additional seating for meetings. The timber typology takes advantage of the structural nature of the dimensional lumber as it supports a butterfly roof finished with translucent polycarbonate. Substrates are applied to both sides of the framing allowing for pinnable surface as well as chalk-board writing surface on the outside face. The Cor-ten steel huddle room celebrates the material’s patina and integrates plant material in a nod to the common regional use.
Exposed, weathered materials greet you upon entry as a custom reception desk built by a local artisan contrasts the reclaimed wood-plank wall. The custom charred wood ceiling plane extends from the reception area wrapping back into the training room entry and break area. Ceilings are left exposed as cove lighting highlights the waffle slab above.
Details were kept simple and connections were important aspects for completing the utilitarian construction methods allowing the subcontractors to demonstrate their innovation and skill as collaboration took place on-site during the construction administration phase.
Three custom steel-framed rolling glass doors meet a large sliding wood barn door at the outside corner of the training room. This allows for ultimate flexibility as large portions of the “walls” can be rolled back to allow the training room to open onto the break room containing eclectic seating ranging from wood tables and copper chairs to an exposed stitched leather banquette and chairs. The reclaimed bar fulfills the day to day needs for counter prep in the break area while still functioning as a fully stocked bar during all-hands meetings and celebrations. The distressed leather bar chairs contrast the deeply stained wood and allow for a perch for employees to watch TV beyond the bar during their lunch break.
Technology rich meeting space was crucial for the company as they utilize BIM for project coordination and conflict detection. Video conferencing is also an increasingly common function for these rooms along with the need to review physical drawing sets. The Steel huddle room serves as an enclosed meeting space that is at the threshold of the open office area allowing it to accommodate both external and internal meeting functions. The blue-glass faced meeting rooms create a glowing hub of collaboration among the open workstations while reflecting the primary color of the brand. Subtle blue light is cast into the walkway as natural light fills the 2 meeting rooms.
Natural light fills the break room creating a highly-desired destination within the office. The training rooms serve as ancillary meeting spaces during off hours and have full projection capabilities with writable surfaces on every solid wall – even on the back side of the sliding wood door. Two phone rooms are tucked in with the mass of the main conference room at the end of the hallway and offer a place for a quieter phone call.
The open workstation arrangement was a new setting for the project engineers who would be occupying them. Allowing for visual privacy surfaced as a goal and drove the panel height and orientation. Desks were also arranged so team members could gather around the standing height island and review drawings, submittals, etc. The island’s reclaimed sorghum board countertop add visual interest and depth and offers a surface increasingly interesting by its wear. Storage for non-traditional sized samples or drawings can also be accommodated in the cabinets at the islands. Wood fiber panels are dropped over workstation zones and not only offer acoustical control, but reflect day-light and energy efficient indirect lights back into the work zone.
The client specifically requested that their office interior not have an overly corporate feel, be reflective of the laid-back nature of their employees, and be livable. Locally sourced objects, bespoke pieces, and non-traditional corporate furniture were critical for finishing the space and creating an environment that had character and reflected the unique culture of the local office.
Something Old, Something New

Brian Kelly
University of Nebraska-Lincoln

ABSTRACT

“Something Old, Something New” is a renovation and addition to a 1950’s concrete block house. The homeowners initially thought they would need to add significant square footage to their existing house in order to meet their goals. The design team proved that, with a more efficient layout of the spaces, this would not be necessary. The interior of the home was completely renovated, allowing for a larger kitchen for entertaining, and a small addition to the upper level increased the area of the master suite and provided an intimate exterior space. This solution also removed the need for foundation work, thus decreasing construction cost and time. In an effort to add more life to the exterior and to tie the new work into the existing, a rain screen wraps and collages the two. Entrance to the front and rear of the house is defined by a new wood and steel trellis which assists in transitioning between interior and exterior.
Something Old | Something New
The homeowners initially thought they would need to add significant square footage to their existing house in order to meet their goals. The design team proved that, with a more efficient layout of the spaces, this would not be necessary. The interior of the home was completely renovated and a small addition to the upper level increased the area of the master suite and provided an intimate exterior space. This solution also removed the need for foundation work, thus decreasing construction cost and time.
Eat-in Kitchen
Master Suite
Kent Concert Hall Atrium

Darrin Brooks
Utah State University

ABSTRACT

The new atrium is an addition to a fine arts complex for a newly created arts college on a university campus. The scope of the project included an addition that involved increasing accessibility by adding an elevator, restrooms, and improved circulation. The new atrium allows for entry into the fine arts complex and provides a large open space with a grand staircase. My work as interior designer included furniture, finishes, custom chandeliers, illuminated light panels, carpet patterns, restrooms, and mezzanines.

The concept for the space was to create an environment that represents and embodies the artistic mission of the new college. The objective of the design was to heighten the experience of creative energy through the impression of an upscale hotel lobby. The space needed to be multifunctional by being responsive to day use for students and faculty, as well as evening use during artistic, theatrical, and musical performances. The bold colors in textiles and lighting communicate a contemporary and unspoken message that the arts are alive and flourishing on campus.

This project included many challenges. There was an extremely short design/build time required by the university due to its academic calendar. The main funding source required that the addition bring the existing complex up to code. However, this budget did not seem to include a realistic figure that would create the space originally envisioned. I recommended to the college they meet with potential donors as a way of achieving the mission of the design. Donors and additional funding sources were secured. When limited resources existed for artwork, lighting, and furniture, I used innovative conventions such as built-out illuminated panels with contemporary wall covering as a way of integrating artwork in the space.
The new atrium is upscale, modern, and embodies a creative vibe. The use of materials and color are bold and dynamic. The glass lighting pendants were each hand selected and designed as a visual composition to communicate vitality both day and night. In the evening, the dramatic pendant lighting and illuminated panels create a high-style environment that allows attendees a vibrant place to gather before and after events in the arts complex. Details finesse the space with clarity and style. The objectives of creating a space that brands the college and elevates and energizes the community were met. During the day, the space allows for quiet study areas, as well as collaboration in light-filled areas used for small meetings, which are set against the vistas of the outdoor courtyard. In the evening, the dramatic pendant lighting and illuminated panels create a high-style environment that allows attendees a vibrant place to gather before and after events in the arts complex. The space also serves to instruct design students as they see and use contemporary furniture not seen elsewhere on campus. The atrium is elegant and an exquisitely intimate habitat that combines an impassioned atmosphere and a decidedly different contemporary comfort.
early concepts renderings proposed by architectural firm
Kent Concert Hall Atrium
conceptual models & design communication for custom chandeliers

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Kent Concert Hall Atrium
custom chandeliers accentuate two main seating groups

design communication color & pattern
Kent Concert Hall Atrium
The Collaboratory Assembly: Surface Performance

Clay Odom, Tamie Gladd & Jen Wong
University of Texas

ABSTRACT

The ubiquitous banality of a partition wall is often what prompts clients to reach out for assistance from interior designers and interior architects. The simple question - what can we do with this large expanse? - was the impetus for exploration into the development of teams, methods and assemblies that work collaboratively to address and integrate considerations. From the acoustic functionality and indoor air quality, to questions of beauty through systematized engagement with materials and methods as formal, surface, spatial, and effects producing agents.

Team

The goal of developing a synthesized approach to process and product required the formation of an integrated collaborative team. The team was built consisting of interior designers/interior architects (ID/IA), along with a materials specialist, acoustical engineers, and an indoor air quality scientist. This holistic group engaged continually with each other during the process to share knowledge, insight and outcomes and to inflect the trajectory of the project as a whole.

Materials

During prototyping preliminary lists of raw materials were surveyed and indexed for their inherent response to acoustics and Indoor Air Quality (IAQ) as well as in regard to sourcing, workability, and assembly potentials. Studies yielded the beginning outline of material-oriented potentials which could be evaluated in regard to acoustics and IAQ, and subjectively. Wood veneer and wool felt were selected to maximize visual effect and acoustical performance while minimizing material impact.
Surface
“The field describes the space of propagation, of effects.” Sanford Kwinter
Fundamentally, the processes and products emerging from these tests yielded potentials for synthesis which held both formal and functional implications. Creating a system, through which collaborative interactions of material, form, and technique were pushed, allowed for a re-framed notion of performance to emerge. Here performance was defined as integration of program and function simultaneously engaging ornamental and decorative potential. Although limited, the material palette is rich in color and texture lending the surfacing system maximum potential for variation. Additional layers were developed in the natural pattern of the wood grain and wool fibers, as well as a perforation layer developed from the grain and subtracted from the wood veneer modules. The perforations create a secondary level of acoustical performance, covering more than twenty percent of the module surface.

Perforation logics in consort with the local and aggregate articulation of the units, were derived initially as a response to acoustical considerations. Subsequent studies expanded on the logic of the perforated surface, and the space between units allowing for integrated lighting into the system. By further developing and integrating logics of surface, the general use of lamination as an operational method was advanced. The layered system readily accommodated the insertion of the individual veneer modules and produces maximized installation and compositional flexibility. Finally, as a collaborative collection of methods and processes that help to organize everything from team make-up and design process to prototyping, fabrication, and installation-the system has the capacity to continue to evolve. Ultimately it is this synthetic, collaboratory capacity which may be the most important product of this work.
the collaboratory assembly
surface performance
mapping

Sectional Guidelines and Area Coverage

1. testing location
2. testing expansive application
3. mapping areas of intervention and scale

Average maximum reach: 7'11"
Eye level, standing: 59.5 - 64.5"
Eye level, seated: 44 - 48.5"
Table height: 30"
Seat height: 18"
23 indoor air pollutants were selected as target compounds.

Acoustic testing in various locations
- Reverberation Time
- Impulse Response
- Background Noise
- Noise Monitoring
prototype

Material and Pattern Studies

1 early material studies, laser cut chipboard
2 early material studies, laser cut veneer
3 early material studies, laser cut felt
4 pattern study, cut
4 pattern study, unit, bending
prototpye

Form Studies

1 early surface testing
2 initial visualization of wood grain with system
3 visualization
prototpye
Assembly Studies

1 wood veneer unit test
2 veneer and felt assembly details
3 assembly track development
4 mockup of early track system
prototpye

Assembly Studies

1  system mockup
2  wood grain based perforation test
3  system mockup
4  assembly drawing
prototpye

Perforation and Light Studies

1 2d perforation tests using projected pattern
2 formal and perforation tests using random pattern
3 mockup of form and pattern
prototpye
testing graphics
prototpye

Final Installation

1  detail of assembly.

2  detail of assembly.

3  assembly final.
PANELS
Interior Design History: An Environmental and Contextual Story

Bryan Orthel, Dana Vaux & Erin Cunningham
Kansas State University

ABSTRACT

History is more than facts. Hayden White (1984) contrasts the telling of history with the meanings of ideas. In this context, how and why history is recorded and used matters more than abstract knowledge of data. Accordingly, design history might be used to frame how people understand their environment and lived experience. How can educators teach design history and theory that aids students in understanding the world of ideas and the world of people? How do the stories we tell shape and inform the ways we design? Interior design educators and historians must address broader contextual understanding of history as environmental, ordinary, and grounded in everyday life (Vaux, 2015; Cunningham, 2014). While the design history canon now includes a more realistic representation of gender, ethnicity, and cultural background, it still excludes many voices—not the least, the ordinary human experience (Orthel, 2014; Upton, 2013). This panel looks closely at the impact of design history on design practice and education.

Context

History’s position in interior design curricula is integral to how problems are identified, shaped, and solved. Design history rightly celebrates design as process and product, but must also inform how designers think about problems. The history of design reveals ways that people understood their situations and sought to create futures. These futures were based on contemporary worldviews, understandings, and actions. The 2017 CIDA Standards require that students understand such knowledge and the corresponding worldviews to the extent that they can apply this background in solving future problems. Students may know history as facts (e.g., dates, names, stylistic characteristics), but their use of this knowledge is separate from the
information that is part of their design process. Heuristics and archetypes provide limited demonstrations of what design history represents. Students require integrated awareness of how these ideas are produced and consequently produce society everyday.

Method
The proposed panel consists of three paper presentations (6 minutes each) followed by an interactive discussion activity engaging the audience in how the explanation and use of history shapes design problem solving. The discussion activity will structure connections between ideas for teaching design history in topical and studio courses, and explore how design history methods and theory support CIDA standards. The three papers outline narrative, contextual, and experiential approaches to analyzing history. Although the methods differ, the papers share a theoretical base in the historical conceptualization of everyday, ordinary human experience within built environments.

Outcomes
The presentations and interactive discussion will demonstrate a distinct theoretical framework for design history that offers an alternative to canonical history. The presentations and discussion will explore strengths and weaknesses of this alternative approach for teaching and integrating interior design history in course curricula and research. Examples of history-based instruction in non-history courses will be discussed.

Advancement of Design Knowledge
The discussion of design history as a driver in the creation of solutions and an understanding of broad social and environmental characteristics engages history as an active, integrated component of interior design curriculum. In this context, design history is not abstract criticism, dates, or memorized canons; History helps designers understand the individual value people place in their experience of the everyday world. History explains how we see that world today. History, then, operates as lived experience within an understood past, uncovering larger-scale worldviews that shape future decisions. When history is reframed in this way and actively used in the design process, disciplinary knowledge crosses boundaries and becomes more coherent and relevant for solving design problems.

REFERENCES (APA)


The Virtual Classroom: Does It Have a Future in the Interior Design Curriculum?

Katie Rothfield, Darci Pappano, Scheherezade Marles & Kristin Maki
Florida International University

ABSTRACT

The institution of higher education has changed. Where a college education was once reserved for the elite with deep pockets and/or academic prowess, it is now a widely accessible prerequisite for most careers. According to Mitchell & Leachman (2015), the effects of the Great Recession propelled high school graduates and older workers into classrooms as a means to avoid “dim employment prospects” in order to “retool and/or gain new skills” (p. 9). The intensified demand for a post-secondary education from a modified demographic in the Digital Age not only resulted in increases in the number of students, class sizes, and costs, but it also commanded changes in the methods of instruction.

According to Daymont and Blau, distance learning alleviated many problems faced by overpopulated brick and mortar classrooms by providing unlimited virtual desk space and flexibility to “nontraditional students with inflexible work schedules or transportation challenges” (as cited in Southard, Meddaugh, & France-Harris, 2015, para. 2). Fueled by research that shows “that distance education [is] not only... comparable to traditional instruction, but also...can outperform traditional instruction,... the vast majority of institutions report that online education is a critical part of their long-term strategic plans” (Southard, Meddaugh, & France-Harris, 2015, paras. 2 and 7). Many colleges and universities are incentivizing instructors with monetary compensation for the development of online and hybrid courses. And while entire degrees can now be earned online, the collaborative and interactive nature of the interior design profession causes many interior design educators to question: Is an interior design curriculum truly suited for virtual instruction?
This discussion brings two experienced online educators and a graduate student with online course experience together in the hopes of answering the following questions: Which interior design courses are best and least suited for online instruction, and why? What successes have you had with online courses? What are some of the biggest obstacles you are encountering? What are any unique approaches you are taking or have experienced in the virtual classroom? What do you see as the future of the interior design curriculum online? This panel is designed to help educators ranging from those who currently teach online courses to those who are considering teaching online. The goal is to provide the audience with an understanding of the ways in which online courses can be effectively implemented in an interior design curriculum, to identify the avoidable pitfalls that can undermine the success of the virtual classroom, and to predict the relevancy of online courses in the future of interior design education.

REFERENCES (APA)


Figure 1. Online course module example.
Thinking Through Making: An Analysis of Design Visualization Methods Through the Lens of Cognitive Theory

Dana Vaux, Robert Krikac, Jeff Nordhues & Sarah Urquhart
University of Nebraska, Kearney

ABSTRACT

Problem/Context
Design with a capital "D" is distinctive from scientific and scholarly ways of knowing due to the way designers approach problems and seek solutions. A unique way of thinking, designers problem solve by synthesis, applying a "solution-focused" strategy, while their science counterparts problem solve by analysis, applying a "problem-focused" strategy (Cross, 1982). Both Cross (1982) and Archer (1984) suggest that design thinking involves innovation and originality, resulting in new knowledge synthesized into prescriptions, models, or artifacts. However, despite the theoretical work done over the last 40 years, little is known about the cognitive mechanisms behind design thinking. This panel analyzes design thinking through the lens of three cognitive theories, each paired with a specific visualization method used by designers in the activity of “making”: hand drawing, REVIT computer modeling, and 3D fabricated and hand modeling. The intent of this presentation is to provide theoretically grounded insights into instructional methods aimed at teaching “making” in the interior design curriculum.

Method
Four interior design faculty from three universities will each present a short paper, six to seven minutes in length, followed by a participatory activity. During the first half of the session, presenters analyze design thinking relative to design visualization methods through the lens of seminal cognitive theory. The first paper establishes the theoretical context for the broader
discussion, introducing the highlighted cognitive theories and connecting them to design thinking. The following three papers each examine one method of design visualization relative to a grounding cognitive theory. These three papers explore the cognitive theories as they relate to the development of design thinking through the process of "making," each focusing on a different mode of "making" relative to a specific theory: hand drawing vis-à-vis Vygotsky's scaffolding theory; REVIT digital modeling vis-à-vis cognitive load theory; and 3D fabricated and hand modeling vis-à-vis Piaget's model of learning and cognitive development (Kolb, 1984; Mawson, 2003). The remainder of the session engages the audience with the panel topic through a directed think-pair-share dialogue on the presentation content that evaluates the application of each design "making" method with insights for instruction in interior design courses.

Outcomes
The paper presentations will establish relationships between cognitive theory, design thinking, and design "making." The ensuing participatory dialogue will explore connections between cognitive theory and design visualization instructional methods. It is anticipated that the conversation will raise questions and concerns surrounding the sequencing and integration of design visualization methods and related issues in interior design education.

Advancement of Design Knowledge
The panel session will provide a theoretical context for course content delivery that participants can use to inform their instructional methods. Wells (2013) argues for the necessity of “the inclusion and recognition of distinctive forms of thinking that occurs naturally in designing as essential elements in technological literacy (p 623).” Understanding design thinking enables designers to understand their own processes of "making," adding to the design body of knowledge, and strengthening the design profession. This session advances design thinking by furthering the understanding of design "making" methods through the lens of cognitive theory with potential insights into appropriate applications and instructional methods for interior design curriculum.

REFERENCES (APA)


POSTERS
Using ePortfolios, Comparative Matrices and Decision Webs as Design Decision Making Tools in a Design-Build Studio

Nathan Bicak
Radford University

ABSTRACT

Summary
A design-build studio implements a variety of visual and technology-driven methods in the selection of sustainable products for the design and construction of a tiny house.

Context
As a central component of a multi-semester design-build studio, a group of students are researching sustainable materials and practices to be used in the design and construction of a tiny house (Appendix A). This studio focuses on examining the environmental, political and social impacts of residential spaces. Currently, the course is in its fourth iteration and has been comprised of Interior Design, Business, Geospatial Science, Communications, Media Studies and Journalism students.

Problem
There are innumerable options when considering sustainable products to integrate into the design of a sustainable tiny house. To further complicate the matter, there are many products that advertise as ‘green’ but are not as sustainable as they claim. In order to productively analyze these options, and promote collaborative teamwork, the instructor of the studio established an interdisciplinary research project in which students explore sustainable practices and products for use in the tiny house. “Getting every single person to take real responsibility for a task or area of research seems to be the best way to encourage a productive team dynamic. Everyone
own a part of the collaborative project, and all contributions are important” (Quale, 2012). With the abundance of information this process creates, there is a need to catalogue and synthesize the discovered materials for evaluation and implementation.

Methods of Investigation
Students create ePortfolios as a means of organizing their product research and information gathering (Appendix B). Students examine the sustainability of materials in terms of: economic impacts, ecological impacts, design and space implications, technical information and major disadvantages. They interview industry experts for opinions and guidance as to the viability of the selected materials and products. This exercise compels students to be flexible in the research process; if their industry contact reveals the research trajectory to be fruitless, they must reposition their focus. Each product requires that a written analysis and related artifacts, such as images, web links, and technical data, be posted to the ePortfolio. To date, research topics have included solar power, wind energy, plumbing considerations, heating and cooling, insulation, cladding, interior material options and flooring. In addition to the ePortfolio, students consolidate their findings into a visual matrix (Appendix C). This format allows an in-depth review of a product’s attributes and provides an assessment tool for students to reference as they generate visual decision webs (Appendix D) and make product recommendations.

Outcome
The ePortfolio, comparative matrix and decision webs allow the interdisciplinary research teams to capture and catalogue the materials they discover. The research project concludes with each team proposing the material or product they deem to be most sustainable. An ePortfolio provides an organized means for students to make informed decisions, and allows them to reflect on the entire process as they make their recommendation. In addition, the ePortfolios, matrices and decision webs serve as artifacts to pass on to future generations of the class.

Format
This poster presentation will visually portray the sustainable product research and information gathering process described above by illustrating the progression from an ePortfolio to the comparative matrix and decision webs, accompanied by drawings and photographs of the tiny house design and construction process. The poster will also identify how the materials and practices recommended by the research teams are, or will be, incorporated into the tiny house.
REFERENCES (APA)

Appendix A - Design and construction of the tiny house
Appendix B - ePortfolio pages

topic overview

Part 1
What is it?

Heating and cooling options for tiny houses. Basically we are looking at what will make the inside warm when the outside temperatures are cold and vice versa.

How does it work?

Heating systems that are appropriate for tiny houses are often heated with propane, wood, electricity or solar panels. Cooling systems for tiny houses are mainly going to be electric or passive.

First used? What is the history of the product?

Origin

From the simplicity of sheds to architecture designed to take advantage of natural ventilation human history is full with materials on how to keep cool. Only in the last 100 years has man developed technology that will allow for him to do more than just take advantage of his surroundings to keep cool.

The ancient Egyptians had a great need for air-conditioning. They accomplished this by bringing cold air through the doors of their homes. If they happened to be rich enough, bringing air from across Asia to their homes. When this was an option over land, not sea, they would keep the houses cool with a very good system of ventilation. With very few exceptions, we are still finding how to use natural ventilation to keep cool.

The first method humans used to heat their homes was a simple sapling moved into the center of a room or other small dwelling. This eventually led to the invention of central heating, and the winter was made much more comfortable. The fireplace revolutionized the process when they invented a fire-place to keep the home warm. This process would include hot air from the fireplace that would warm the home.

Wood Burning Stove

Economic advantage/Impact

The cost of The model DS in 900.00 which is roughly 800.00. The cost of the required fuel (wood) which is designed specially for this model is about 4000.00.

Wood Burning Stove

Economic advantage/Impact

The cost of the model DS in 900.00 which is roughly 800.00. The cost of the required fuel (wood) which is designed specially for this model is about 4000.00.

Ecological/Sustainability Advantage/Impact

The emission of CO₂ in combustion products is 0.495% A sustainability advantage would be to use wood fuels to run the heater. This heater is DPTA Approved which means it emits less smoke.

individual product comparisons
## Appendix C - Comparative matrix

### Heating and Cooling

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</tr>
<tr>
<td>- $823.53</td>
<td>- $1213.75</td>
</tr>
<tr>
<td>- No need to purchase fossil fuels</td>
<td>- 74.7% efficiency</td>
</tr>
<tr>
<td>- 74.7% efficiency</td>
<td>- 4 kW heat output</td>
</tr>
<tr>
<td>- 4% CO2 emission</td>
<td>- No need to purchase fossil fuels</td>
</tr>
<tr>
<td>- No fossils fuels</td>
<td>- 74.7% efficiency</td>
</tr>
<tr>
<td>- 4% CO2 emission</td>
<td>- 4 kW heat output</td>
</tr>
<tr>
<td>- Designed to fit in small spaces</td>
<td>- Customizable door colors</td>
</tr>
<tr>
<td>- Customizable door colors</td>
<td>- Designed to fit in small spaces</td>
</tr>
<tr>
<td>- Must have access to seasoned wood must tend fire</td>
<td>- Must be installed in wood, seasoned wood may need to be removed</td>
</tr>
<tr>
<td>- Lack of maintenance can cause fire</td>
<td>- Would be effective and efficient way to heat tiny house</td>
</tr>
<tr>
<td>- Community partner recommended small woodstoves to heat the small area</td>
<td>- Recommended by industry pro</td>
</tr>
<tr>
<td>- <strong>ECONOMIC ADVANTAGE (in):</strong></td>
<td>- <strong>SUSTAINABLE/ECOLOGICAL ADVANTAGE:</strong></td>
</tr>
<tr>
<td>- <strong>FUNCTIONAL ADVANTAGE:</strong></td>
<td>- <strong>PRODUCT IMAGE:</strong></td>
</tr>
<tr>
<td>- <strong>DESIGN AND SPACE REQUIREMENTS:</strong></td>
<td></td>
</tr>
</tbody>
</table>

### Critical View Point #3

<table>
<thead>
<tr>
<th>Critical View Point #3</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Pridiom Elite Series</strong></td>
</tr>
<tr>
<td>- $1,499.00</td>
</tr>
<tr>
<td>- High cost, yet saves money due to all-in-one system</td>
</tr>
<tr>
<td>- 5 year compressor warranty</td>
</tr>
<tr>
<td>- Energy Star certified for eco-friendly use</td>
</tr>
<tr>
<td>- No need for duct or complicated installation</td>
</tr>
<tr>
<td>- Easy maintenance</td>
</tr>
<tr>
<td>- Heats up to 500°F</td>
</tr>
</tbody>
</table>

### Critical View Point #4

<table>
<thead>
<tr>
<th>Critical View Point #4</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>EDGESTAR Portable A/C</strong></td>
</tr>
<tr>
<td>- <strong>Salamander Hobbit</strong></td>
</tr>
<tr>
<td>- A/C Unit $849.99</td>
</tr>
<tr>
<td>- Heater Unit 1068.62</td>
</tr>
<tr>
<td>- Total Price 1508.61</td>
</tr>
<tr>
<td>- Does not include accessories and delivery</td>
</tr>
<tr>
<td>- Diesel fuel is more harmful to the environment than wood or electricity</td>
</tr>
<tr>
<td>- <strong>FUNCTIONAL ADVANTAGE:</strong></td>
</tr>
<tr>
<td>- <strong>DESIGN AND SPACE REQUIREMENTS:</strong></td>
</tr>
</tbody>
</table>

### Critical View Point #5

<table>
<thead>
<tr>
<th>Critical View Point #5</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Solar Radiant Heat System</strong></td>
</tr>
<tr>
<td>- <strong>Salamander Hobbit</strong></td>
</tr>
<tr>
<td>- Very expensive, at over $5000 with do-it-yourself installation</td>
</tr>
<tr>
<td>- Tax Credits are given for houses that use solar energy</td>
</tr>
<tr>
<td>- Solar Energy is the most sustainable of all the options we have considered</td>
</tr>
<tr>
<td>- Solar panels placed on roof</td>
</tr>
<tr>
<td>- Heating system is hidden under the floor</td>
</tr>
<tr>
<td>- System is difficult to install and is expensive</td>
</tr>
<tr>
<td>- Existing floor would have to be removed</td>
</tr>
</tbody>
</table>

---

### Design and Space Requirements

**Salamander Hobbit**
- Designed to fit in small spaces
- Customizable door colors

**LG ArtCool Premier**
- No need for duct or complicated installation
- Easy maintenance
- Heats up to 500°F

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Appendix D - Decision webs
Characters of Creative Interior Space: How Much Are They Universal or Culturally Different?

Ji Young Cho, Jae-sik Lee & Jaewoo Yoo
Kent State University

ABSTRACT

People in North America spend at least 90% of their lives in interior spaces (Repase & Lowrey, 1980). When considering interior space as a design product, we can assess it in terms of creativity level perceived. Understanding characteristics of interior design considered more creative than others is important for design practice and education. Such perception may differ individually according to culture or expertise. This presentation is about findings from a cross-cultural study of characteristics of creative interior design.

Six photos of real interior design images were assessed in advance as high or low in creativity by a focus group of design professionals. The photos were then evaluated by a total 258 participants, constituting four groups: Korean experts, Korean non-experts, American experts, and American non-experts. Participants (a) rated the creativity level of each design, (b) rated the designs in terms of their aesthetic preferences, and (c) assessed four formal attributes in each design: complexity, uniqueness, curvedness, and emotionality. These four attributes were developed from literature review on assessment of creative product (i.e., Bar & Neta, 2007; Hekkert, Snelders, & Wieringen, 2003; Hung & Chen, 2012). The responses were analyzed quantitatively using statistical program.

The analysis result shows that regardless of culture and expertise (a) statistically significant consensus exist in the perception of high creative design versus low creative design among professionals and the four groups; (b) participants preferred creative design; (c) high creative interior design tends to be perceived more complex, unique, curved, and emotional designs than low creative interior design; and (d) high creative design and low creative design were greatly
different in complexity and uniqueness more than in curvedness and emotionality. Cultural or expert differences also emerged: experts’ ratings of creativity and preference correlated with more design attributes than those of non-experts. Non-experts did not use the characteristics as much as experts did in their assessment of creativity or preference for interior design. They may use other aspects for assessment besides the four characteristics provided. In addition, unique design was considered high creative for all groups except Korean non experts, which reveals that the theory that uniqueness to be a predictor of creative product is not universal. Moreover, differently from existing theory (Bar & Neta, 2007), curvedness was not a strong design attribute related with creativity or preference.

The presentation will bring up discussions on how to approach globalization versus localism, particularly in this globally-woven society and design communities.

REFERENCES (APA)


Using Social Innovation, Design Thinking and Co-Creation Research Methods for Solving Real World Challenges Facing a Top Ranked Children’s Hospital

Ann Black
University of Cincinnati

ABSTRACT

The healthcare industry is experiencing unprecedented change and reinvention. The Affordable Care Act, increasing competition for funds and the democratization of healthcare are just a few of the factors currently influencing the design of products, services and systems in the healthcare industry. Each of these factors produces design challenges that can directly impact the optimal patient experience – the ultimate goal for healthcare providers – and opens a space for designers to begin visualizing opportunities to create better solutions for the healthcare industry.

In 1973, Rittel and Webber identified problems addressed by designers – as opposed to natural science problems – as “wicked problems” or problems that are ill-defined. (Rittel and Webber, 1973: 155-169) They defined wicked problems as a “class of social system problems which are ill-formulated, where the information is confusing, where there are many clients and decision makers with conflicting values, and where the ramifications in the whole system are thoroughly confusing.” Some characteristics of wicked problems include no definitive formulation, no stopping rule, and solutions not being true-or-false but rather good-or-bad. Each design problem is essentially unique and is considered a symptom of another problem. These problems (or design challenges) do not have one right answer but an array of possible solutions. If design problems are wicked problems, what is the best way to approach possible solutions in healthcare – especially when dealing with medical professionals who are accustomed to approaching problems that have a definitive answer?
In order to connect medical professionals to design thinking methodology, a non-profit organization utilizes Social Innovation, Design Thinking and Co-Creation Methods through a partnership with institutional sponsors to create successful and collaborative design solutions. These research methods are gaining popularity and prominence as successful problem solving approaches where “the person who will eventually be served through the design process is given the position of ‘expert of his/her experience’ and plays a large role in knowledge development, idea generation and concept development.” (Sanders and Stappers, 2008:12) Medical staff and patients partnered with this non-profit organization are embracing these methodologies and internalizing these methodologies in their own labs and practices.

This unique, academic-industry innovation center was founded in 2007 by a public university and fortune 500 company. The non-profit has completed 50 projects, involving greater than 500 students from industrial, interior and graphic design disciplines, over 40 faculty and 15 corporations and healthcare providers. Interdisciplinary student teams conduct user centered research and development of products and services for living well across the lifespan with an expertise in the 50+ market place. Successful projects that follow the 15-week academic semester using a Design Thinking Process Model will be shared in this poster session.

REFERENCES (APA)


Health Care Guide: Improving Healthcare Utilization and Health Status of Youth Aging out of Foster Care

Background: As youth age out of the foster care system, many lose the benefits and direction, including access to CHECK (hospital clinic) and mandatory medical exams. These youth must manage their own health and well-being while at the same time finish school, find and maintain housing and employment and begin life without any supervision. The 10% of youth who age out of the foster care system each year face this very challenging situation. Research with this population indicates that within 18 months of exiting care, approximately 55% do not have a legal source of income. Half are using substances, and 30% will have been homeless. 40% of women will become pregnant within 18 months of exiting care, and roughly 2 out of 3 will have no idea how to access healthcare. Importantly, this is on top of the challenges they will face in education, employment, and trouble with the law.

Challenge: Create a tool for helping youth navigate healthcare needs as they age out of the foster care system.
Sickle Cell Trait Website

Background: Sickle cell trait (SCT) affects at least 3 million people in the US, primarily African Americans. However, studies have shown that very few individuals of childbearing age are aware of their SCT status in the US, even though information was available through their newborn screening test. Further, parents often do not understand the implications or remember to share the information about SCT with the affected child during adolescence, a key time period when decisions about future reproduction may be made. Thus, increasing the number of adolescents and young adults who are aware of their SCT status and understand the implications could potentially decrease the number of individuals inheriting sickle cell disease (SCD).

Challenge: Create a tool for educating the public about Sickle Cell Trait.
Using Social Innovation, Design Thinking and Co-Creation Research Methods for Solving Real World Challenges Facing a Top Ranked Children’s Hospital

Scholarship of Teaching & Learning

Creating a Model for Patient Centered Care

Challenge: Identify patient centered solutions that re-imagine/re-invent the infusion experience to make it a model of care. Specifically, develop solutions that are patient centered and improve work process efficiencies for clinicians.

Waiting Room: various spaces for individual needs

Reception: Self check in or in person check in; calendar of events

Nurse’s Station and Nourishment Center within Infusion Space
Reviving the Traditional Architecture of the City of Mecca, Saudi Arabia, through Designing Pedestrian Pathways to Improve Walkability and Enhance Pilgrims’ Ritual Experience

Aisha Malibari & Saleh Kalantari
WSU

ABSTRACT

Research Goal
This research focuses on the interior design of the pedestrian pathways and tunnels that pass among the new skyscrapers in the city of Mecca, and that link the edges of the city’s downtown with the holy mosque of Masjid al-Haram. The goal of the investigation is to design a culturally relevant architecture for these passages that will also promote walkability. This can create many benefits for the pilgrims that come to the city, in terms of both health and ritual experience, as well as benefiting the city’s inhabitants in their daily efficiency and human engagement.

Context
The downtown area of the city of Makkah, Saudi Arabia, is currently undergoing architectural changes, and a significant amount of construction work had been undertaken to make the area more convenient for pilgrims and visitors. Makkah receives more than 5 million pilgrims each year, as Muslims from all over the world arrive to perform the Hajj or Umrah journeys (Al-Tawfiq et al., 2015). The government has responded to the city’s popularity by constantly upgrading its facilities to accommodate this massive number of people. Almost all of the historical architecture that once surrounded the holy mosque was destroyed, and now new, modern buildings dominate the environment. There is a growing body of research in the area of public health that examines environmental factors as correlates of physical activity and social
participation (Bellair, 1997; Sugiyama et al., 2007). This literature suggests that the physical environment is a key factor in enhancing human engagement and people’s ability to navigate through the city. There has been little research done, however, on the way in which the design of the built environment can contribute to ritual walking experiences and the spiritual aspects of this engagement. This aspect of the built environment is of fundamental importance in Makkah, since the overwhelming majority of the city’s visitors have a specifically religious goal in mind and believe in the spiritual value of walking toward the center-point of the city.

Research Questions
There are two primary research questions addressed in this study. First, how can pedestrian pathways be designed to enhance visitors’ religious experience and support their goal of moving from ordinary consciousness toward spiritual consciousness? Second, how can these pathways be designed to better link the newly innovative architecture of the city with the ancient traditional architecture that reflects the city’s historical and cultural significance?

Research Methods
The approach to this design problem will be informed by reviewing architectural literature on sense of place, cultural identity, and designing for experience, as well as an examination of the historical architecture of Makkah. The researcher will also review case studies that involved designing pathways for pedestrians in large cities, and in which elements of historical architecture were integrated into modern design, in order to see how designers have solved similar problems in the past. The literature of critical regionalism will also factor into this design research. The information collected during this literature review will be used to develop a theoretical and logical framework for approaching the pathway design in Makkah.

Results and Relevance
The research outcome will be divided into two parts. First, the research will lead to generalizable knowledge about designing for spiritual engagement, synthesized from a diverse review of architectural literature and case studies. Second, the research will lead to a specific design proposal for pedestrian pathways in the city of Makkah informed by the general knowledge developed during the literature review. The outcome of this design will be more walkable and culturally/spiritually relevant interior environment that encourages active human engagement.
REFERENCES (APA)


The Intersection of Space and Pedagogy: Identifying Elements of Classroom Design that Support Innovative Curriculum Delivery

Wendy Hynes & Barbara Young
Purdue University

ABSTRACT

The 2010 National Science Foundation report recommendation to diminish standard lecture instruction in support of active engagement (Reed-Rhoads et. al., 2010; Mason et. al., 2013) prompted an engineering program at a major university to redesign its introductory courses while developing new physical space to support them. As the program continues to grow, and the curriculum continues to evolve, the university is exploring the expansion of additional classroom space for the introductory courses. This poster will explore the design of new classroom spaces which consider the history of previously developed space and changes in pedagogy along with current conditions, projected growth and potential change.

In order to understand how students learn and interact with the current engineering classrooms, a partnership was formed between the interior design research team (consisting of faculty and graduate students) and the university’s School of Engineering Education. Two different classroom types were created in the program’s initial redesign. Each classroom accommodates 120 students. The Classroom Studio resembles a more traditional tiered lecture hall with a single teaching wall; marker boards, projection screens, and instructor podium. Students sit at tables on the tiers, oriented toward the front of the room. The Design Studio resembles a project work room with the instructor podium in the center. Students sit at long rows of counter height tables facing each other. Projection media is present in six locations, along 3 walls with the capability of displaying different material simultaneously. Since its inception, the curriculum and class structure have continued to evolve and grow. To
accommodate 17+ sections of the course, both classrooms are now used simultaneously to teach the same activities. To allow all instructors and students access to both classroom environments, the sections currently alternate between the two regardless of planned activities.

By observing consistent curriculum delivery in the two classroom arrangements, the interior design team will investigate whether the space arrangement impacts activities and behavior of teachers and students. Transformation of space and curriculum delivery for active learning has typically occurred simultaneously as illustrated in projects such as the North Carolina State University Student-Centered Activities for Large Enrollment Undergraduate Programs (SCALE-UP) classroom project, the Technology Enabled Active Learning Project (TEAL) at MIT, the Transform, Interact, Learn, Engage (TILE) classroom experiment at the University of Iowa, and the development of Active Learning Classrooms (ALC’s) at the University of Minnesota (Brooks et. al., 2014).

Few studies, however, have isolated environment changes from curriculum changes to understand the impact for the influence of space on behavior. Data from instructor focus groups and survey will also be used to clarify observations and perceptions regarding efficacy of the two spaces. Results will be used to make recommendations for the design of a single prototype classroom which supports a variety of activities in the delivery of first year engineering education. The poster will incorporate graphics depicting the design solution for a higher-education classroom which supports active learning for first year engineering students including research notes, literature review, programming notes, schematic design, design development and FF&E specification.

REFERENCES (APA)


Perceptions of Interior Design Program Chairs Regarding Credentials for Faculty

Beth Miller
Mississippi State University

ABSTRACT

The acceptable terminal degree requirement for teaching interior design at the university or college level was not clearly established in interior design’s beginning educational development. As recent as the Interior Design Educators Council (IDEC 2014) Annual Conference, a panel discussion addressed areas such as the terminology for master’s degrees in interior design, rationalization for the panels suggested modifications, and plans for adoption of these modifications (Harwood, Weigand, & Dohr, 2014).

Over the past ten years, educators within IDEC have written journal articles, presented at conferences, written chapters in books, and participated in town hall discussions at regional and national meetings concerning the problems that exist with the current state of graduate degrees currently offered in interior design graduate education. Existing graduate programs in interior design and programs that are developing a graduate program need to know the graduate degree that interior design chairs across the United States desire in a candidate applying for an educational position. From data provided by interior design chairs, a preferred degree preference can be identified and the significance of NCIDQ certification can be determined. As many universities move toward online master’s degrees, data obtained will record the acceptance level of an online master’s in interior design as a credential for obtaining a faculty position. Online master’s programs appeal to professionals practicing interior design who would like to pursue a graduate degree without leaving their career. This study can aid graduate programs in their graduate degree program development and has the potential to assist in alleviating the current shortage of qualified interior design faculty.
The purpose of this study is to determine whether program chairs in interior design have a preferred degree credential for candidates seeking a full-time tenure track position or a full-time position at their institution and to determine if there is a correlation between this preference and the program chair's university demographics, their own credentials, as well as their acceptance of an online terminal degree. The results will provide informational data to program chairs as well as candidates seeking employment and undergraduates considering master's programs.

An expert panel and a pilot study were used to review the survey instrument. The pilot study targeted retired interior design program chairs and interior design faculty. Both groups of participants reviewed the survey instrument for clarity and assessment of validity. Suggestions and modification recommendations were implemented. The survey instrument has been launched to interior design program chairs at CIDA accredited universities and colleges. Data will be collected and the compilation and analyzation of data is planned to begin in November.

The poster will exhibit a graphic representation of data and information on a major issue that is facing interior design education. Research questions will be presented which guided the survey instrument development. Numerous charts will exhibit data collected that has implications to the study. Conclusions will be derived from the data and shown on the poster. The poster display will open a dialog of discussion among educators from across the United States and Canada.

REFERENCES (APA)


PERCEPTIONS OF INTERIOR DESIGN PROGRAM CHAIRS REGARDING CREDENTIALS FOR FACULTY

Your participation in this study is voluntary and your responses are confidential. You may refuse to answer any question on this survey. Your participation in completing the survey gives your consent.

Section 1 Demographics
(Please mark your response.)

1. Your age

________________ years

2. Your gender
   a. Female
   b. Male

3. Your Race/Ethnicity
   a. American Indian or Alaskan Native
   b. Asian
   c. Black/African-American
   d. Hispanic or Latino
   e. Native Hawaiian or other Pacific Islander
   f. White
   g. Other please specify _____________________________

Section 2 Professional Information
(Please mark your response.)

4. Your academic rank
   a. Assistant Professor
   b. Associate Professor
   c. Full Professor
   d. Other please specify__________________________

5. Your years in academia

________________ years

6. Your years as interior design program chair

________________ years
7. Your highest level of education.
   a. Bachelor of Science (BS)
   b. Bachelor of Art (BA)
   c. Bachelor of Fine Art (BFA)
   d. Master of Science (MS)
   e. Master of Art (MA)
   f. Master of or in Interior Design (MID)
   g. Master of Architecture (M.Arch)
   h. Doctor of Philosophy (Ph. D.)
   i. Other please specify___________________

8. Your membership in professional organizations (Please check all that apply)
   a. Interior Design Educators Council (IDEC)
   b. American Society of Interior Designers (ASID)
   c. International Interior Designers Association (IIDA)
   d. American Institute of Architects (AIA)
   e. U. S. Green Building Council (USGBC)
   f. American Academy of Healthcare Interior Designers (AAHID)
   g. American Association of Family and Consumer Science (AAFCS)
   h. Illuminating Engineering Society (IES)
   i. International Association of Lighting (IALD)
   j. Other please specify ________________

9. Your certification achieved (Please check all that apply)
   a. National Council for Interior Design Qualification (NCIDQ)
   b. Architect Registration Examination (ARE)
   c. Leadership in Energy and Environmental Design Accredited Professional (LEED AP)
   d. Leadership in Energy and Environmental Design Green Associate (LEED GA)
   e. American Academy of Healthcare Interior Designers (AAHID)
   f. Certified Aging-in-Place Specialist (CAPS)
   g. National Kitchen and Bath Certification (NKBA)
   h. International Association of Lighting Certification (IALD)
   i. Other please specify_________________
Section 3 Program Demographics
(Please mark your response.)

10. Size of your institution (number of students).
   a. Fewer than 1,000
   b. 1,000-2,999
   c. 3,000-4,999
   d. 5,000-6,999
   e. 7,000-9,999
   f. 10,000-14,999
   g. 15,000-19,999
   h. 20,000-24,999
   i. 25,000-29,999
   j. 35,000-39,999
   k. 40,000-44,999
   l. 45,000 and above

11. Size of your Interior Design Program (undergraduate).
   a. Fewer than 25 students
   b. 25-29
   c. 30-49
   d. 50-79
   e. 80-99
   f. 100-119
   g. 120-139
   h. 140-159
   i. 160-179
   j. 180-199
   k. 200 and more

12. College or school location of your Interior Design Program.
   a. Architecture and Design
   b. Architecture, Art, and Design
   c. Department of Art
   d. Department of Design and Merchandising
   e. Department of Family and Consumer Sciences
   f. Design, Art and Design
   g. Engineering and Technology
   h. Human Environmental Sciences
   i. Human Science/Ecology
   j. Interior Design
   k. Interior Architecture
1. Interior Architecture and Design
m. Visual Arts
n. Other please specify_____________________

13. Department location of your Interior Design Program.
   a. Architecture and Design
   b. Architecture, Art, and Design
   c. Department of Art
   d. Department of Design and Merchandising
   e. Department of Family and Consumer Sciences
   f. Design, Art and Design
   g. Engineering and Technology
   h. Human Environmental Sciences
   i. Human Science/Ecology
   j. Interior Design
   k. Interior Architecture
   l. Interior Architecture and Design
   m. Visual Arts
   n. Other please specify_____________________

14. Your institution type
   a. Public
   b. Private
   c. Religious
   d. Proprietary

15. If you answered public institution in #14, are you a land grant university?
   a. Yes
   b. No

16. Regional location of your institution
   a. Pacific West
   b. Midwest
   c. East
   d. South
   e. Southwest
Section 4 Program Information  
(Please mark your response.)

17. Educational levels offered in your Interior Design Program. (Check all that apply.)
   a. Bachelor degree professional
   b. Master’s level
   c. Master of Interior Design (First Professional Degree)
   d. MFA
   e. Ph. D.
   f. Other please specify ____________________________

18. Program length for the educational levels offered in your Interior Design Program.
   a. Bachelor degree professional ________years
   b. Master’s level ________years
   c. Master of Interior Design (First Professional Degree) ________years
   d. MFA ________years
   e. Ph. D. ________years
   f. Other please specify ____________________________

19. Your Interior Design Program is accredited by __________. (Check all that apply)
   a. Council for Interior Design Accreditation (CIDA)
   b. National Association of Schools of Art and Design (NASAD)
   c. National Kitchen and Bath Association(NKBA)
   d. American Association of Family and Consumer Science (AAFCS)
   e. Other please specify _______________________________

20. How many faculty positions in the following categories do you have in your Interior Design Program? (Please list the number)
   a. Full-time tenure track faculty _____
   b. Full-time clinical tenure track faculty ______
   c. Full-time faculty (not in a tenure track position) ___________
   d. Instructor full-time faculty __________
   e. Lecturer full-time faculty ________
   f. Adjunct/part-time faculty ______________
   g. Other please specify __________________________

Definitions:

Full-time tenure track faculty positions are positions that lead to consideration for tenure (National Center for Education Statistics, 2014).
**Full-time faculty positions** are identified by the institution as such and typically those whose initial assignments are made for the purpose of conducting instruction, research or public service as a principal activity (or activities). They may hold academic rank titles of professor, associate professor, assistant professor, instructor, lecturer, or the equivalent of any of those academic ranks (National Center for Education Statistics, 2014).

21. Minimum degree required by your institution for **Full-Time Tenure Track Faculty Positions** employed in your Interior Design Program.
   a. BS
   b. BA
   c. BFA
   d. MS
   e. MA
   f. MID
   g. MFA
   h. M Arch
   i. Ph. D.
   j. N/A my institution does not hire tenure-earning faculty.

22. Minimum degree required by your institution for **Full-Time Non Tenure-Track Faculty Positions** employed in your Interior Design Program.
   a. BS
   b. BA
   c. BFA
   d. MS
   e. MA
   f. MID
   g. MID (First Professional Degree)
   h. MFA
   i. M Arch
   j. DID
   k. Ph. D.

23. Preferred terminal degree for **Full-time Faculty Positions** employed in your Interior Design Program.
   a. BS
   b. BA
   c. BFA
   d. MS
   e. MA
f. MID  

24. Number of open faculty positions at the present time in your Interior Design Program.
   a. Full-time tenure track faculty _____
   b. Full-time clinical tenure track faculty ______
   c. Full-time faculty (not in a tenure track position) __________
   d. Instructor full-time faculty ________
   e. Lecturer full-time faculty ________
   f. Lecturer part-time faculty ________
   g. Adjunct/part-time faculty ________

25. How long have these open faculty positions been available?
   a. Full-time tenure track faculty _____years
   b. Full-time clinical tenure track faculty _______years
   c. Full-time faculty (not in a tenure track position) ___________years
   d. Instructor full-time faculty _________years
   e. Lecturer full-time faculty ________years
   f. Lecturer part-time faculty ________years
   g. Adjunct/part-time faculty ________years

26. When conducting a Full-time Faculty search in a tenure track or non-tenure track, may an applicant substitute work experience for academic credentials to satisfy minimum educational standards outlined in the job description?
   a. Yes
   b. No

27. Please rank the importance of the items below when hiring Full-time Faculty in a tenure track or non-tenure track position with 1 being the most important and 6 being the least important.
   a. Experience in teaching ______
   b. Experience in practice _____
Section 5 Hiring Perceptions

Please mark the response that best describes your agreement or disagreement with respect to each statement using the Likert scale of Strongly Agree, Agree, Disagree, or Strongly Disagree.

28. When conducting a Full-time Faculty search in a tenure track or non-tenure track, only those applicants who have satisfied all of their educational qualifications obtained through traditional education (less than 30% of course content taken via Internet/web) are considered for employment.
   - Strongly agree
   - Agree
   - Disagree
   - Strongly disagree

29. When conducting a Full-time Faculty search in a tenure track or non-tenure track, an applicant who has an online terminal degree granted by an accredited institution is accepted on the same basis as a traditional degree when evaluating a prospective applicant’s educational background.
   - Strongly agree
   - Agree
   - Disagree
   - Strongly disagree

30. When conducting a Full-time Faculty search in a tenure track or non-tenure track, an applicant who has an online terminal degree granted by an online university is accepted on the same basis as a traditional degree when evaluating a prospective applicant’s educational background.
   - Strongly agree
   - Agree
   - Disagree
31. When conducting a Full-time Faculty search in a tenure track or non-tenure track, I would consider an applicant with an undergraduate degree obtained through traditional education (less than 30% of course content taken via Internet/web) and an online terminal degree from an accredited institution equal to an applicant with undergraduate and terminal degrees obtained through traditional education.

☐ Strongly agree

☐ Agree

☐ Disagree

☐ Strongly disagree

32. When hiring a Full-time Faculty in a tenure track or non-tenure track position, I would choose an applicant who has satisfied the educational qualifications obtained through traditional education over an applicant who has an online terminal degree granted by an accredited institution.

☐ Strongly agree

☐ Agree

☐ Disagree

☐ Strongly disagree

33. When hiring a Full-time Faculty in a tenure track or non-tenure track position, I would choose an applicant who has satisfied the educational qualifications obtained through traditional education over an applicant who has an online terminal degree granted by an online university.

☐ Strongly agree

☐ Agree

☐ Disagree

☐ Strongly disagree
34. In your opinion, what would be the ideal qualifications for an applicant to hold when applying for a Full-time Faculty in a tenure track or non-tenure track position at your institution?

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

35. General comment about the survey topic.

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

☐ Yes, I would like to receive a copy of the results of this study
Lighting design: A balancing act

Georgina Gentry
University of Arkansas

ABSTRACT

I like feeling the power of light and space physically because then you can order it materially. Seeing is a very sensuous act--there's a sweet deliciousness to feeling yourself see something. James Turrell

Problem Statement
As design educators and practitioners, we understand the power of light. We know that light determines the perception of objects, details, surfaces, structure, as well as, the emotive quality and visual appeal of spaces. Understanding of the interaction of lighting, color, materials, texture, form, as well as lighting design principles, are key standards for accreditation (CIDA, 2014). Yet, these expectations are difficult to achieve when a dedicated lighting course is the principal mechanism for exploring lighting fundamentals.

Because lighting is a complex subject, a single course commonly focuses on technical topics, such as the physics of lighting, physiology of vision, lighting measurement, color science of light sources, construction drawings, and specifications. As a result, the “art” is often tangential. This approach hardly generates excitement and passion for lighting and frequently results in design solutions where lighting is an after-thought. We've all seen plans and perspectives with ceiling planes perforated by row after row of the ubiquitous downlight.

Methods
To address this issue, our program has made a commitment to integrate experiential lighting activities throughout the studio sequence, beginning in the first year. As studio coursework progresses, the emphasis evolves from documentation of experimental and observational activities associated with the lighting of designed objects to development of interiors that balance sensory and technical dimensions of lighting. Learning goals and strategies used by year
levels are outlined in Table 1 (Appendix 1). The poster will display key student outcomes at each level of the program. Examples of outcomes are included in Appendices 2-5. The poster format will provide conference attendees with the opportunity to review the curricular sequence and thoughtfully assess student understanding and competencies with regard to the application of lighting concepts. Feedback from colleagues will provide us with additional strategies to achieve a balanced approach to lighting design education.

Outcomes/Conclusions
By introducing experiential lighting activities early in the interior design curriculum, initial results suggest that students are thinking more critically about the qualitative and sensory implications of lighting on spaces, objects, and people. As a consequence of early hands-on lighting experimentation with objects and study models, observation, and photo-documentation, upper-level students seem much more eager to "play" with lighting during initial stages of the design process. At work stations, we see clip-on shop lights appear, usually without our urging, as students reconfigure space in study models and investigate the effects of light and shadow. How does light affect textural/tactile qualities of surfaces? Spatial perception? Visual appeal? We are thrilled that students seem to be embracing lessons from earlier studios. It seems they have learned from Junichiro Tanizaki, “We find beauty not in the thing itself but in the patterns of shadows, the light and the darkness, that one thing against another creates.” We hope students will continue to apply these lessons as design practitioners.

REFERENCES (APA)


## Appendix 1

### Table 1. Learning goals and strategies for achieving lighting design competency

<table>
<thead>
<tr>
<th>Year</th>
<th>Semester</th>
<th>Learning Goals/Intentions</th>
<th>Strategies</th>
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<tbody>
<tr>
<td>Year 1</td>
<td></td>
<td>Increase awareness and understanding of effects of light and shadow on designed objects, surfaces, and study models.</td>
<td>Emphasize process over product and experiential learning. Manipulate and experiment with light sources, systematically observe outcomes, photo-document, write analyses, complete hand drawings/renderings.</td>
</tr>
<tr>
<td>Year 2</td>
<td></td>
<td>Increase understanding of influence of lighting on spatial perception.</td>
<td>Manipulate light sources in study models. Introduce 3-dimensional computer modeling.</td>
</tr>
<tr>
<td>Year 3</td>
<td>Semester 5</td>
<td>Demonstrate understanding of influence of lighting on spatial perception, emotive and sensory qualities of space; relationship of lighting and design goals.</td>
<td>Document existing daylighting conditions. Develop physical study model of existing building; experiment with multiple spatial and ceiling configurations, screening devices, and lighting. Photo-document effects of lighting manipulations.</td>
</tr>
<tr>
<td>Year 3</td>
<td>Semester 6</td>
<td>Demonstrate understanding of technical and qualitative concepts in dedicated lighting course. Apply sensory, qualitative, and technical concepts of lighting to studio project.</td>
<td>Perform satisfactorily on quizzes over technical concepts (e.g., lighting functions, light control, lamps, luminaires, energy efficiency, photometrics, calculations) and on written assessment of precedents. Produce annotated lighting process work, daylighting analyses, lighting maps and plans, specifications, custom luminaires, and digitally rendered perspectives to communicate lighting design intentions. Interact with lighting design professionals during schematic and preliminary design phases.</td>
</tr>
<tr>
<td>Year 4</td>
<td></td>
<td>Demonstrate lighting design competency.</td>
<td>Produce schematic and preliminary lighting proposals based on experimentation, lighting/reflected ceiling plans, schedules, and perspectives that sensitively respond to and enhance designed spaces and components.</td>
</tr>
</tbody>
</table>
Appendix 2

Figure 1. First Year: Examples of Experimental Lighting Studies

Assignment 4.1 Notes:
1. **First Lighting: Soft**
   - Creates distorted shadows that make the same image of the object look close to the same shape with little detail or exacting the top and bottom of certain shadows, which usually don’t exist.
   - The reflection is the brightest, the softest, and the most light coming from the front.
   - The shadow from the darkest gray to the lighter white is very low.
   - Shadows are high in darks vs. lights.

2. **Side Lighting: 2 & Soft**
   - Depending on the side receiving the light, there are only some dramatic brightness vs. shadows. The side with the long example of white vs. dark is my goal for the idea of long shadows and a light spot. The light is shining from the corner bottom to the side not receiving light.

3. **Back lighting: Soft**
   - These backs are a good example of low variation in black to white, shading is very dramatic. A gray to medium gray.
   - There is an interesting shadow on the bottom that is shaped like a dead end as the ground to its left.

4. **Down lighting: dark & soft**
   - With the light source being closer to the back, the shadows are much more dramatic. There is a white, pure, black to lighter gray.
   - The shadow on the bottom is the same and strong but it’s moved over from the dead end, a shadow to the light up side of black.

5. **Up lighting: soft & dark**
   - The light sources create dramatic contrast in shadows. It’s much like evening or hitting a candle in a shadow. In the opposite, the shadows are long and pure to white, the shadows from a white light are long and pure to dark gray. It’s hard to get the light source out of the frame, there is color change.

6. **Lighting:**
   - The corners of the shadow are always determined from the floor that is white light to light white, a different light source is different lighting because of the two different light sources.
   - There is a much brighter white shadow on the back plane, caused by the sun light source. The same is going from bright white to light gray.
   - There is a light shadow on the light side of the object on the back plane that has the edge effect of the light.

LIGHT
light + shadow three EXAMPLES

- Physical models
- Exploration/manipulation of light sources, directional qualities, filtering, blocking
- Photo-documentation
- Written documentation

<table>
<thead>
<tr>
<th>Screen</th>
<th>Filtering</th>
<th>Blocking</th>
<th>Open</th>
<th>Colored Wall (color source)</th>
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<tr>
<td>Right Side</td>
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</table>

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Figure 2. Second Year: Examples of Lighting and Spatial Studies
Appendix 4

Figure 3: Third Year: Examples of Lighting Analyses Completed in Dedicated Lighting Course

Retail Lighting: Less is More

Adaptation and Brightness:
The lighting levels within the retail space fail within the adaptive range of the human eye; the store is bright enough to see in but not so bright that a customer would have to squint.

Phototropism:
The space uses phototropism to highlight specific items for sale. The felt and acrylic display cases are lit more brightly than most of the other displays, which draws the eye to the goods within. Additionally, the fiberglass form on the ceiling is lit in a way that is not entirely consistent, which creates a pattern of light on the ceiling that help move the eye through the space.

Vertical Vision:
The designer has chosen to illuminate the fiberglass panels from above, which creates a diffuse ambient lighting in the space. Lighting these vertical surfaces effectively lights the shop without the light appearing to come from any single place.

Less is More:
I think this interior effectively uses the principle of “less is more.” Many retail spaces are over lit, but this one uses gradations of dark and light to create a more dynamic space. Every corner is not brightly and evenly lit, but this adds to the effect and ultimately serves to heighten the customer’s sense of visual interest.

Mood or Spatial Perception:
The designer of this space was aiming for a sense of high-end sterility. The use of a largely monochromatic color palette helps, but it’s the lighting on the fiberglass canopy that really makes this effect successful. The interaction between these two elements creates a sense of futuristic cleanliness that is well-suited to a retail space that is selling high-end goods to the city’s elite.

SNID Boutique by 50atti: http://www.interiordesign.net/projects/detail/2478-
the-boutique-at-the-five-ties-boutique-by-the-five-ties

LESS IS MORE

Adaptation: Even though the center of the retail area is dark with dark displays, people are still able to see under different light levels and it is still appealing and visually comfortable.

Phototropism: Since people notice bright things and tend to ignore dark things, phototropism is effective since the items are well lit and your eye is attracted to the products.

Brightness: The space has adequate brightness levels and the objects are lighted in the environment enough to make them stand out, but is not too harsh on the eye.

Vertical Vision: The space has a bold dark centralized display area. Since people tend to notice things right in front of them, the vertical vision is effective with the lights creating contrast on the background.

The design meets the criteria of “less is more” because the majority of the lighting is focused solely on the products. Visual interest is created towards all of the displays which is very beneficial.

I believe the designer was trying to achieve a positive space, the impression of an openness with the smooth surface and moderate levels of cool lighting.
Appendix 5

Figure 4. Third Year: Example of Schematics/Light Maps and Final Lighting Proposal for Studio Project

Floor Plan
Scale: 1/4"=1'-0"

Appendix lighting is growing and also this is an example of how to incorporate the dynamic scenes and the visual relationships which can make the lighting more interesting. At the time, lighting becomes more independent of the scene. It is important to create a sense of both the space and its use.

Task lighting is associated with specific and varied lighting. It is in the office, the room and the individual who hides a task. Any area that can assist in the processes of working, as well as in the area of working itself.

Longitudinal Section
Scale: 1/4"=1'-0"

The gallery is a lighting for exhibitions to create a dynamic space and working space for the people. The room is employed through a variety of ways. Time, distance and movement control through the dynamic scenes. Through the dynamic scenes, the space is employed through the dynamic scenes. The dynamic scenes are employed through the dynamic scenes. The dynamic scenes are employed through the dynamic scenes. The dynamic scenes are employed through the dynamic scenes. The dynamic scenes are employed through the dynamic scenes.
Exploring Healthcare Illuminance: A Case Study at a Pediatric Hospital

Stephanie Braine & Dr. Paulette Hebert
Oklahoma State University

ABSTRACT

There are many studies published which have examined built environments in hospitals and other medical facilities with regards to physical outcomes and perceived satisfaction in adult patients, but research pertaining to the built environment and pediatrics is sparse. Case studies of built environments are generally lacking. It is hypothesized that inadequate electric lighting may adversely affect pediatric patients. Via empirical field examination of existing conditions in a pediatric unit at a large hospital in the southern Mid-West, researchers compared and contrasted current electric lighting levels for visual tasks (i.e., medical examination, reading, and administering medication) with those recommended by the Illuminating Engineering Society (IES). The IES is considered to be the lighting authority in North America and most locally adopted codes are modeled on IES recommendations.

The examined pediatric site in the current study was chosen due to the researcher’s prior, personal experiences at the facility. The researcher traveled to the site and conducted an existing conditions survey utilizing a digital camera, a tape measure, a light meter, and a paint chip book. The three areas considered in the pediatric unit were: 1) a typical, private patient room, 2) patient room bathroom, and 3) intensive care waiting room. Furniture floor plans, reflected ceiling plans, lighting plans and interior elevations were produced. These drawings, were sketched on-site and later converted to measured drawings utilizing AutoCAD software. Illuminance measurements were taken on horizontal and vertical work planes (i.e., bed surfaces, tabletops etc.) using a digital, Fisher Science Education light meter, model number S90198, which had been “quality certified and ISO 17025 accredited” by a calibration laboratory. Since room finishes contribute to lighting effects, the existing light reflectance values (LRV) were also
estimated by matching wall, ceiling, and floor finishes to a Sherwin Williams’ paint chip book with identified LRV. The current light fixtures’ locations and International Commission on Illumination (CIE) photometric classifications were also documented.

A total of twenty four (N=24) measurements were taken. Analysis of the outcomes revealed that the existing lighting was inadequate in all three areas of the pediatric unit. Only one (n=1, 4.2%) measurement complied with IES standards. Researchers found that CIE classified light fixtures varied. They classified two light fixtures as 100% indirect (wall); one light fixture as 100% direct (wall); nine light fixtures as 100% direct (ceiling) and two light fixtures as general diffuse (tabletop). LRV varied from low to high and were estimated as ranging from 22% - 65% (wall), approximately 85% (ceiling) and 65% (floor). The low light level findings are especially of concern considering the light levels with the greatest deficit were found on the patient’s bed, where vitally important tasks, (i.e., medical examination and administering medicine), may be located. The lower LRV absorbed light and resulting areas may appear dark to patients. The variety of light fixture classifications and locations may begin to compensate for the lower light levels. More studies are needed to compare light levels across multiple hospitals.

REFERENCES (APA)


Table 1

**Preexisting Conditions at Midwest Hospital- Pediatric Patient Room**

<table>
<thead>
<tr>
<th>Target</th>
<th>Vertical/Horizontal</th>
<th>FC- Lights On</th>
<th>FC-Lights Off</th>
<th>FC Sum</th>
<th>LUX Conversion</th>
<th>Recommended</th>
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<td>A- Seating</td>
<td>Horizontal</td>
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<td>B- Infant Bed</td>
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<td>30.1</td>
<td>2.9</td>
<td>27.2</td>
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<td>F- Work Counter</td>
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<td>G- Entry</td>
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<td>4.4</td>
<td>8.4</td>
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<td>0.9</td>
<td>24</td>
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Table 2

**Preexisting Conditions at Midwest Hospital- Pediatric Intensive Care Waiting Room**

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<th>FC Lights On</th>
<th>FC Lights Off</th>
<th>FC Sum</th>
<th>LUX Conversion</th>
<th>Recommended</th>
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<td>G- Wall/ Resting Area</td>
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<td>7.5</td>
<td>80.73</td>
<td>15</td>
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Figure 1.1 Pediatric Intensive Care Waiting Room AutoCAD Drawing
Figure 2.0 Photo of LRV Estimation

Figure 2.1 Photo of Light Measurement Height
Figure 2.2 Photo of Northeast Perspective

Figure 2.3 Photo of Northeast Perspective
Senior Cohousing Residential Design Features for Social Interaction

Melissa Lies & Mihyun Kang
Oklahoma State University

ABSTRACT

By 2050, the percentage of the U.S. population aged 65 and over is projected to reach 20.9% according to the U.S. Census Bureau 2014 Report. Although many new concepts of housing facilities have been developed, older adults are continuously looking for new options. Many older adults are looking for a housing option in which they can take part in a community through their own personal choices and resident management, as well as an environment that will help them feel a sense of belonging due to maintained social relationships (Sugihara & Evans, 2000). One such option for older adults is senior cohousing communities.

These communities are planned residential groupings, usually founded on similar spiritual, social, or political beliefs or other shared values and goals. The communities contain private housing units that have all of the features of conventional homes with the addition of common facilities like open spaces, courtyards, playgrounds, and a common house. The communities allow older adults to live in housing that is specifically designed to provide a support environment for aging, while allowing for social interaction.

The purpose of this study was to examine older adults’ perceptions of which residential design features would be beneficial in senior cohousing. This study sought to understand design features that promote social interaction of older adults. Although opportunities for social interaction between senior cohousing residents are found in the common house and surrounding cohousing environment, this study was focused on interaction within the housing units. Individual interviews and a focus group were conducted. A purposive sample group of 10
older adults in the midwestern senior cohousing community participated in this study. The interviews were conducted in person, with the results audiorecorded and then transcribed by the researchers later. A follow-up focus group consisted of 4 of the original 10 interview participants. Data was analyzed using the computer software NVIVO, which helped annotate the frequency of certain topics to assist researchers in developing recurring themes from the interviews. The discovered themes were used to compose discussion topics for the focus group.

Throughout the focus group, the older adults discussed topics related to design features for social interaction. Design elements can be drawn from their statements in the interviews and focus group, including House Orientation and Proximity, Front Porch, and Great Room. Related to House Orientation and Proximity, participants perceived that the housing units placed on opposite sides of the sidewalk with the houses facing each other promote casual communication that is frequently occurring, unplanned socializing between residents. Having the houses close to one another also allows community relationships to flourish naturally through daily communication. In addition to House Orientation and Proximity, the participants perceived that a Front Porch provides a comfortable atmosphere for social interaction as the space spontaneously encourages visiting with neighbors. Since the senior cohousing units are much smaller than most participants’ previous homes, participants discussed a desire for the kitchen, dining, and living room to be one open space.

Through the use of an open floor plan and higher ceilings, the Great Room concept was perceived as not only a visible means of increasing the feeling of spaciousness within the homes, but also as a way of promoting communication with guests or family members even when in different areas of the home for different tasks. This study exploded features of individual housing units in senior cohousing communities to determine how such features could best allow older adults’ social interaction. The participants of this study were limited to the one midwestern senior cohousing community, and further study can be conducted with senior cohousing residents in other regions.

REFERENCES (Chicago)

Environments for the Impoverished: New Psychological Theories Shape an Opportunity [Imperative?] for Design Research

Jill Pable
Florida State University

ABSTRACT

Those that experience poverty are often afflicted with other issues too, such as substance abuse, mental illness, or domestic violence. These problems breed stress and can in turn affect self-esteem and sense of identity that hinder their recovery (Burn, 1992). Arguably, the poor have the most to gain of all human groups from physical environments that assist them, yet for a variety of reasons many environments such as homeless shelters, psychiatric hospitals and other facilities are substandard, hampered in their ability to deliver care. At least some of this problem is due to lack of information on how to design the built environment for this population (Rog & Buckner, 2007). Both existing and new psychological theories and procedures examine the cognitive operations and emotional needs of impoverished persons, as well as the circumstances that affect their life choices.

A growing consensus of these researchers identifies that persons in these situations are conditioned to reach conclusions that are different than persons without these stressors, and thus, poor persons may hold different perceptions and priorities than formerly was assumed. Several psychological theories in particular are gaining acceptance, and may reveal as-yet unexplored potential ramifications for the built environment. These include:

- Life history theory: people have limited cognitive resources and must make choices based on their past history. Impoverished people under stress often adopt a ‘fast life history’ marked by decisions that are beneficial primarily in the short term, such as stealing rather than buying merchandise (Griskevicius, V. et al., 2013). Such findings point out the reasons behind
seemingly illogical life decisions, and can help build empathy when designing for impoverished users.

- Theories of scarcity: being without food, shelter, and money to pay bills captures the mind such that there is little cognitive load available for other thinking operations (Mullainathan & Shafir, 2013). There may be ramifications in this for built environment wayfinding and signage, for example, and the theory of scarcity points out potential benefits of built environments so in tune with their institutions’ policies that they function at an intuitive level.

- Trauma-informed care: previous mental care systems that disempower staff and hinder client recovery have led to new therapeutic approaches that identify stress as a major impediment (Bloom & Farragher, 2013). In this new approach, attention to both mind and body is penultimate for progress. Environmental implications exist here for lighting, space planning and color, to name but a few, and for environments that deeply support these new institutional policies and procedures of care.

Several studies by the author on these topics have already been completed, and two others are planned (one on psychological constructs poor persons develop about their built environments and the other on how the built environment can encourage positive coping methods). Through this poster session, the author seeks to introduce and explain the potential benefits of built environment research for impoverished persons in general, and invite dialogue with visitors on this array of built environment-related theories. A handout for visitors that provides the literature review’s bibliography will be distributed, along with a visual mind map that shows connections between these theories and human response (see attached image). The intent is to elicit comments that help evolve and grow this beginning mind map further. Lastly, the author hopes to start conversations that may result in collaborative studies with others. Doing so may speed discovery of built environment findings for this often-ignored segment of the population.

REFERENCES (APA)


Klein, A. (2005). The space challenge: IHEs are building facilities and outdoor spaces that are designed to encourage collaborative learning, social interaction, and student wellbeing. University Business (April), 75-78.

Embodied cognition theory
Environmental cues can influence mental states and perceptions.

Life history theory
Low socio-economic status and childhood trauma alter responses to stress.

Mindfulness theory

Cognitive capacity

Situational context: scarcity
mental capacity
physical
economic
health
time

Human response and therapies

Stress

Psychological construct formation*
environmental cues influence mental states and self-identity

Coping responses**

Trauma
Trauma-informed care and the Sanctuary treatment model

* ** Indicates topics of studies in progress by the author.
The History and Future of Design for Dementia in Long-term Care Environments: An Application of Theory and Evidence-Based Design Strategies

Migette Kaup
Kansas State University

ABSTRACT

Interior design has the power to dramatically impact the quality of the experiential nature of any place-type. This impact can be exponentially increased for individuals who rely on good design to assist them with basic functional capacities that maintain their dignity and quality of life. One such place-type is long-term care. These environments provide housing and supportive health-care for the frailest of residents. For a majority of these institutionalized elders cognitive loss is a significant factors of daily life (US Census Bureau, American Community Survey, 2008). These cognitive declines can often result in maladaptive behaviors that must be managed.

In the late 1980’s and early 1990’s (circa) health-care providers (in America) moved aggressively to reduce or eliminate restraint-based procedures to control unwanted or undesirable behaviors. These efforts spurred the recognition of the role of the built environment and specifically the design of the interior as an effective agent in reducing the negative aspects of cognitive decline. There is now a strong body of research and assessment on environments specifically for persons with dementia that includes several well-known instruments such as the Therapeutic Environment Screening for Nursing Homes (TESS+, TESS-NH) (Sloane & Mathew, 1990; Sloane et al., 2002) the Professional Environmental Assessment Protocol (PEAP) (Lawton, et al., 2000) the Environmental Audit Tool (EAT) (Fleming, 2010), and most recently, the Residential Care Environmental Assessment (RCEA) (Topo, Kotalainen & Elonieni-Sulkava, 2012). These instruments have contributed to evidence that specific design features are
beneficial to supporting care for individuals with dementias (Marquardt, Bueter, Morzek, 2014). For examples, research has measured the implications of the physical and social environment and have consistently demonstrated a strong correlation between reduced agitation and the design of the interior environment that supports continuity of self through meaningful artifacts and opportunities for personalized spaces (e.g. Sloane et al, 1998; van Hoof, et al., 2010).

A review of seminal literature (e.g. Cohen & Weisman, 1991) and current research findings (e.g. Lee, Chaudhury, & Hung, 2014) on design for dementia care provides theoretical foundations and current research paradigms for understanding the therapeutic role of the built environment in segregated applications. There is, however, a continued debate about segregation versus integration (e.g. Calkins, 2008; Weyerer, Schaufele, & Hendlmeir, 2010) and, to date, there is little to no evidence that with appropriate attention to therapeutic (interior) design that elders with dementia cannot be equally served within integrated settings. This will be an increasingly important question to explore as individuals and their families will press for the right to age in place even within planned care institutions.

This poster presentation will provide a reflective history of the research in environmental gerontology that has contributed to the current understanding of the therapeutic role the physical environment plays in supporting the care of those with cognitive challenges in long-term care settings. Pictorial, diagrammatic, and narrative case studies of purpose-built special care units (e.g. the Philadelphia Geriatric Center, The Corrine Dolan Center, and Woodside Place) will demonstrate the history of dementia care and design intervention that has fostered evidence-based design thinking to facilitate a more person-centered approach to caring for someone with cognitive loss. Seminal literature (e.g. Cohen & Weisman, 1991) and current research findings (e.g. Lee, Chaudhury, & Hung, 2014) on design for dementia care will be summarized to provide theoretical foundations and current research paradigms for advancing the understanding the therapeutic role interior environment on dementia care. Areas for future research will be posited for discussion.

**REFERENCES (APA)**


Assessing Staff Satisfaction with Indoor Environmental Quality in Assisted Living Facilities

Qun Zuo & Eileen E. MaloneBeach
Central Michigan University

ABSTRACT

Evidence-based design (EBD) and environmental sustainability principles have been increasingly integrated into healthcare environments (Wingler & Hector, 2015). Design of health care built environment has been linked to health and well-being of patients and staff, job satisfaction, retention, and turnover (Kotzer & Arellana, 2008). Yet, evidence-based results addressing employees’ perceptions and demands are sparse. This pilot study contributes to knowledge of Indoor Environmental Quality (IEQ) in Assisted Living Facilities (ALF) by examining job satisfaction and perceived productivity of employees by age and position.

Methods

After initial contacts, surveys were delivered to qualified ALFs in a Midwest state, which were new construction or renovated within the last ten years. Subsequently, returned surveys were picked up at a designated time. Participants (N = 94; n = 85 women) ranged in age 19-73 (M = 34.83; SD = 14.30). Twelve participants (12.8%) had been employed for 10+ years; fourteen (14.9%) for 5-10 years; forty (42.6%) for 1-5 years; twenty-seven (28.7%) had worked less than one year at the facility. In a typical week, thirty-six participants (38.3%) worked 30-40 hours and thirty-four (36.2%) worked 40+ hours. The survey instrument incorporates the Occupant IEQ Survey, developed by the Center for the Built Environment, and the Leadership in Energy and Environmental Design rating criteria. It comprised 11 sections, seven of which are discussed in this study (N = 43 items), including Personal Background, Workspace Location and Layout, Thermal Control and Comfort, Air Quality, Lighting and View, Acoustic Quality, and Cleanliness and Maintenance.
Analysis
Data were entered into SPSS v22. Nonparametric variables were examined through Kruskal-Wallis, Mann-Whitney U, and Spearman’s Rank-Order Correlation Coefficient Tests. Measures of association, bivariate, and multivariate relationships were analyzed among age groups and work positions.

Findings
Employees responded to questions concerning their satisfaction with IEQ of the facility. Table 1 shows statistical significances of employee satisfaction with ten IEQ criteria including: amount of work space, temperature, air quality, amount of light, visual comfort of light, level of noise, level of visual privacy and sound privacy, cleanliness and maintenance. Table 2 documents statistical significances of the perceived productivity across six major IEQ criteria. A significant positive correlation was found between satisfaction with IEQ criteria and productivity. Further analysis of employees’ satisfaction with IEQ focused on age. Participants were divided into three groups: Group 1 (N=46): 19-30 years old, Group 2 (N=30): 30-50 years old, and Group 3 (N=17): 51-73 years old. Table 3 shows that Group 1’s satisfaction was significantly lower than the other two groups in workspace filling and storage, temperature, productivity influenced by thermal comfort, air quality, and cleanliness, as well as productivity influenced by air quality. Group 1 identified six factors that caused poorer air quality: stuffiness/staleness, cleanliness, odors, tobacco smoke, feces, urine, and body fluids, and use of perfumes and air refreshers. All differences were statistically significant. Table 4 indicates there are significant differences between two categories of job positions: MED staff (N=76) refers to direct care staff; Non-MED staff (N=18) comprises activity staff. Satisfaction differences were in the cleanliness of air, odors, cleanliness regarding spills and debris, cleaning trash cans, as well as overall satisfaction with cleanliness and their influence on productivity.

Conclusions
Results suggest a positive work environment for employees in newer ALFs and imply significant variation on the perception of the work environment between age groups and job positions. The results can aid ALF stakeholders in understanding users’ demands and in improving IEQ conditions for various users.

REFERENCES (APA)


Table 1. Chi-Square ($\chi^2$) Goodness-of-Fit: Satisfaction on IEQ Criterion.

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Amount of Work Space</th>
<th>Temperature</th>
<th>Air Quality</th>
<th>Amount of Light</th>
<th>Visual Comfort of Light</th>
<th>Level of Noise</th>
<th>Level of Visual Privacy</th>
<th>Level of Sound Privacy</th>
<th>Cleanliness</th>
<th>Maintenance</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Observed Frequency</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Very dissatisfied</td>
<td>3</td>
<td>8</td>
<td>4</td>
<td>6</td>
<td>3</td>
<td>0</td>
<td>2</td>
<td>6</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Somewhat dissatisfied</td>
<td>12</td>
<td>18</td>
<td>12</td>
<td>4</td>
<td>4</td>
<td>3</td>
<td>10</td>
<td>20</td>
<td>10</td>
<td>7</td>
</tr>
<tr>
<td>Neutral</td>
<td>23</td>
<td>25</td>
<td>35</td>
<td>16</td>
<td>22</td>
<td>35</td>
<td>25</td>
<td>21</td>
<td>16</td>
<td>12</td>
</tr>
<tr>
<td>Somewhat satisfied</td>
<td>19</td>
<td>29</td>
<td>22</td>
<td>19</td>
<td>24</td>
<td>24</td>
<td>18</td>
<td>26</td>
<td>26</td>
<td>29</td>
</tr>
<tr>
<td>Very satisfied</td>
<td>35</td>
<td>14</td>
<td>21</td>
<td>48</td>
<td>40</td>
<td>31</td>
<td>38</td>
<td>19</td>
<td>40</td>
<td>44</td>
</tr>
<tr>
<td>Total (N)</td>
<td>92</td>
<td>94</td>
<td>94</td>
<td>93</td>
<td>93</td>
<td>93</td>
<td>93</td>
<td>92</td>
<td>92</td>
<td>3</td>
</tr>
<tr>
<td>Degree of Freedom (df)</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>3</td>
<td>4</td>
<td>4</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>P Value (p)</td>
<td>.000</td>
<td>.005</td>
<td>.000</td>
<td>.000</td>
<td>.000</td>
<td>.000</td>
<td>.000</td>
<td>.017</td>
<td>.000</td>
<td>.000</td>
</tr>
</tbody>
</table>

Note. ***$p < .0001$. **$p <= .005$. *$p < .05$
Table 2. Chi-Square ($\chi^2$) Goodness-of-Fit: Perceived Productivity – Whether IEQ criterion enhance or interfere your ability to get job done.

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Work Space Layout</th>
<th>Thermal Comfort</th>
<th>Air Quality</th>
<th>Lighting Quality</th>
<th>Acoustic Quality</th>
<th>Cleanliness and Maintenance</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Observed Frequency</td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Interferes</td>
<td>4</td>
<td>6</td>
<td>2</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Somewhat interferes</td>
<td>17</td>
<td>25</td>
<td>10</td>
<td>7</td>
<td>10</td>
<td>6</td>
</tr>
<tr>
<td>No effect</td>
<td>38</td>
<td>52</td>
<td>68</td>
<td>52</td>
<td>58</td>
<td>45</td>
</tr>
<tr>
<td>Somewhat enhances</td>
<td>20</td>
<td>5</td>
<td>5</td>
<td>16</td>
<td>12</td>
<td>20</td>
</tr>
<tr>
<td>Enhances</td>
<td>15</td>
<td>6</td>
<td>8</td>
<td>16</td>
<td>12</td>
<td>20</td>
</tr>
<tr>
<td>Total (N)</td>
<td>94</td>
<td>94</td>
<td>93</td>
<td>91</td>
<td>93</td>
<td>93</td>
</tr>
<tr>
<td>Chi-Square ($\chi^2$)</td>
<td>32.277***</td>
<td>88.234***</td>
<td>165.978***</td>
<td>52.516***</td>
<td>108.774***</td>
<td>61.032***</td>
</tr>
<tr>
<td>Degree of Freedom (df)</td>
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<td>4</td>
<td>4</td>
<td>3</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>P Value (p)</td>
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<td>.000</td>
<td>.000</td>
<td>.000</td>
<td>.000</td>
<td>.000</td>
</tr>
</tbody>
</table>

Note. ***$p < .0001$.  

Table 3 Kruskal-Wallis Test: Summary of IEQ criterion that have statistically significant differences among three age groups (p < 0.05):

<table>
<thead>
<tr>
<th>IEQ Criteria</th>
<th>Age Group</th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Age (year)</td>
<td>19-30</td>
<td>31-50</td>
<td>51-73</td>
</tr>
<tr>
<td>N</td>
<td></td>
<td>46</td>
<td>30</td>
<td>17</td>
</tr>
<tr>
<td>Years Worked in the facility</td>
<td>Mean Rank</td>
<td>35.55</td>
<td>58.02</td>
<td>58.53</td>
</tr>
<tr>
<td></td>
<td>Chi-Square</td>
<td>18.375</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td></td>
<td>df</td>
<td>18.375</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Asymp. Sig.</td>
<td>.000</td>
<td>.000</td>
<td></td>
</tr>
<tr>
<td>Hours spent in the facility in a typical week</td>
<td>Mean Rank</td>
<td>36.85</td>
<td>56.60</td>
<td>57.53</td>
</tr>
<tr>
<td></td>
<td>Chi-Square</td>
<td>14.504</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td></td>
<td>df</td>
<td>14.504</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Asymp. Sig.</td>
<td>.001</td>
<td>.001</td>
<td></td>
</tr>
<tr>
<td>Work Space</td>
<td>Satisfaction with filing space</td>
<td>Mean Rank</td>
<td>40.32</td>
<td>56.38</td>
</tr>
<tr>
<td></td>
<td>Chi-Square</td>
<td>6.988</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td></td>
<td>df</td>
<td>6.988</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Asymp. Sig.</td>
<td>.030</td>
<td>.030</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Satisfaction with storage space</td>
<td>Mean Rank</td>
<td>41.65</td>
<td>58.15</td>
</tr>
<tr>
<td></td>
<td>Chi-Square</td>
<td>11.992</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td></td>
<td>df</td>
<td>11.992</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Asymp. Sig.</td>
<td>.002</td>
<td>.002</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Adjust a thermostat in public areas</td>
<td>Mean Rank</td>
<td>46.26</td>
<td>53.40</td>
</tr>
<tr>
<td></td>
<td>Chi-Square</td>
<td>6.159</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td></td>
<td>df</td>
<td>6.159</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Asymp. Sig.</td>
<td>.046</td>
<td>.046</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Satisfaction with temperature</td>
<td>Mean Rank</td>
<td>38.78</td>
<td>55.50</td>
</tr>
<tr>
<td></td>
<td>Chi-Square</td>
<td>8.988</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td></td>
<td>df</td>
<td>8.988</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Asymp. Sig.</td>
<td>.011</td>
<td>.011</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Thermal comfort enhances or interferes ability to get job done</td>
<td>Mean Rank</td>
<td>40.74</td>
<td>50.18</td>
</tr>
<tr>
<td></td>
<td>Chi-Square</td>
<td>7.220</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td></td>
<td>df</td>
<td>7.220</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Asymp. Sig.</td>
<td>.027</td>
<td>.027</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Rate air quality – stuffiness/ staleness</td>
<td>Mean Rank</td>
<td>43.24</td>
<td>44.93</td>
</tr>
<tr>
<td></td>
<td>Chi-Square</td>
<td>6.556</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td></td>
<td>df</td>
<td>6.556</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Asymp. Sig.</td>
<td>.038</td>
<td>.038</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Rate air quality – cleanliness</td>
<td>Mean Rank</td>
<td>43.08</td>
<td>45.73</td>
</tr>
<tr>
<td></td>
<td>Chi-Square</td>
<td>6.123</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td></td>
<td>df</td>
<td>6.123</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Asymp. Sig.</td>
<td>.038</td>
<td>.038</td>
<td></td>
</tr>
<tr>
<td>Category</td>
<td>Asymp. Sig.</td>
<td>Mean Rank</td>
<td>Chi-Square</td>
<td>df</td>
</tr>
<tr>
<td>-----------------------------------------------</td>
<td>-------------</td>
<td>-----------</td>
<td>------------</td>
<td>----</td>
</tr>
<tr>
<td>Rate air quality – odors</td>
<td></td>
<td>40.02</td>
<td>49.33</td>
<td>61.76</td>
</tr>
<tr>
<td>Contribution to poorer air quality – tobacco smoke</td>
<td></td>
<td>50.45</td>
<td>45.50</td>
<td>40.32</td>
</tr>
<tr>
<td>Contribution to poorer air quality – feces, urine, body fluids</td>
<td></td>
<td>56.62</td>
<td>41.72</td>
<td>30.29</td>
</tr>
<tr>
<td>Contribution to poorer air quality – perfumes, air fresheners</td>
<td></td>
<td>48.43</td>
<td>50.08</td>
<td>37.68</td>
</tr>
<tr>
<td>Air quality enhances or interferes ability to get job done</td>
<td></td>
<td>43.88</td>
<td>42.47</td>
<td>63.44</td>
</tr>
<tr>
<td>Ringing phones make hearing difficult in staff work space</td>
<td></td>
<td>53.15</td>
<td>40.55</td>
<td>41.74</td>
</tr>
<tr>
<td>Satisfaction with cleanliness</td>
<td></td>
<td>40.90</td>
<td>50.45</td>
<td>57.41</td>
</tr>
</tbody>
</table>

Acoustic Quality

Cleanliness
Table 4 Mann-Whitney U Test: Summary of IEQ criterion that have statistically significant differences between MED and Non-MED staff (p < .05):

<table>
<thead>
<tr>
<th>IEQ Criteria</th>
<th>Group</th>
<th>MED</th>
<th>Non-MED</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>76</td>
<td>18</td>
</tr>
<tr>
<td><strong>Air Quality</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rate air quality – cleanliness</td>
<td>Md$_n$</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Mann-Whitney U</td>
<td>491.000</td>
<td>.039</td>
</tr>
<tr>
<td></td>
<td>Asymp. Sig. (2-tail)</td>
<td>.21</td>
<td></td>
</tr>
<tr>
<td>Rate air quality – odors</td>
<td>Md$_n$</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Mann-Whitney U</td>
<td>465.000</td>
<td>.027</td>
</tr>
<tr>
<td></td>
<td>Asymp. Sig. (2-tail)</td>
<td>.23</td>
<td></td>
</tr>
<tr>
<td><strong>Cleanliness</strong></td>
<td>Md$_n$</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>Mann-Whitney U</td>
<td>459.000</td>
<td>.022</td>
</tr>
<tr>
<td></td>
<td>Asymp. Sig. (2-tail)</td>
<td>.24</td>
<td></td>
</tr>
<tr>
<td>Spills and debris</td>
<td>Md$_n$</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Mann-Whitney U</td>
<td>531.000</td>
<td>.027</td>
</tr>
<tr>
<td></td>
<td>Asymp. Sig. (2-tail)</td>
<td>.23</td>
<td></td>
</tr>
<tr>
<td>Trash cans get too full during the day</td>
<td>Md$_n$</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Mann-Whitney U</td>
<td>533.000</td>
<td>.048</td>
</tr>
<tr>
<td></td>
<td>Asymp. Sig. (2-tail)</td>
<td>.21</td>
<td></td>
</tr>
<tr>
<td>Cleanliness and maintenance enhance or interfere with your ability to get job done</td>
<td>Md$_n$</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Mann-Whitney U</td>
<td>485.500</td>
<td>.041</td>
</tr>
<tr>
<td></td>
<td>Asymp. Sig. (2-tail)</td>
<td>.21</td>
<td></td>
</tr>
</tbody>
</table>

MED staff include CAN/ direct care givers (Nursing assistants), other nursing staff, and other health care providers CAN/ direct care givers (Nursing assistants), other nursing staff, and other health care providers
Non-MED staff include dietary staff, administrative support staff, activity staff, and custodial/ house-keeping staff
History • Scholarship of Design Research • Poster

ReSilo

Abigail Regan & Judy Theodorson
Washington State University

ABSTRACT

“To those traveling the great highways of the Midwest, silos appear like cathedrals, and in fact they are the cathedrals of our time” Aldo Rossi, NY 1992.1

Purpose
This graduate design research project, ReSilo, is a typological study of recontexualized industrial silos from around the world. The intent is to recognize the narratives that link the silos; this is done by comparatively analyzing the physical, spatial, historical, cultural, and programmatic characteristics. Ultimately, this research informs the design direction for the recontextualization of the abandoned Latah grain silos in Moscow, Idaho.

Context
Silos are iconic and admired landmarks of rural landscapes.2 Artists and architects have found allure and beauty in the geometric purity of their construction and symbolism related to industry and the rural landscape.1 The silo’s exterior beauty is self evident, however, the interiors, which reflect the complex system of grain distribution and storage, are unfamiliar too most.1 These interior conditions offer unusual and remarkable spatial experiences, made even richer by their historical and cultural significance. ReSilo is grounded in the premise that each silo has a story to tell; a story of unconventional interior spaces, of history and agriculture, and of culture and community. As abandoned silos are increasingly targeted for recontextualization, ReSilo challenges design briefs to consider these silos as unique entities within a global narrative, connecting the structures in their new, repurposed state. The idea of a global narrative has proved successful with the online map of ‘Little Free Libraries’ (see Appendix A)
where one can view or even build and post their story and design to the page, becoming a mark on their online map.

Method

This project examines approximately 50 recontextualized silos worldwide. Mixed methods of data collection are used for each site including the examination of historical documents, photographs, scholarly journals, international design websites, travel blogs and personal experiences. The information is categorized according to history, context, details of the original silo; its new use (purpose, materials & design), its significance to the community and its success. Each site is graphically analyzed through a series of scaled drawings including areal views, section cuts and elevations (see Appendix B). An interactive, customized google map was used to visually represent the comparative analysis undertaken, pinning every case study (see Appendix C). The interactive map acts as the base of the global narrative for repurposed silos over the world to network and communicate, raising awareness to opportunities and reasons to how others treat these unique structures as well as their success and failures.

Outcomes

The knowledge gained in the research informs the design brief and conceptual direction for the abandoned Latah grain silo in Moscow, Idaho. There are two significant outcomes. First, the design direction shifted from a program based approach to one that values and celebrates the unique interior space and the cultural significance of the existing structures. Second, the idea of a global narrative contextualizes the silo project as a contributing to a larger collective, raising the potential of historical, artistic, and cultural tourism (see appendix D).

REFERENCES (APA)


APPENDIX A

A Little Free Library map of Seattle, locating the number of hand made libraries in the area.
APPENDIX B.
Snap shot of a visual analysis comparing the recontextualized silos in a series of views before & after.

2. The Malthouse, in Melbourne Australia by Nonda Katsalidis, 1996.
APPENDIX C.

Interactive global map that lists the recontextualized silos worldwide. More information can be found by simply clicking on the icon.
Lessons in Interior Lighting: Learning from a Master

Georgina Gentry
University of Arkansas

ABSTRACT

Context and Problem
As design educators and practitioners, we are acutely aware that interaction of light, shadow, and color can determine perception of structure, objects, details, surfaces, and emotive qualities of a space. This understanding is not a new revelation. Nevertheless, despite a plethora of new technology, lighting, particularly in domestic interiors, often continues to be a postscript. Through the examination of selected mid-20th century houses designed by famed architect, E. Fay Jones, this poster will communicate how daylighting and artificial lighting can be choreographed to reveal and express spatial character and to create visual interest in domestic interior spaces. Jones has received praise for his sensitivity to lighting of interior space. Of Jones, Ivy (2001) asserted, “…he understands light’s ability to transform interiors, to suffuse space with light, and to highlight texture, color, and form…” (p. 206). Poepsel (2013) concluded, “Through his carefully crafted details and a renewing kaleidoscope of light and shadow, the inhabitants of Jones houses continue to rediscover the poetic expression of Jones’s architecture...” (p. 46).

Methods
Analyses of luminous environments in selected historic residences were completed using on-site written and photo-documentation, archival photographs and drawings, and review of literature. The poster will encourage discourse through the opportunity to examine a variety of spaces and details designed by Jones. Outcomes and Implications Through engagement with images, descriptions, and analyses of spaces and details, attendees will appreciate how artificial lighting and daylighting in homes designed by Jones were shaped by architectural and interior features. Poepsel (2013) noted that “The careful working and reworking of details contribute to a
unifying generative idea that enforces the part-to-whole relationship of organic building” (p. iv). Lighting was one of these details on which Jones focused. See Table 1. For example, luminaire and fenestration details were frequently an outgrowth of the plan shape or structure. See Figure 1. To delineate ceiling planes, Jones often revealed the ceilings with continuous indirect lighting and silhouetting (see Figures 2 and 3). He also utilized various techniques to control daylighting, such as clerestories/skylights, deep overhangs, corner windows, projecting fenestration, and perforated walls. See Figure 4. To enliven surfaces and spaces, strategies such as grazing and shadow play were incorporated. See Figure 5. The success of these spaces is a result of thoughtful and imaginative coordination of design variables—not simply serendipity. The interaction of architectural/ interior features, color, and light contributed significantly to the animation and visual appeal of the interiors. By examining the interiors of these mid-20th century houses, one learns that successful spaces of any period require careful synchronization of lighting with other variables, including site, structural elements, surfaces, and interior features.

Elaborating upon a 2014 presentation by the author, this poster will confirm that deliberation from start to finish is vital—that effective lighting cannot be an add-on or after-thought. Lighting cannot not be designed in isolation. It will become apparent that effective interior lighting strategies can be integrated, regardless of age, budget, size, technology, or building configuration.

REFERENCES (APA)


Appendix

Daylighting
- Deep roof overhangs to shade and reflect light
- Continuous windows, full corner windows, projecting windows
- Skylights, clerestories, and perimeter overhead slots
- Concealed wall slots

Artificial Lighting
- Architecturally integrated light sources
- Luminaire designs derived from plan or structure

Lighting Techniques
- Grazing, shadow and light play, backlighting, silhouetting, highlighting

Table 1. Lighting strategies/techniques used by Jones

Figure 1. Luminaires derived from plan and structure
Figure 2. Architecturally integrated indirect, warm lighting to reveal ceiling structure and emphasize warm color palette

Figure 3. Silhouetting of structural elements.
Figure 4. Deep overhangs control daylight penetration.

Figure 5. Grazing from perimeter skylight
What elements of the retail store’s environment keep the millennial shopper engaged?

Elizabeth Calienes & Candy Carmel-Gilfilen
University of Florida

ABSTRACT

Purpose
The Millennial generation (born 1981-2000) is a powerful cohort, with 79 million people and $211 billion in buying power (Henley, Fowler, Yuan, Stout, & Goh, 2011). Although this generation is known for being adept at online shopping, research has shown that the majority (75%) of their retail dollars are being spent in brick-and-mortar stores (Forzley, 2013; Mincer, 2014). This has generated awareness in viewing the retail store as a tool for brand-building, motivating brands to re-evaluate their store designs. Further research has found that a store’s physical design influences whether or not a shopper enters the store and contributes to whether they embrace the brand (Burt, Johansson and Thelander, 2007). The purpose of this study is to understand the elements of the retail environment that catch the attention of the Millennial shopper. The results provide educators with the necessary tools to teach new designers how to propose retail design environments that connect with this generation.

Method
The Millennials have been described as ‘always connected’ and are adept at communicating via “sharing, tweeting and pinning” in all aspects of their lives (Anderson & Raine, 2012). In order to target this cohort, a unique data collection method was used that combined participant generated photography and annotations to reveal impressions of the natural retail environment from their perspective. Rather than using an intrusive data collection tool (i.e. photo camera, video camera, glasses, etc.) or a simulated environment, participants captured data using their smartphones while inside actual retail stores. This methodology provided a robust approach to data collection that resonated with this cohort. The ethnographic approach used allowed for an
open-ended conversation between the participant and the researcher, from the participant’s point of view. Data collection involved 43 participants (response rate of 100%), at three retail stores. On average, the participants collected 18 photos capturing their in-store experiences at all three retailers (single brand apparel, mass merchandiser and discount chain). This resulted a pool of 557 photographs with written annotations (see Appendix A); with the average annotation consisting of 35 words. In addition, three semi-structured focus groups were conducted with 28% (n=12) of the participants to provide clarification on reoccurring themes.

Findings
Findings revealed that tangible elements (82.36%) and intangible impressions (17.64%) within the design caught the attention of the Millennial shopper. These included; Displays, Store/Space Layout, Merchandise, Graphics, Style Descriptors, Emotion/Sentiment, Lighting and Customer Service. Millennials noted both positive and negative factors defining their impressions of the retail environment. Seven prevalent themes were identified including: (1) Mess & Emptiness, (2) Order & Neatness, (3) Humor & Fun, (4) Personalization, (5) Color, Patterns & Materials, (6) Quality & Upscale, and (7) Ease & Comfort. These were enriched with narratives that were captured in both the photo annotations and focus group discussions.

Conclusions
The Millennial generation, representing 25% of the population, has been described as an elusive generation and difficult to keep engaged (Sullivan & Heitmeyer, 2008). Designers and educators need to understand how this group reacts to and interacts with the built environment. Educators need to make an effort to understand this cohort in order to lead future designers towards creating environments to reach this audience. The sector of retail design is rapidly growing within interior design and designers need to understand the essential role that the store plays in building a brand’s image. These themes identified offer insights into the mind of the Millennial shopper that can guide educators and provide strategies for teaching future designers how to design retail environments for this generation.

REFERENCES (APA)


Appendix A: Examples of photos and annotations.
### Tangible Elements

<table>
<thead>
<tr>
<th>Displays</th>
<th>Positive</th>
<th>Negative</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type</td>
<td>mannequins, seasonal, table, hanging, end of aisle, and interactive displays; displays making reference to digital or social media</td>
<td>n/a</td>
</tr>
<tr>
<td>Attributes</td>
<td>neat, varied, clean, fresh, organized, light, bright, easy to see, fully stocked, funny, unique.</td>
<td>busy, messy, dirty, cluttered, empty/lacking product, boring, and conservative.</td>
</tr>
<tr>
<td>Materials</td>
<td>color, pattern, texture, mirrored finish, and shine</td>
<td>n/a</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Space &amp; Store Layout</th>
<th>Positive</th>
<th>Negative</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type/Areas</td>
<td>entrance, storefront, checkout area, impulse area, beauty, jewelry, handbags, grocery, dressing room, greeting cards, sports, baby, pet, home, electronics, seasonal sections; subdivided areas, such as 'store within a store' sections and women/men sections.</td>
<td>busy, messy, dirty, cluttered, empty/lacking product, boring, and conservative.</td>
</tr>
<tr>
<td>Attributes</td>
<td>wide aisles, high ceilings, well decorated, patterned walls and color walls — specifically bright pink, dark gray and the combination of orange and black.</td>
<td>dirty, messy, boring, overloaded, empty and tiny</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Graphics</th>
<th>Positive</th>
<th>Negative</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type</td>
<td>signage (signage relating to sizes and sales, as well as the color of these), wayfinding, the use of photography, seasonal, funny/witty messaging or visuals, packaging and educational information</td>
<td>n/a</td>
</tr>
<tr>
<td>Attributes</td>
<td>graphics as stunning, beautiful, colorful, humorous, quality, strikingly monochromatic.</td>
<td>comment was made regarding inconsistency between the graphics and the merchandise displayed.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Lighting</th>
<th>Positive</th>
<th>Negative</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type</td>
<td>chandelier, backlighting, and oversized lamp</td>
<td>n/a</td>
</tr>
<tr>
<td>Attributes</td>
<td>well lit, bright, classy, decorative and beautiful</td>
<td>n/a</td>
</tr>
</tbody>
</table>
### Intangible Impressions

<table>
<thead>
<tr>
<th>Style Descriptors</th>
<th>Positive</th>
<th>Negative</th>
</tr>
</thead>
<tbody>
<tr>
<td>Key words</td>
<td>clean, art deco, home-like, eye catching, decorative, young, hipster, exclusive, unique, appealing, fun, festive, architectural, fashionable (described as chic, celebrity, glamorous, designer, trendy, and old Hollywood) and quality (including fancy, princess, prestige, upscale, brand, classy, luxurious, and elegant)</td>
<td>Tacky, cheap, disruptive</td>
</tr>
<tr>
<td></td>
<td></td>
<td>The environment was also described as being tacky, cheap and disruptive for lack of visual continuity.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Emotion/Sentiment</th>
<th>Positive</th>
<th>Negative</th>
</tr>
</thead>
<tbody>
<tr>
<td>Key words</td>
<td>convenience, ease, fun, inspiration, mood changing, imagination, comfort</td>
<td>confusing, off putting and deterring.</td>
</tr>
<tr>
<td>Example Statements</td>
<td>“Involves little effort”, “Makes shopping more convenient”, “I can have a relaxed shopping experience”, “I like when store experiences change”, “It inspires me”, Makes me feel secure about my purchases”, “I feel they care”</td>
<td>“Made me feel uncomfortable”, “I immediately moved away”</td>
</tr>
</tbody>
</table>
Exploring the ‘WE’ Space in a Workplace at Research Park

Tina Patel
University of Minnesota

ABSTRACT

Problem Statement
Over the past five years, there has been a dramatic paradigm shift in the global economy, structures and cultures of the organizations, workforce demographics, the personal expectations of workers, technology and modes of working. This transition has created a new standard of office environment bearing hardly any resemblance of those of a decade ago. Research reveals a continuing shift toward collaboration in workplace. In 1985, just 30% of an individual’s output depended on working within a group, that figure has been presently up to 80% (Burton & Morello, 2006). Studies further have shown that collaboration usually produces more novel and well-considered ideas than individual work, thereby benefitting from the multiple viewpoints and dialog concepts only a group can provide. The end result: more meetings, more group projects, and less time in between. A Research Park in a university setting constructed its first building on the Campus, which has both private and university research tenants. The purpose of this building is to provide a location where business, industry, university and government researchers and scientists come together in one physical location to conduct and enhance research, new discoveries, technology transfer, and learning. The research park provides incubator space for these entrepreneurs to grow and flourish besides providing them with a sound business plan. A quick observation of this building revealed lack of spaces to collaborate, both internally and externally.

Research Question
How do people behave in their physical workspace now and how will this change in future? How does the physical workspace influence collaborative actions such as one on one
interaction, two, three and four-person meetings as an example? What types of technology and furniture can be supportive of these specific actions? This research poster drilled down into these questions, as it becomes a great tool to understand behaviors that create an effective office and design a space that is supportive of such actions. This is done through the lens of the building recently build at research park.

Design Research Methodology
Utilizing the two research books, 101 Design Methods (Kumar) and Universal Methods of Design (Hanington & Martin) the modes incorporated for this research are: 1. Popular Media Scan (Mode 1.2) and Publications Research (Mode 2.3) 2. Trend Matrix (Mode 1.9) 3. Field Visits, Interviews and Observations (Mode 3.4, 3.5 and 3.6) 4. Insight Sorting (4.2) 5. Mindmapping (56), Scenarios (73) and Foresight Scenario (6.5)

Outcomes
This study helped the author and the client understand how collaborative spaces represent a cultural shift from space that is 'mine' to a space that is 'ours'. This also revealed that the employees should be encouraged to start thinking of the entire floor as their office, not just their individual workstations. Analyzing users perception on collaborative spaces through graffiti wall and image sorting could further expand this exploratory research. After receiving the feedback from them much clear understanding can develop about types of interactive spaces they would like to see at the facility. Thus, the spaces could be redesigned to accommodate that. This can further serve as a prototype for other incubator spaces on the campus of Research Park, offering similar environment.

REFERENCES (APA)


Poepsel, B. (2013). Fay Jones and his residential clients: Communicating through the details (Unpublished master’s thesis). University of Texas at Austin.
“The myth of the lone genius achieving one eureka after another in a closed room is a cartoonish outdated cliche.”

It is important to understand the employee behavior and provide patterns of spaces in a workplace responding to the behavior.

Further research indicates that employees need an area to focus, meeting spaces, amenities, efficient circulation, support spaces, sound acoustics, aesthetics pleasing environments and functional spaces as drivers of choices at their workplace.

**EXPLORING THE ‘WE’ SPACE IN A WORKPLACE AT RESEARCH PARK**

**RESEARCH QUESTION**

- How do people behave in their physical workspace now and how will this change in future?
- How does the physical workspace influence collaborative actions such as one on one interaction, two, three and four-person meetings as an example?
- What types of technology and furniture can be supportive of these specific actions?

This research will drill down into these questions, as it becomes a great tool to understand behaviors that create an effective space that is supportive of such actions.

**RESEARCH METHODOLOGY**

- Understanding the Intent & Context
  - Literature Review
- Understanding People & Space
  - Field Trip
  - Trend Matrix
  - To and From Exploration
- Framing Insights
  - SWOT Analysis
- Exploring Concepts
  - Inspiration Collages
  - Projecting possibilities

**PROJECT STATEMENT**

**WORKPLACE SURVEY 2012-13**

<table>
<thead>
<tr>
<th>Year</th>
<th>Individual</th>
<th>Group Participation</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007</td>
<td>66%</td>
<td>34%</td>
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<tr>
<td>2010</td>
<td>66%</td>
<td>34%</td>
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<tr>
<td>2013</td>
<td>66%</td>
<td>34%</td>
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<tr>
<td>2015</td>
<td>66%</td>
<td>34%</td>
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</table>

**SPACE USE CHANGE BY 2015 AT WORKPLACE**

<table>
<thead>
<tr>
<th>Year</th>
<th>Individual</th>
<th>Group Participation in Workplace</th>
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<tbody>
<tr>
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**RESEARCH PARK**

**Location:** University Setting

**Building:** The first building constructed on the Campus, has both private and university research tenants.

**Purpose:** The purpose of this building is to provide a location where business, industry, university and government researchers and scientists come together in one physical location to conduct and enhance research, new discoveries, technology transfer, and learning.

The research park provides incubator space for these entrepreneurs to grow and flourish besides providing them with a sound business plan. There are currently 20 tenants in this building. A quick observation of this building revealed lack of spaces to collaborate, both internally and externally.
FIGURE 2: UNDERSTANDING THE INTENT AND CONTEXT

Understanding Intent & Context

Reasons for Navigating

- Collaborative
- Social interaction
- Meet & Greet
- Network
- Quick stop
- Assistance with Business Plan

Core Values

- Collaborative
- Community
- Knowledge
- Learning
- Accountability

Types of Spaces Needed

- Meeting
- Cafe
- Office
- Kitchen
- Lobby

Trend Matrix

Space Trends

- Environment
- Collaboration
- Interaction
- Place

Organizational & Different Models of Innovation

- Hybrid
- Flexible
- Open
- Closed

Understanding People & Space

Observations of the Space

- Co-working spaces
- Breakout areas
- Reception area
- Meeting rooms
- Conference rooms
- Kitchen

Models of Interaction in the Workplace

- Face-to-face
- Email
- Phone
- Virtual

The trend towards

- Collaborative
- Community
- Knowledge
- Learning
- Accountability

Further research was done to understand how people interact in a workplace setting, and the role of digital interaction among them.

The trend towards.

- Collaborative
- Community
- Knowledge
- Learning
- Accountability

The trend towards.

- Collaborative
- Community
- Knowledge
- Learning
- Accountability

The trend towards.

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- Accountability

The trend towards.

- Collaborative
- Community
- Knowledge
- Learning
- Accountability

The trend towards.
FIGURE 3: FRAMING INSIGHTS AND OUTCOMES
Design for collaborative learning: The shifting ground of campus building design

Elif Tural, Marilyn Read & Seunghae Lee
Oregon State University

ABSTRACT
The influence of spatial design on encouraging and facilitating effective collaboration has been the focus of organizational performance and workplace design literature (see e.g. Becker, 2004). With cooperative and collaborative learning approaches being norm in institutions of higher education, there is also a surge in interest in campus, university building, and classroom designs for collaborative learning and social interaction (Klein, 2005). While research provides some evidence on how spatial design can support interaction and collaboration in office spaces and academic libraries (Bailin, 2011; Hua et al, 2010); as also underscored by Lamb and Shraiky (2013), systematic research studies that provide evidence about whether the spaces designed to facilitate collaboration function as intended are lacking. This exploratory case study research aims to understand (1) whether and how the collaboration spaces are actually utilized by students, (2) if and why certain types of spaces are preferred or underutilized, and (3) how the physical design aspects, such as spatial design and furniture layout, indoor environmental quality (IEQ), technology, and room orientation and adjacencies, influence student comfort and preference regarding the use of collaboration spaces.

In line with the definitions of Becker (2004) and Hua et al (2010), in this study, collaborative spaces are defined as formal and informal spaces that give students opportunities to meet, interact and complete group work. These spaces included the formal, team-work related project rooms, as well as informal collaborative areas, including open computer labs and booths, the student lounge, two atrium areas with seating arrangements that can support group work, and several seating areas throughout the building that potentially can be used for collaborative work. A sequential mixed-methods research approach was adopted: The first phase gathered
information on the current usage of these spaces through place-based behavior mapping of the project rooms and the common areas, and by analyzing the usage patterns of project rooms through the room scheduler database. This provided information on which spaces are preferred, and most and least frequently used for collaborative or individual work. The second phase explored whether and how the physical environment influences these preferences. A survey questionnaire inquired about students’ space usage for individual and team projects, and their perceptions of the design and IEQ aspects of these spaces. 585 observations were taken over the course of three weeks. Logistic regression was used to examine the relationship between the dichotomous collaboration outcome and various environmental predictors.

The most notable result is low incidence of collaborative behaviors in the project rooms—only 21.88% of total observations showed collaboration. While the regression analyses showed that use of in-room displays, furniture arrangement by students, and whiteboard use significantly predicted collaboration; the tabulations demonstrated that these features were actually underutilized. The qualitative and quantitate analyses of the survey results (N=113) provided insights into which design and IEQ factors interfered with collaborative learning. The lack of privacy from the hallway traffic, insufficiency of technical resources, thermal comfort, noise, and room cleanliness were identified as design aspects that most interfere with personal and group work. In line with the previous environment-behavior research in workplaces, lack of control (visual privacy with blinds and air quality with operable windows) surfaced as an important factor decreasing environmental satisfaction. In addition to providing highlights of the findings and sharing the design caveats with respect to collaborative learning in campus buildings, the presentation will also discuss how the case study findings may transfer into other contexts.

REFERENCES (APA)


Design Thinking: Providing Opportunity for Underserved Communities within the Design Discipline

Jessica Walton
Virginia Commonwealth University

ABSTRACT

Motivation
A study published by the Southern Education Foundation in January 2015 found 39 percent of Virginia public school students in 2013 came from low income families. A policy brief from The Working Poor Families Project states that of the 24 million children from low income families across the country, over half are of racial or ethnic minorities. Additionally, research complied by the Americans for the Arts, found that these underserved communities are provided less access to arts education. In 2008, African American and Hispanic students who had received any level of arts education was 26.2 and 28.2 percent, respectively. Comparatively, white students received arts instruction at more than double the rate, 57.9 percent.

Problem
Arts education has been shown to help at-risk communities develop more engaged students (Creedon, 2011). Through in school or community based programs, urban youth in low income communities are taught to be more aware of their social, political and community impact when they engage with the arts. (Lin, 2013). Arts programs serve as an important stepping stone for exploring careers in design, which typically lack diversity. Students of color enroll in art and design school in lower numbers than their white peers, while they enroll in high numbers across other disciplines. The 2014-2015 Common Data Set from the Pratt Institute reveals 18 black students and 229 white first-time first year students. Additionally, the Rhode Island School of Design’s 2014 Fact Book lists 129 white faculty and 4 black and
Hispanic faculty. Design should address multiple experiences, yet it draws primarily from the dominant culture. Much like arts education, design thinking teaches key skills that transfer to a variety of situations beyond design. These skills such as critical thinking, problem solving, interpersonal relationships, risk-taking and the ability to communicate with peers and laymen, are critical to navigating the real world. Programs that aim to teach design thinking to low income communities of color will provide student’s skills that will benefit them in many careers and aid them in complex problem solving. Additionally, these programs will expose underserved communities to new opportunities, potentially answering the need for greater diversity in design.

Methods
Numerous case studies and literature reviews make an argument supporting the belief that students benefit in many ways from arts education and design thinking. Reviewing statistics on the availability of arts programs in public schools further proves the importance of these programs. Interviews and peer reviewed writings address the importance of diversity within design and the means of achieving greater representation for marginalized designers.

Results
“African-Americans are approximately 13.5% of the nation’s population...The number of black registered architects who are members of the American Institute of Architects currently is barely 1%” (Travis, 2010). Architects, designers and educators such as Jack Travis explain that within design there is a lack of representation which creates tension between white peers who struggle to engage in conversations of representation. There are very few initiatives within the design community to engage in this topic or encourage different voices to join the profession. The implementation of arts education and design thinking gives students critical skills for navigating complex problems, managing stress and anxiety as well as developing interpersonal skills. Students with these skills are more engaged in the learning process (Razzouk & Shute, 2012).

Conclusions
Students who develop design thinking skills become more engaged in the education and creative processes. They have more positive conflict management and communication skills, which influence their interactions in other situations outside these programs.
REFERENCES (APA)


Hotel of the Future: Using Smart Technology to Support, Measure Well-being and Sustainability in Hotels

Stephanie Chahan & Judy Theodorson
Washington State University

ABSTRACT

Purpose
This research challenges the hotel standard to elevate itself into a human-centered, sustainable design that uses Smart City technology. This work analyzes the WELL Building Standard paired with the Living Building Challenge to apply to hotels. Smart City technology is laid within these strategies to promote efficiency, effectiveness, and to harness real-time data for research and development (Townsend, 2013). The WELL Building Standard is a new metric that focuses on human health and well-being in the context of the built environment. Well-being driven design is an emergent interior design topic that is rooted in evidence-based design. The need for this study is essential at this time because of the recent publishing of the WELL Building Standard in October 2014. Some questions include: What are the challenges of implementing these standards in a transient hospitality setting? How can technology further enable these standards? What is the missing gap between well-being and sustainability in the context of hotels?

Literature
Well-being driven design is cited as a necessity by many references. Kaplan (1992) is most notable for stating that restorative environments are a necessity for humans. Evans (1998) builds upon Kaplan’s work, adding that not only is the world today stressful but that a lack of mindful design can be a contributing factor to stress levels. Evans (2003) adds that the built environment has direct and indirect effects on mental health, though there are challenges in
determining clear causes due to numerous factors involved in mental health. Though there are many references on well-being driven design, most are found in the context of healthcare design. There is a major gap in existing literature of well-being driven design in the context of hospitality.

Method
Data collection strategies for this research consists of site visits, interviews with hotel facility employees, and case studies of hotels that excel in sustainability, technology, or well-being. Nine hotels from around the world are evaluated for their innovation in design. Interviews with facility employees explore motives and overall reception by hotel guests. Each hotel is measured by the Living Building Challenge and the WELL Building Standard to gauge placement on a Hotel of the Future spectrum.

Outcomes
This research resulted in a new framework for a Hotel of the Future that encompasses well-being, sustainability, and the Smart City concept. A design project applies this new framework to a hotel, catering primarily to business travelers. This topic area is relevant as end-users are becoming cognizant of their own well-being and environmental impact. As the WELL Building Standard, the Living Building Challenge, and the concept of Smart Cities are gaining traction on a national and international scale, this research brings the three elements into one framework. Further exploration may test the applicability of this framework to meet the needs of other commercial environments.

REFERENCES (APA)


www.skynewsarabia.com
PRESENTATIONS
C5: Collaborate, Create, Construct Capstone Charette

Elizabeth Pober, Tammy McCuen & Lee Fithian
University of Oklahoma

ABSTRACT

C5 is an interdisciplinary design-build project designed as a collaboration between architecture, interior design, and construction supported by the use of building information modeling (BIM). The name C5 derives itself from a mantra developed to define the project containing 5 “C’s”: Collaborate, Create, Construct, Capstone Charette. Guiding the development of C5 is the premise that BIM enhances collaboration in the design-build process and that collaboration depends on five key principles applied to all team members: interactive communication, full involvement, mutual trust, shared risks and rewards, and teamwork (Design-Build Institute of America, 2012).

The three week C5 project was organized for students in the final semester of their academic career. The composition of each typical student team was made up of one student from each of the architecture, interior design, and construction programs. The planning and design of the project was also a collaborative team effort with one faculty member from each of the three represented disciplines. The faculty agreed that the best way to teach collaboration was by example; therefore, industry partners with prior experience working together were recruited to actively participate in the project as experts to role model for the student teams. The industry partners shared specific examples of successful collaborative experiences providing the students a real-world perspective and valuable knowledge about best practices from an integrated approach. Local community clients with real-word projects were also utilized for the project focus. The architecture and interior design students formed the design team and worked together in a collaborative teamwork approach as the prime designer. The constructor provided ongoing design review and feedback about the project’s constructability, costs, and risks. BIM was utilized throughout the project by all team members to facilitate interactive communication and decision making.
The first day of C5 was scheduled as an eight hour intense meeting with team building exercises, introduction of the project by the community client, industry partners’ presentation and role playing demonstrations on team building and professional collaboration skills, release of the request for proposal (RFP), and time dedicated for the teams to work together and begin making decisions about the project. A second meeting between the faculty and students took place midway through the project to evaluate the students’ progress and address any issues with team dynamics. The three faculty members maintained collaborative office hours where individual teams could meet with the faculty and discuss any issues or ask questions. During the final segment of the project, the student teams submitted and presented their project proposals to the clients, industry professionals and faculty members.

The students’ understanding of the other disciplines on their team improved and in turn they learned to respect and trust each other’s contributions to the project. Students also further developed their technical expertise and gained a better understanding of how BIM can enhance interdisciplinary team collaboration. Although traditional capstone projects are completed individually, C5 provided an added component that further reinforced the idea that a collaborative effort is required to successfully design and construct a building. Ultimately C5 provided students with a simulation of what they can expect in their future professional roles. The academic environment provided students with an opportunity to practice their professional roles with peers representing the future roles of their collaborative team members. Buildings are ultimately created by a diverse team of professionals, and better buildings can be created when the team members are able to escape their individual professional silos and collaboratively work together based on mutual understanding and respect.

REFERENCES (APA)


Assessing Sleep Patterns in Interior Design Students: A Pilot Study

Elise King & Michael Scullin
Baylor University

ABSTRACT

This study stemmed from concerns arising from anecdotal reports of dysfunctional sleeping patterns of undergraduate interior design students. Quality sleep is connected with health, well-being, and learning—factors critical to a students’ success, but studies have shown that students often engage in irregular sleep patterns. For students in studio or project-based majors, such as interior design, there is a propensity for extended periods of disrupted sleep. Previous sleep research has investigated the negative health and educational outcomes of single-night “cramming,” but this study examined the potentially more severe situation of consecutive nights of disrupted sleep.

Purpose
Experimental and correlational research has clearly indicated that sleep is a necessary component of a healthy lifestyle and that lack of sleep can affect health, wellness, learning, and productivity (for reviews, see Curcio, Ferrara, & Gennaro, 2006; Rasch & Born, 2013). But little empirical research to date has addressed sleep in studio environments, and no known research has addressed interior design studios. The rationale for conducting this study was to gain a better understanding of the sleep habits of interior design students in the seven days leading up to a project deadline, using both objective and subjective measurements.

Participants
The participants for this study were six undergraduate students majoring in interior design at the same university. All participants were enrolled in the same studio course and were
collaboration • scholarship of design research • presentation

completing the same project during the study. The six participants were females between the ages of twenty-one and twenty-two years old and identified as Caucasian.

Data Collection
Data was collected using objective and subjective measures (discussed below) over a period of seven days leading up to a project due date. Though optional, all six participants also provided the investigators with their major and overall GPAs and allowed the investigators to access the grade on the project that they turned-in during the study.

Objective Assessments
For its objective measure this study used actigraphy (Philips Respironics Actiwatch 2), a tool regularly used in sleep studies (e.g., Dang-Vu et al., 2008). Actiwatches use accelerometer technology to track motor activity and can be worn on the wrist for 24 hours/day with a battery life lasting over a week. Actiwatches also detect the amount and duration of ambient white light illuminance so as to measure light-on/light-off periods; this provides information about when one is trying to fall asleep. The combination of motor and light measures allows actigraphy to reliably distinguish sleep versus wake states (Kanady, Drummond, & Mednick, 2011; Kripke et al., 2010).

Subjective Assessments
In addition to wearing actiwatches, participants completed two questionnaires (first when picking up the actiwatch and again when returning it) as well daily dairies, in which they were asked to self-report on study habits, exercise, stress levels, sleep quality, mood, and nutrition. The purpose of the subjective measurements were two-fold. First, they provided insight into how well participants were able to predict the amount they would sleep and how accurately they estimated the amount they slept after the fact. Secondly, daily diaries offered insight into the correlation between sleep patterns and mood, stress, and health.

Outcomes
Pilot study results indicated both inter-individual and intra-individual variability in sleep patterns during their final project week. On some nights, some participants misestimated their total sleep time by over an hour. Furthermore, sleep quality was associated with better health and educational outcomes. For example, the results suggested that greater sleep was associated
with higher grades on the final project, better mood, and better emotional regulation. Thus, higher grades need not always come at the cost of less sleep.

REFERENCES (APA)


Study Visit One
- Filled out entry questionnaire
- Trained on Actigraphy

In-between Study Visits
- Maintained dairies (sleep, food and nutrition, stress) for seven days
- Continuously wore Actigraphy

Study Visit Two
- Filled out exit questionnaire
- Debriefed
<table>
<thead>
<tr>
<th>Today’s Date</th>
<th>SAMPLE 1/12/15</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. What time did you get into bed?</td>
<td>10:15 p.m.</td>
</tr>
<tr>
<td>2. What time did you try to go to sleep?</td>
<td>11:30 p.m.</td>
</tr>
<tr>
<td>3. How long did it take you to fall asleep?</td>
<td>55 min</td>
</tr>
<tr>
<td>4. How many times did you wake up at night? For how long?</td>
<td>3 times; 1 hr, 10 min</td>
</tr>
<tr>
<td>5. What time was your final awakening?</td>
<td>6:35 a.m.</td>
</tr>
<tr>
<td>6. What time did you get out of bed for the day?</td>
<td>7:20 a.m.</td>
</tr>
<tr>
<td>7. How would you rate the quality of your sleep?</td>
<td>Very Poor X Poor Fair Good Very Good</td>
</tr>
<tr>
<td>8. Did you nap? For how long?</td>
<td>Yes, once; 40 min</td>
</tr>
<tr>
<td>9. Comments (if applicable)</td>
<td>I have a cold.</td>
</tr>
</tbody>
</table>

ID:_________________
<table>
<thead>
<tr>
<th>Question</th>
<th>Rating</th>
<th>Not at All</th>
<th>Neutral</th>
<th>Very</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. How stressed did you feel today?</td>
<td>5</td>
<td>1</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Rate stress:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. How happy did you feel today?</td>
<td>2</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Rate happiness:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. How emotional did you feel today?</td>
<td>4</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Rate emotionality:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. How anxious did you feel today?</td>
<td>5</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Rate anxiety:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. How friendly were you to others today?</td>
<td>3</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Rate friendliness:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. How sad did you feel today?</td>
<td>6</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Rate sadness:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. How angry did you feel today?</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Rate anger:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. How much did you worry today?</td>
<td>7</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Rate worry:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. How well did you cope with stressors today?</td>
<td>2</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Rate coping:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

10. How would you rate your overall mental well-being? (check one box)

- Very Poor
- Poor
- Fair
- Good
- Very Good

11. How long did you work on interior design classes? 2 hours, 20 minutes
12. How long did you work on other classes? 2 hours, 10 minutes
13. How long did you spend on social media? 3 hours, 30 minutes
14. How long did you watch TV or play video games? 1 hour, 30 minutes
15. How long did you spend on clubs or team sports? none
Factors Impacting Creative Performance of Interior Design Student Teams

Laura Malinin, Hillary King, Katharine Leigh & Travis Maynard
Colorado State University

ABSTRACT

Business emphasis on creative outcomes of teamwork invites research efforts across diverse industries toward understanding why some teams work while others flounder. The challenge of improving innovation and creativity in interior design practice resonates with educators preparing students for future design careers. This paper presents a study seeking to understand the relationship of team diversity to conflict and creative productivity. It documents student team member perceptions of processes and conflicts and examines impacts on creative productivity reflected in team design solutions.

Team diversity and its relationship to creativity has been empirically examined across industries, with researchers identifying many types — including demographic (Chowdhury, 2005), knowledge/skills (Frey, Lüthje & Haag, 2011), and values (Klein, Knight, Ziegert, Chong Lim, Saltz, 2011) — impacting team functions. Some find diversity advantageous for innovation and performance (Van Knippenberg, De Dreu & Homan, 2004), whereas others have found diverse teams highly unpredictable, subject to more negative conflict, and less creative and productive (Klein et al., 2011). Conflict may arise through disagreements about: tasks, including decisions, viewpoints, and ideas; processes, such as allocation of resources and roles within a team; and relationships, characterized by anger, aggression, frustration or hostility among team members. Diversity and conflict are variables impacting creative processes that can influence whether high performance design teams succeed or fail.

This exploratory case study used mixed methods to examine how team composition and perception of conflict affected creative outcomes. Data collection spanned a six-week design
Collaboration • Scholarship of Design Research • Presentation

Project engaging 40 interior design students in a capstone course during their fourth (final) year of study in a CIDA-accredited program. Students were assigned into four-person teams according to self and peer identified knowledge, skills, and abilities. Demographic data were accessed from student records for age, race, and gender. Students participated in the Kolb Learning Style Inventory (LSI 3.1) identifying preferred learning styles. Five sets of self-reflection survey prompts were administered during the project to gather information about design processes and student perceptions of conflict experienced. Final project outcomes were assessed for team creativity by an external panel of four interior design professionals and a non-design juror evaluated productivity.

Analysis revealed teams with moderate levels of task conflict scored higher for creativity and teams with moderate levels of process conflict scored higher for productivity. Teams with high levels of process conflict also experienced relationship conflict and scored lower for creativity and productivity. The study population was fairly homogenous in terms of age, race, and gender; however, teams with gender diversity also scored higher for creativity. Of interest, the Kolb inventory revealed high learning style homogeneity among students, with 57% showing preference for accommodating style and 25% preferring assimilating. Of these, 27.5% scored as bi-modal learners with nearly equal preference for two learning styles (17.5% accommodating-converging, 5% accommodating-diverging, and 5% assimilating-diverging). No clear relationship was found between learning style diversity and either team creativity or productivity, possibly due to high homogeneity and bi-modality among participants. Process analysis revealed teams who participated in individual ideation prior to group ideation, and those who spent a greater percentage of the project exploring ideas, were rated higher for creativity. Finally, groups expressing awareness of learning style diversity among members appeared to exhibit greater conflict avoidance, suggesting students may not be confident in their abilities to debate and critique without inviting relationship conflict.

REFERENCES (APA)


Teaching Design: How Can Scientific Discoveries in Neuroscience Improve Design Education?

Mary Price
University of Oklahoma

ABSTRACT
This paper proposes a revised model of interior design education based on amending existing teaching methods to incorporate the fundamental aspects of learning, memory, reward, decision making, synaptic plasticity, spaced learning, willpower, and active learning as revealed by recent findings in the field of neuroscience. In a sophomore design studio, design problems were altered from previous years to emphasize and exploit information about memory, creative thought and decision making. Through a double-blind process students were given different instructions and critics were asked to identify and evaluate differences in subsequent design solutions. By mapping the theory that design education can be improved through optimized use of brain function, the paper proposes changes in design pedagogy.

Neuroimaging can change how we teach design. The biological sciences are informing design, and existing practice, with new information about how the mind functions. Some sociological theories used in architectural education are becoming discredited. Others, like Kevin Lynch’s work on wayfinding have now been proven. Introducing recent neurological information about how the brain makes design decisions and interprets design can be integrated into design pedagogy to scientifically optimize the learning experience and transfer information to our students. In the field of Embodied Cognition, the human body is seen as merely an extension of the brain. The argument is being made that we understand the world through the sensations of the body. Perceptions of light and shadow, space, water, sound, hapticity, proportion, scale, and even time can be remembered by neurons throughout the body.
Neuroimaging devices show how we actively engage our world. We now know that color is processed before form in the human mind. We also know that architecture engenders emotional response, with emotions overriding our conscious awareness. Information is coming to light about how the brain catalogs, stores, retrieves and combines memories. For one to think creatively, one “must develop new neural pathways and break out of the cycle of experience-dependent categorization.” What tools do we have to develop these new neural pathways? Electroencephalography is a non-invasive technique where an array of electrodes placed on the scalp record the brain’s electrical activity or “brain waves”. We know that creative thoughts are formed when knowledge in one domain is used to help organize knowledge in another. Thoughts in one area of the brain serve as models, or metaphors, for solving problems or forming solutions in another. During the creative process information and memories are recalled from many distributed areas of the brain, where they were stored at the moment of the experience occurred and are joined with each other to create new concepts.

Design pedagogy has traditionally employed metaphor as a means to develop design concepts or partis. Metaphor assists designers in seeing how one problem or idea, is like another. The knowledge that creativity by metaphor is now known to mimic the activity of human thought, reinforces its use in teaching the design process. This is just one example of how “design thinking” or the design process has been affirmed by scientific findings. Neuroscience has already provided information that can significantly enhance the understanding of the Design Process. The revelation of brain function is informing how design is made; how design is understood, and for me, how design should be taught.

REFERENCES (Other)

Pallasmaa, Juhani, (September 19, 2014). ANFA 2014 Keynote: Imagination and Empathy, Academy of Neuroscience for Architecture, Salk Institute for Biological Studies, La Jolla, CA


Virtual navigation strategies from childhood to senescence: evidence for changes across the lifespan
Bohbot et al., Frontiers in Aging Neuroscience, 2012

FIGURE 1 | Schematic drawings (left) and first person views (right) of the adult 4D/VM environment.
Wayfinding: Navigation Using Landmarks, Routes and Maps

Landmarks are distinctive and should be easily visible for some distance.

Routes are somewhat abstract—although the person using a familiar route knows where to turn and how far to go, she may not pay attention to the specific features of the landscape along the way and may not be able to tell someone else the actual names of the avenues or buildings where critical turns should be made. A route navigator who knows one turns well and easily.

Maps reveal overall spatial orientation and the general relationship of one place to another. One of the best there is more than one way to get to a certain destination, and it may allow the traveler to adopt his route more freely while still ensuring efficient travel to the destination.

[http://www.indiana.edu/~iirg/iirgarticles/NAVIGATION/wayfinding.html](http://www.indiana.edu/~iirg/iirgarticles/NAVIGATION/wayfinding.html)

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**Spatial Coding Systems**

- **Allocentric (object-to-object)**
  - Encodes information about the location of one object or its parts with respect to other objects. The location of one object is defined relative to the location of other objects.

- **Egocentric (self-to-object)**
  - Represents the location of objects in space relative to the body axes of the self (left-right, front-back, up-down).

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[Diagram of brain structures: Amygdala, Caudate nucleus, HIPPOCAMPUS]
The Role of Interior Design Junior Students in an Interdisciplinary Team in a Ten Day Competition

Milagros Zingoni
Arizona State University

ABSTRACT

We live in a world whose complexity increases daily due to the evolution and revolution of technology. The ideation process is becoming more interdisciplinary every day, with different disciplines coming together from a projects’ conception. Historically, the discipline of Interior Design has had a passive role awaiting for the architecture to shape the space. Often misleading the discipline to only an aesthetic function: decoration. Interior Design has shifted from what some would say a vocational aptitude for the arrangement of home furnishings to a multimillion- dollar- a year enterprise based on numerous bodies of knowledge and expertise such as building construction, health sciences, environmental psychology, spatial aesthetics, and cultural discourse on space, place, body and affect. (Preston, 2012, p.93) We are witnessing an era of constant change, in which the expanded field of each discipline blurs or overlaps with the expanded field of another.

The challenge for academics is to expose students to other disciplines finding the right intersection between teaching the discipline, exploring others and reaching out to communities to empower both (society and students) for social change through a collaborative process. The Interior Design students’ perceptions of their learning outcomes and their contributions to their perspectives teams were evaluated every year and they are explained in this paper. This article describes the perception and experience of Junior Students in Interior Design in an interdisciplinary team in ten day competition.

This Interdisciplinary Cluster Competition (ICC) has been organized for seven years at the beginning of every spring semester for junior students from the disciplines of Architecture,
Collaboration in Industrial Design, Interior Design, Landscape Architecture and Visual Communication at and American Southwest University (Zingoni, 2015). The article also discusses the researcher perceptions based in the last five years of students’ feedback regarding the competition.

REFERENCES (Chicago)


Zingoni M. (2015) Interdisciplinary CLUSTER competition, when the whole is greater than the sum of its parts- I-Journal of the MeCCSA Postgraduate Network Make- Mistake-Journey- Practice-led Research and Ways of Learning
THE CHALLENGE

What are the opportunities to create new informal learning atmospheres in "old Charlie's", the terrace and dead square and Red Square?

The 2015 Interdisciplinary cluster competition (ICC) seeks for proposals to strengthen the sense of community within the faculty, staff and students from the school, and to other disciplines and buildings in the surrounding area.

The teams are to explore new ways for this physical environment to support and afford social interactions, including informal learning activities and leisure activities as well as the possibility of practice exhibition that informs daily the work, process and progress in 2.3 and 4 dimensions of students at the Design School. Spaces that supports the school mission of multidisciplinary collaboration, space for students to work and stay in between classes, and spaces for students from other parts of campus that allows them to learn what this design school is about. The proposal should also include a clear synthesis about the role of technology in the space and how the intervention in "old Charlie's" and/or Red Square can be extended to other under utilized spaces in the DN building and how these spaces help us build campus community.

While the competition ask for innovative ideas that brings people together and can host a variety of events organized by students, faculty or staff, it is encouraged that the proposals incorporate the thinking behind SEED (Socially Ergonomic Environmental Design) framework that brings together concepts from environmental psychology, biology, geography, sociology, human factors engineering, web page design, and other fields. These concepts involve supporting peoples natural behavior tendencies in relation to things in their environment. To name a few: (1) the concept of 'fascination' used in environmental psychology. This form, coined by Rachel and Stephen Kaplan, refers to one of the elements that they identify in restorative environments. The Kaplans research suggests that humans can improve their feelings of mental clarity and satisfaction by engaging in activities that fascinate them. They differentiate between hard and soft fascination. Hard fascination describes directing one's attention to pursue and understand a complex idea or process. Soft fascination involves "undirected" attention. Fascination, therefore, can both attract people to a space and help put them in a relaxed mood, which makes them more available for interaction. (2) James Jacob's concept of "layering of use", which refers to the idea of putting a variety of things in a space that can attract different people to the same space. She also refers to "people as users", understanding that a space has to be designed for activities through the day. (3) Harvard Biologist E.O Wilson explains that our evolution has essentially wired us to seek the presence of other living things or living systems. This is called "biophilia". Biophilia explains why your cat wants to sleep in the same room with you, and why so many people who "work at home" actually take their laptops to a coffee shop to work. (4) William H. Whyte describe people's effect when seeing other people in the space. He uses the example when people passing by see other people eating in the space. Whether the quality and source of the food, the presence of people eating seems to have a multiplier effect and attracts even more people to the space. This is referred as the "shill effect" often used in carnival games and sections.

These all suggest that the proposals must respond to a social atmosphere that supports 24-7 informal learning.

THE DELIVERY

PAL: Each team member must complete PAL (perceived atmosphere of learning) and ask another two people complete it. Hence if their team has five members, they will submit a total of 15 PALS. This should be done early in the process. The idea is that you gather information that might inform the teams' idea proposal.

BOARD: each team will submit a 24 in x 36 in board that represents their proposal. The only common requirements to all teams for the board are: Team number, Proposal title, 3 of series of images through story telling that explain the use of the space at 9 am, noon, 3 PM, 6 PM and 9 PM. team members' name are optional.

THINGS: this can be a 2D, 3D or 4D representation, an app or any other mode of representation that will help the team strengthen the concept of the proposal.

VIDEO: a ONE minute (1:00 minute) full color video that clearly explains visually and verbally your teams vision of the day-in-the-life of your new spaces. Your video should also have pop up banners or text highlighting each of your teams key design concepts. After carefully editing your video, your team will post your final video in you in YouTube and will post the URL on Blackboard.
Our concept centers around ever-reaching ideas of modularity, adaptation, informality, relaxation and exhibition. We have also strived to combat the current undesired acoustic quality and lack of communal space within Red Square of Arizona State University. Throughout this process, we have kept in mind an economical sense of reason, buildability, and customization. Lastly, it is important to note that the goal here was to envision a space that could be realized by students at all times of the day, as well as promote an informal approach to learning and lounging.
Reaching the millennial student: Comparative analysis of team-based learning student outcomes over traditional lecture/test instructional methods

Natalie Ellis
The University of Oklahoma

ABSTRACT
Seeking ways to connect with higher education’s millennial generation prompted an in-depth search for learning instruction that would serve to create a maximized classroom potential. The central research question is do student assessment scores improve with team based learning instructional practices relative to instruction provided in a typical lecture and test strategy? Comparing learning assessment outcomes of an identical class while using two different teaching strategies of traditional and team-based practices in the two concurrent years of 2014 and 2015, evaluation outcomes are considered as they apply to the base class’s millennial generation (Huggins & Stamatel, 2015).

Today’s dilemma of encouraging students to read and be prepared for class aren’t being met and there was a clear need to pursue alternate strategies. While the team-based learning instruction style created in the early 2000’s is not a new pedagogy it seeks to advance student preparation and provide classroom interchange reinforcement leading to higher order learning synthesis. A comparative study involving multiple student groups over the course of one year are at focus with assessment outcomes being evaluated. (Davidson, Major, & Michaelsen, 2014). The analysis considers if student-learning outcomes improve in the latter and will they be able to contribute to future course process development and quasi-design research. The point of connection held for team-based learning is understanding generational influences.
Currently, there are approximately six different generational groups living in a global community that embody different learning styles dependent on the cultural context and their times settings according to the 2014 U.S. Census Bureau (Bureau, 2014). Considering typical college entry points and subsequent college rank levels, today’s classes are comprised of those ranging in age from 17 or 18 and above placing generational categories firmly as those born in the 1980’s and 1990’s. While obviously there remain students coming back to campus from all generations, the research study within this work is focusing upon the millennial generation and their learning influences (Frame & Cailor, 2015). The millennial has distinctive hallmarks of being multi-tasking individuals that are comfortable in an electronic world and that prefer learning in a relaxed team environment. While these characteristics might be considered stereotypical, the connection can be considerable when contemplating different pedagogies that ultimately focus upon the highest classroom learning outcomes possible. While the baby boomers responded well to the traditional lecture and test method, reaching a group of people that value content over grades and working in a multi-functional environment, the pedagogy of team-based learning seems ideal. Team-based learning ideally connects with primary millennial learning characteristics.

Thus, the purpose of this paper is to identify (a) assessment value differences between traditional and team based learning instruction; (b) explore student evaluation comments in end of semester findings; and (c) discuss the operational challenges and opportunities of team-based learning. A total of 28 students from the first fall with an additional 33 students will be participating in the pilot course development and will be the study’s focus and analysis.

REFERENCES (APA)


A typical TBL course is organized into 5-7 major units each of which begins with a pre-class individual assignment (e.g. readings, Power Points, videos, etc.) that is designed to familiarize students with the key concepts from that unit. The first in-class activity for each unit is a Readiness Assurance Process (RAP) which consists of a short individual Readiness Assurance Test (iRAT) over the key ideas from the pre-class assignment. Following completion of the iRAT, students re-take the exact same Readiness Assurance Test as a team (tRAT) by coming to consensus on their answers. Ideally, they use the IF-AT (see Figure 2) “scratch-off” answer sheets that enable students to receive both real-time feedback on each of their decisions and partial credit for partial knowledge (see Michaelsen, et al, 2008). After reviewing their tRAT scores, if the team feels they can make valid arguments for an answer on which they failed to receive full credit, they then have the opportunity to write evidence-based appeals. The final step in the RAP is an instructor clarification review (usually very short and always very specific) through which the instructor corrects any misperceptions of the material that may still remain as indicated by team test performance and the appeals. The rest of the learning unit is spent with students putting course content to use by working on team applications (tAPPS).
The Collaborative Role Of Interior Designers And Healthcare Professionals: Training Emerging Professionals To Meet The Needs Of An Aging Society

Martha Siegel & Tobi Abramson
New York Institute of Technology

ABSTRACT

Academic institutions utilize a pedagogical approach that focuses on learning within discipline-specific silos. While this has merits, it does not reflect professionals in the real world. As the population ages, all disciplines will need to have some knowledge about aging and seniors’ healthcare needs. Opportunities abound in healthcare and non-healthcare sectors particularly for new and innovative products, services, and approaches to designing supportive environments that maintain independence. To develop a cadre of professionals who embrace person-centered approaches requires undergraduate collaborative learning. Singular, specialized education continues to have value, but must be partnered with inter-professional learning to produce a professional with the skillset to meet the needs of those utilizing healthcare now and in the future.

This unique approach, bringing health science and interior design students together as cross-disciplinary team members, and the impact participation had on students’ attitudes, teamwork, learning about healthcare settings, and the type of work chosen post-graduation will be included. The Collaborative Learning Initiative (CLI) is in year four with yearly modifications to more purposely meet the needs of enrolled students. Interior design students partner with students from health sciences, mental health counseling, and occupational therapy. The pedagogical approach has incorporated a concurrent and co-located model where students work
together on the same task. Students were enrolled in discipline specific courses and a portion of joint in-class time was co-taught by discipline specific faculty. As part of the collaborative learning, students were assigned to mixed-discipline teams and then participated in a Sensitivity Workshop, lectures on aging/ageism and universal/inclusive design, healthcare site visits, studio work, pin-up presentations, and a final juried presentation. Asynchronous and synchronous teamwork was required over the course of the semester. Proposed solutions were driven by sharing of histories, home and healthcare analysis, space planning and research of materials, equipment, and furniture in the form of drawings; furniture plans, sections, elevations, and perspectives, descriptive boards; material, hardware, smart and assistive technologies. Solutions were incorporated into digital-media presentations using PowerPoint and were presented to participants and a jury of discipline specific specialists. Analysis included evaluation by joint faculty on students' reflection papers, pre/post attitude assessments, pin-up presentations, project self-evaluation, and juried review of design solutions.

The majority of students indicated their future willingness to work with the other disciplines. Three-quarters indicated that among team members there was mutual understanding, encouragement of idea sharing, valuation of individual opinions, and an increased appreciation of other disciplines. Participation in CLI was described as being important for their professional development as was learning about personal narratives’ value to understanding clients. Students emphasized the benefits of collaborative learning and the importance of universal design in healthcare settings. The majority indicated the program components (orientation activities, sensitivity workshop and the universal design in healthcare lecture, pin-up day and final presentation day) were very important to their learning. They indicated learning ‘a lot’ about aging and various environments.

When CLI was compared to other college courses, CLI was described as ‘very different’ (i.e., experiential learning). The inter-professional approach to learning, the research component, team meetings and outside judge reviews were extremely valuable. Students indicated a high likelihood of using the CLI experiences and lessons in their professional lives, raising their awareness of the importance of a client-centered focus.

REFERENCES (APA)

transitions into residential care. Aging & Mental Health, 17(1), 48-56.


Appendix: Partial Presentation Example Doctor’s Office

Team 11 (1 Interior Design Student + 3 Health Science Students)

**Physiatrist**

1. Diagnoses and treat the patients pain
2. Restores the maximum loss of function that was caused by injury or illness
3. Provides non-surgical treatment options
4. Leads a team of various medical professionals to assist you in recovery.

**Our Concept Idea**

![Image of concept]

**Parti Diagram**

![Image of parti diagram]
Rendered Plan

Waiting Room/Cafe

Exam Room
Appendix: Partial Presentation Adult Day Care

Team 11 (1 Interior Design Student + 4 Health Science Students)

Adult Day Care

Multi-sensory Wall
Heart of Space
Collaboration • Scholarship of Teaching & Learning • Presentation

Breaking Academic Silos

Marla Emory & Tom Futrell
Louisiana Tech University

ABSTRACT

The compartmentalization of design disciplines in academia is a standard that is often contrary to professional practice. Until recently, many academic departments focused on their design processes in isolation. While this model has proven to be successful, it is limiting to the overall design education. A solution was to develop a studio that focused on a mixture of topics, tools and expertise. By converging multiple design methodologies, students were exposed to a variety of new problem solving skills.

Identify the problem
Without considering the differences in scope, tools or deliverables, the assumption that there is a common language between design disciplines is an over generalization. These differences are shaped by disciplinary viewpoints from both academic pedagogy and professional practice. Graphic designers typically use symbols, words, images and motion to communicate a message, while interior designers shape the experience of a space through form making, acoustics, volume and texture. By creating an interdisciplinary studio, new opportunities for collaboration provide for unique design solutions.

Method of strategy
The interdisciplinary studio was a ten-week, three credit studio consisting of interior design and graphic design students, led by two professors, one from each discipline. Students were divided in teams of three – one interior design student and two graphic design students.
Project #1_Designing Time
Students read “Einstein’s Dreams” by Alan Lightman and interpreted the concept of time by creating an interactive installation. Freedom to explore was given to the teams in order to develop new processes and a collective voice.

Project #2 _ Restaurant Design

The student teams were tasked with a more complex and real-world project; to design and brand a restaurant, based on conceptual ideas derived from a single chef prepared dish. The teams worked with the chef as a client and researched specific components of a professional kitchen, as well as the function and structure of a restaurant. After preliminary programming, students were given a physical space that would house the restaurant. They documented the existing conditions, researched the site context and began developing their target audience, naming, branding and spatial explorations. Final deliverables included primary identity and name, branding standards, communication platforms and wayfinding systems that aligned with the interior design of the restaurant including furniture, lighting, acoustics and individual programs. Table vignettes showing examples of lighting, tableware, menus, uniforms, etc., were mocked up to give the client the overall experience of the restaurant.

Analysis of outcome

Interior design projects are typically presented as a representation using visualization tools such as renderings, orthographic drawing and models. Graphic design, however, can produce scaled representations of final objects, allowing for a more authentic experience in conveying the overall design concept and subsequent deliverables. When the two disciplines work collaboratively, the interior spatial representation, combined with the actualized scaled mock-ups add a deeper level of understanding for the intended audience. Fostering cross-disciplinary collaboration allows for an evolved design process in students from both disciplines and the sum of the output is greater than individual efforts. Graphic design students began to think spatially, and interior design students more holistically, both realizing that a project can be more substantive than any single discipline can offer. In conclusion, an interdisciplinary approach to design pedagogy can be successful on multiple levels. Students are exposed to new viewpoints of process, techniques and compromise while learning to work as a team. The breaking down of academic silos leads to more well-rounded students leaving the safety of the academy and entering into professional practice.

REFERENCES (APA)

Finite Resources: Exploring Designers’ Knowledge Acquisition Practices and Preferences

Amy Huber
Florida State University

ABSTRACT

Human attention is a finite resource and a myriad of issues compete for a designer’s time and attention. Constraints on billable hours, deadlines, client demands, and sheer information overload can stymie even the best of intentions. Yet, the value of research to design practice is receiving greater recognition. Today, Evidence-based design (EBD) strategies have increased the demand for useable empirical evidence in decision making. Design firms and contract furniture manufacturers are engaging internal scholars to generate proprietary research. Research suggests design practitioners do value research (Birdsong & Lawlor 2001; Dickinson, et al., 2012), and professional organizations (ASID Knowledge Center, AIA Knowledge Net, IIDA Knowledge Network) and non-profits (InformeDesign) have sought to enhance designers’ access to research by providing directories populated with succinct descriptions of findings.

Although there is a great deal of information being created and shared, the degree of its utilization remains unclear. Understanding what attracts designers to a source, how they process the information therein, and what they can then recall about the information may help researchers more effectively communicate their findings to this audience. Cognitive science has expanded our understanding of information processing; positing that individuals want to form correct beliefs and attitudes, but may use different methods to arrive at those beliefs. Dual Process Theory (Chaiken & Trope, 1999; Evans et al., 2003), suggest individuals use two forms of processing information; System 1 and System 2. System 1 is gut-level processing which relies on intuitive associations requiring little mental effort. While, System 2 is cognitive level processing and is more deliberate, systematic, and requires the use of central working memory to allow for advanced reasoning (Evans et al., 2003).
This research sought to understand what system processing preferences are exhibited by designers during their knowledge acquisition efforts. This presentation summarizes statistical analysis following a 2014 survey distributed nationally to members of the American Society of Interior Designers (ASID). Three hundred and sixty-six responses were received; of those, 315 confirmed they conducted project related research or information gathering. Respondents indicated a wide range of activities (Figure 1), most of which occurred during schematic design or design development (Figure 2). Respondents also indicated a range of information sources utilized (Figure 3). When evaluating these sources, 50% suggested graphic style as important consideration. Fifty-seven percent of respondents indicated they often spent less than 10 minutes with information sources, and indicated they often abandoned these sources due to information irrelevance or cumbersome writing style. While processing information, respondents most often indicated they wrote notes (60%), or reread the materials (46%). However, 85% percent stated they were more likely to remember images over words.

These findings increase our understanding of practitioners’ evaluation methods, time allocation, and processing preferences; suggesting designers generally spend little time with sources. Thus, they may use System 1 processes in conducting System 2-orientated tasks. Implications from this survey may suggest that scholars who want their findings to be understood and utilized by designers may want to consider incorporating methods allowing for rapid evaluation.

REFERENCES (APA)


Figure 1. Type of research conducted

- Client Research
- Interviews/Focus Group
- Ethnographic Observations
- Precedent Studies
- Behavioral
- Business/Lifestyle Trends
  - Design Trends
  - Sustainability
  - Product Research

Post Occupancy
0 50 100 150 200

Descriptions given to participants:
1. Examining a client's business plan, strategic goals, and/or lifestyles to inform design decisions.
2. Observing patterns, preferences, workflows, etc. of a client's end-users while in their current space.
3. Systematic analysis of a previous project.
4. Exploring relevant psychological, behavioral, or sociological phenomena.
5. Exploring improved systems, methods, or product specifications with a goal of sustainable outcomes.

Figure 2. Research relative to phase of design

- Pre design: avg=19.59% SD=13.96
- Schematic Design: avg=20.91% SD=9.8
- Construction Documents & Administration: avg=18.98% SD=13.6
- Design Development: avg=31.58% SD=14.6

*Other included: marketing efforts, color, purchasing

Figure 3. Sources of information

- Peer Reviewed
  - Academic Journals
  - Informedesign
  - Professional Organizations
  - Trade Publications
  - Product Literature
  - Conferences/CEU/Trade shows
  - Discussions with colleagues,
  - Other

*Other included: pricing, color trends, Aging in place solutions
Negotiating the Masses: Exploring the Frontiers of Communication in Disseminating Design Research

Amy Huber
Florida State University

ABSTRACT

“Negotiate the escalating mass of information to create thoughtful design solutions informed by research,” was among the recent calls made by CIDA visionaries (CIDA, 2014, p. 5). While designers generally want to make the best decisions for their clients, project stressors (e.g. deadlines, client demands, billability), can stymie their knowledge acquisition efforts, and given the complexities of practice, it may not be surprising that practitioners are committing little time to these pursuits. In fact, in a recent survey of 366 design practitioners, over half of the participants noted that they generally spent less than 10 minutes reviewing an information source. Further, only 11% referenced scholarly articles at all (Huber, 2015). With countless information sources available and little time with which designers can assess it, it may behove those design scholars who desire for their findings to be applied in practice to explore the potential of emerging modes of communication.

Recent research has posited that in order to provoke both attention and retention, engagement with the message is necessary. One such tactic in doing so is employing graphics and imagery (Lazard & Atkinson, 2014; Morrison & Vogel, 1998). Further, visual tactics could be considered normative to design practice (CIDA, 2014), and can include a range of media. A recent study asked interior design practitioners to rank their media preferences for receiving information and found they preferred the following: 1) graphic white paper (µ1.95), 2) research-based visual database (µ2.33), 3) videos (µ3.19), 4-tied) written white paper & augmented reality (µ3.76) (redacted). This presentation discusses their reasoning for these selections and the possibilities for communicating research in the future.
Methods
N=34 design practitioners participated in an online survey and viewed images of the five modes of communication listed above (see Figure 1). Respondents provided open-ended replies discussing the merits, weaknesses, and potential uses for the associated media. These responses were inductively coded by keyword and grouped into themes (see Table 1).

Findings
Graphic White Paper: Most supported the use of a graphic white paper due to their time constraints and interest. Additionally, they noted that they could view the document in its entirety and at their own pace. On these documents, respondents advocated for the use of visuals, reduction of text, and restriction of text to smaller segments.
Research-based visual database (i.e. Informed Pinterest): Respondents felt that such a site would make for a useful repository and were intrigued by its potential visual quality. Yet, having to download additional software or applications would likely limit its use. Videos-While videos were thought to be intriguing, many held that having to “sit and wait” for information could be frustrating. Additionally, while distilling the information can save the viewer time, they are then relying on the author to determine what information is most significant.
Written White Paper: Some held that written white papers provide an added sense of credibility, in addition to giving them a break from their typical onscreen viewing. Yet, most respondents suggested that these documents were time consuming and rarely attracted their attention.
Applications-Augmented Reality (i.e. Visual QR codes): Participants felt this type of media would be cumbersome given the current state of technology.

Summary
While the way in which information is communicated has drastically changed across multiple domains, the way in which empirical information is communicated has --for the most part-- remained unchanged. Findings from this survey suggest designers may be more apt to review information from graphic white paper formats. This information may assist scholars in more effectively communicating their findings with those in design practice.

REFERENCES (APA)


Redacted citation (xxxx). Redacted for blind review.
Appendix

Figure 1. Images of media types as presented to respondents.

Table 1
Responses surrounding media preferences

<table>
<thead>
<tr>
<th>Media</th>
<th>Strengths</th>
<th>Weakness</th>
<th>Practitioner suggestions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Graphic White Paper</td>
<td>• Ease in obtaining information</td>
<td>• At times too many words</td>
<td>• Change balance between words and imagery</td>
</tr>
<tr>
<td></td>
<td>• Trustworthiness</td>
<td>• Lack of implications to practice</td>
<td>• Provide navigational tools such as color</td>
</tr>
<tr>
<td></td>
<td>• Process at your own pace</td>
<td></td>
<td>coding, or numbered items</td>
</tr>
<tr>
<td></td>
<td>• Familiarity</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Ease in sharing</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Minimal amount of “space &amp; time”</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Visual database</td>
<td>• Repository</td>
<td>• Potential technological burdens</td>
<td>• Such a site would need to be intuitive and</td>
</tr>
<tr>
<td></td>
<td>• “Intriguing”</td>
<td></td>
<td>easy to locate</td>
</tr>
<tr>
<td>Videos</td>
<td>• Least effort for the viewer</td>
<td>• Waiting for information</td>
<td>• Use a “teaser” for research articles</td>
</tr>
<tr>
<td></td>
<td>• Attention</td>
<td>• Overreliance on video’s author</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Curiosity</td>
<td>• Timing (too slow or fast)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Distilled information</td>
<td>• Potential distractions</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Less retention of information</td>
<td></td>
</tr>
<tr>
<td>Written White Paper</td>
<td>• Credibility</td>
<td>• Time consuming</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Break from the computer screen</td>
<td>• Uninteresting</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Completeness</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Augmented Reality</td>
<td>• Layering of information</td>
<td>• Potential technological burdens</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Unfamiliarity</td>
<td></td>
</tr>
</tbody>
</table>
Visualizing the Program: Graphically Communicating Design Research

Kendra Ordia
Texas State University

ABSTRACT
The Information Age and the increased graphic fluency of the public has changed the way we communicate requiring design students to develop conscious methods and strategies for translating patterns, data, and research into tangible graphic forms building the dialogue between the graphic image and viewer. During the Programming phase, students are expected to become more knowledgeable about numerous aspects of a project by exploring, researching, and gaining insight to make informed and intelligent design decisions in the subsequent phases. All of the information for the project is gathered and analyzed during this phase as the student identifies the pragmatic, architectural, and poetic needs and demonstrates the depth of their consideration of the needs in a diagrammatic manner that illustrates a thoughtful approach and encourages creative use of the information. However, students consistently struggle to link their written, programmatic research to their conceptual design phases.

By visualizing the research gained in programming, students are able to develop a graphic vocabulary to communicate knowledge quickly and efficiently utilizing the processing power of the human visual system while creating a bridge between written and graphic analysis (Laseau 1980, 6). The notion that a picture can replace a thousand words or that a graph can replace a table of numbers has long been accepted. Information graphics (or infographics) provide a format that “utilizes engaging visuals that not only appeal to an audience hungry for information, but also aid in the comprehension and retention of the material being presented” (Lankow, Ritchie, Crooks 2012, 12). This basic process of making research visual allows the viewer to more easily comprehend the meaning by identifying patterns, trends, and outliers of
data. Qualitative graphic elements and quantitative information can be expressed graphically to reinforce or explain the project problem statement, goals, and objectives.

One of the primary means for this recognition is that our brains are able to identify and process many of these visual cues simultaneously through a course of action called preattentive process preceding any cognitive attempts to focus on any specific area. This process also allows us to filter through a diversity of media keeping our brains engaged as we digest the material more efficiently further facilitating understanding. However, it is not simply enough to make the subject matter visual – it must also be visually interesting. Constantly keeping the objective in mind, the information can be communicated in an engaging manner by using illustrative metaphor, representative iconography, or relevant framework. Overall, the goal is to establish clarity from complexity and to extend the reach of our memory systems (Lankow, et al. 2012, 45). In addition to committing an image to memory, infographics provide the student the opportunity to succinctly explain the evidence for design and gain buy-in from reviewers more quickly as they understand what elements are important for informing the program and ultimately the design.

Studies have shown the connections between the illustrative elements of graphics and the retention rates of the information displayed. Apart from attracting people to the information through the aesthetics of the infographic, the designer can also reduce the amount of time it takes the viewer to comprehend the message by using some simple graphic design tools: a story cannot be told with color and symbols only. The strongest visualizations are supported by written narratives to bring clarity to an infographic as images work to convey a concept for location, detail, or spatial structures. Infographics provide a visual format for design students to guide the viewer through a specific set of their programming data to leave the viewer with a detailed message about the interface between their research and design.

REFERENCES (Chicago)


Visualizing the Program: Graphically Communicating Design Research - Appendix

Narrative tools like infographics and diagrams can quickly express a concept and some of the supporting research method that can successfully support design idea through graphically visualization that doesn’t require extensive reading.

For the Programming research document, you should strive to communicate ideas, concepts, and information in visual form when appropriate.

The key to the successful use of the visual presentation of data is to ensure that the content or the information that you are conveying by visual means is easier to understand visually than through text, and that the information you are presenting in visual form is comprehensible to the person viewing it.

You can choose the visualization method that serves your project best: hand drawn, computer generated, physically modeled + photographed, etc.; the collection of data visually and its visual representation do not have to match one another.

Remember the rule of 5 discussed in class – make sure your diagrams are straightforward, clear/concise, and not trying to depict too much information at once. Consider how the graphic layout, color choices, text, etc. may reinforce the information being presented.

Also, remember diagrams are another form of language – unlike the written version, this version is a GRAPHIC representation of an abstract idea.

Note: THE FOLLOWING PAGES SHOW MULTIPLE STUDENTS WORK PER SLIDE. THE INDIVIDUAL INFOGRAPHICS ARE NOT MEANT TO RELATE TO THE OTHERS ON THE SAME PAGE.
PTSD
A MILITARY EPIDEMIC

High numbers of active-duty service members experience Post-Traumatic Stress Disorder (PTSD). PTSD is a mental health condition that results from exposure to traumatic or stressful events. Symptoms include re-experiencing, avoidance, and increased arousal.

1 in 5 active-duty service members experience PTSD

420,000 soldiers

560,000 soldiers

Categories of Symptoms:

- Hyperarousal
- Emotion dysregulation
- Negative cognition
- Re-experiencing

Common Effects Include:

- Sleep disturbances
- Anxiety
- Depression
- Substance abuse
- Suicidality

Traditional Treatment Used

- Antidepressants
- Antipsychotics
- Antianxiety medications

- 33% of the US Armed Forces receive some form of treatment.
- 20% of all U.S. service members deployed in Iraq and Afghanistan will need assistance with PTSD.
- 33% of those treated in military mental health facilities receive some form of psychiatric treatment.

Goals and Objectives:

1. Provide built-in adjustability for ease of use of all capabilities.
   - Incorporate design for all capable users and clinicians to use without causing work-related injuries.
   - Design ergonomic adjustments to accommodate varying populations (especially the elderly population in maintaining patient on and off the bed).

2. Incorporate hygienic materials (fabrics, metals, and plastics) to assist in infection control and ease of maintenance for nurses and clinicians as well as patients and staff.
   - Integrate anti-microbial technology within selected materials to increase the sterile properties of the material.
   - Ensure minimal points of contact and contamination of materials at surfaces patients will come in direct contact with.

3. Accommodate for new and changing technology within patient-centered care, specifically related to the exam room:

   - Allow patients to incorporate personal technology into the healthcare experience to reduce errors and foster better interaction.
   - Ensure durability of integrated technology and ease of use.

4. Design an innovative and cost-effective prototype with enhanced functionalities for increased flexibility and expanded application.

   - Allow the envisioned exam table to be available to the masses.
   - Provide a new option to be integrated into healthcare systems to accommodate an aging population.
COLOR PSYCHOLOGY

Importance
Color psychology has proved imperative when designing spaces and marketing products. Humans are wired to have different reactions to different colors. The sight of food alone immediately fires neurons in the brain. When it comes to food, a general rule is people are more comfortable eating and more likely to purchase if it is a natural color. People are turned away from and tend to have a suppressed appetite by colors that are not found in nature. The following information is a brief overview on the importance of color pertaining to a marketplace.

87% OF CONSUMERS PURCHASE PRODUCTS BASED ON COLOR

PURCHASES BASED ON
Appetance 93%

FUNCTIONAL 85%
SMELL/SCENT 15%

52% OF CONSUMERS DID NOT RETURN TO A STORE BASED ON AESTHETICS

Green
- A relaxing color, it is often associated with growth and health

Yellow
- A cheerful and warm color, but decreases consumers' stay

Red
- An eye-catching color and appetite stimulant

Purple
- A calming, decadent color but an appetite suppressant

Blue
- A serene color linked with loyalty but an appetite suppressant

Brown
- A comforting, neutral color, associated with earth

Black
- A positive and negative color, contrasts well with bright colors

Grey
- Works well with the entire spectrum, a great base color

BEHIND THE COLOR
“More colors. Unpolluted by meaning or unaligned with definite form, can speak to the soul in a thousand different ways.” — Kwan Young

THE GLOBAL WATER FOOTPRINT

Daily water footprint per capita (liters)

Salt Water 97.5%
Fresh Water 2.5%

70% OF EXISTING FRESH WATER IS USED FOR IRRIGATION IN AGRICULTURE

Footprint of Food and Products

Highest renewable water resources

China, Brazil, Russia, USA, India, Indonesia
Research by Design: Linking Student Researchers with Industry Needs

Lisa Waxman, Amy Huber, Stephanie Clemons & Lena McLane
Florida State University

ABSTRACT

Problem
As the design of interior spaces becomes more complex, the role of conducting and understanding original research is becoming an increasingly essential part of the design process. The 2014 CIDA Future Vision Report called designers to: “Guide design decisions through an understanding of research methods and findings” (p. 6). Yet, with the increased demand for higher standards and more skills, students in undergraduate interior design programs often lack time and opportunity to generate original research, understand its nuances, and apply findings to design solutions. Consequently, students struggle with how to best frame a problem and interpret needs of end-users. This unawareness can result in design solutions that appeal to the eye, but may not solve the design problem or create spaces that serve user needs. Dickinson, Marsden, and Read (2007) determined that students generally value design research, yet are unclear what the process entails. How can educators reshape student understanding of research using the studio experience?

Early in a typical studio sequence, students are given a design problem that requires the analysis of precedent projects and/or seminal research. As students advance they are given more flexibility in determining programmatic needs and perform a more rigorous precedent study analysis (Maturana, 2014). Yet, students are utilizing the findings and work of others; often misinterpreting or incorrectly applying it. Experiencing the process of developing original research may change how students approach design problems by developing more of an understanding of the process and language of research while fostering a more empathetic understanding of the human experience. Educators will discuss the process of connecting with
industry and shaping the studio project. They will outline situational factors and the process of drafting the learning goals prior to designing the project (see Figure 2). They will also discuss timelines (see Figure 3), expectations, the unique challenges and opportunities encountered in the process of conducting original research with students, and enhanced student outcomes resulting from the experience (see Figures 4 & 5).

Method
This presentation will discuss a case study completed by students in early-level studios taught at two universities (n=34 sophomores; n= 40 juniors) within CIDA accredited interior design programs. Each university partnered with a Herman Miller researcher, who helped shape the research questions and the site selection. Backwards Instructional Design (Wiggins, 1998, see Figure 1), and Integrated Learning Goals (Fink, 2003) served as framework for designing the project. The research question was: How does the design of non-classroom, work or study environments on a university campus influence students’ modes of work? The client was identified as each university’s campus library, both of which had been recently remodeled. The project had two phases: 1) conduct original research using qualitative techniques of behavioral mapping, personal interviews, observations, and photo ethnography. Analyze findings, and generate recommendations and 2) generate design solutions based on findings. Research methodology experts served as guest speakers. Participants were campus students utilizing the library. Presentations were made to clients and the industry partner at the end of each phase.

Outcome
While the students were initially more motivated toward the design of the project, they discovered they excelled in data gathering and analysis of findings. Their understanding of the process of research, terminology and methodologies increased as did their confidence in interpreting and presenting findings. Student presentations demonstrated stronger evidence-based design solutions. Including an industry partner interested in research findings communicated the importance of designs based on research.

REFERENCES (APA)


Appendix

Figure 1. Process of backward instructional design with enumerated steps.

Figure 2. Integrated learning goals of the project--Step 2 (Adapted from Fink, 2003).
Figure 3. Project timeline

Figure 4. Example of student outcomes showing group and individual work areas.
Figure 5. Example of student work showing environmental conditions and productivity
Experiential Learning for Lighting: Engaging Students in Hands-On Collaborative Lighting Workshops

Stephanie McGoldrick
Mount Ida College

ABSTRACT

Most interior design programs are able to devote only one or two courses specifically to lighting design, leaving limited time to teach lighting technologies and fundamental lighting design techniques. Experiential learning methods are often overlooked due to time constraints; however, these types of experiences not only lead to a holistic understanding of the lighting design process, but also add a level of excitement to this often intensive and technical subject. According to Brooks-Harris and Stock-Ward (1999), experiential learning activities such as workshops “provide environments for learning to occur in a dynamic and powerful manner” (p.1). Similarly, Kahvecioglu (2007) points out that “the integration of unique activities such as workshops, informal short-term studies, and diverse group organizations into the formal curriculum will provide a more creative and fruitful atmosphere for students” (p.12).

So, how might a faculty member integrate this type of activity into a lighting design course? The presenter will share the development of a one-day lighting design workshop, the Festival of Lights, as well as highlight the successes and learning outcomes of the activity. The process begins with careful planning including connecting with professionals, selecting sites on campus, contacting facilities to ensure power support, and marketing the event. There are five key phases that take place during the workshop: meet and greet, ideation, installation, presentation, and reflection. During the initial phases, interdisciplinary teams are formed, supplies are distributed, and brainstorming begins. The professionals present their equipment, and students experiment with different types of lighting. The longest phase of the workshop is installation,
during which the professionals and students work side by side to bring their ideas to life. After dark, displays are illuminated with the campus community and public invited to view them and listen to presentations by the design teams. Because experiential learning is meant to be a student-centered rather than teacher-centered approach (Briers, 2005, p.5), the faculty role is simply to facilitate a smooth process, circulate, and observe.

Evaluating the event’s effectiveness involves two methods: a rubric to assess the students’ active participation and personal reflection surveys to determine the workshop’s success as a learning tool. The following student comment confirms the workshop’s ability to reinforce classroom information: “This event was definitely valuable. Before the event, I had a hard time picturing what certain lights looked like while being used (beam spread, CRI.) I now feel as if I have a better understanding of how certain beam spreads and lighting qualities look while illuminated.” Another student responded, “The professionals . . . were extremely influential. . . They taught us about their products and methods of using them all throughout the day. Their experience supplied each of us with more real life knowledge, which for me is always more beneficial.” This response highlights enhanced understanding, as well as the value of the connections made. Similarly, the professionals provided positive feedback, for example, ”I think all of the students of all teams came together with a creative blend of material design and well-conceived lighting treatments.” In fact, the professionals and students alike have made numerous requests for another workshop.

The Festival of Lights provided an awareness of lighting design to the entire campus, leading to potential collaborations between the interior design department and other programs, like the fashion design department who is interested in developing a project in which students will model garments that incorporate LED lighting. Integrating an experiential workshop into the lighting design curriculum reinforces classroom learning and facilitates lasting connections between students and lighting professionals.

REFERENCES (APA)


Example of Student Project Brief

FESTIVAL OF LIGHTS

Main Objective:
Students will complete an all-day lighting design charrette in teams with professional lighting designers, representatives and manufacturers. Using lighting design techniques learned throughout the course, students will design and install an outdoor lighting display related to a particular theme/topic. The displays will integrate a variety of lighting equipment types, donated by lighting manufacturers and representatives, as well as props. Students must actively participate in all phases of the design charrette including ideation, installation, and presentation of the final design.

Deliverables:
- Sketches and notes to be presented during a sharing session on the day of the event
- A physical lighting display to be shared with and presented to the public
- Responses to reflection questions to be submitted after the event

Important Project Considerations:
- Consider how lighting interacts with different surface types and textures when choosing light fixtures and placing them.
- Props are allowed, so select items that may add drama, sparkle, interesting shadows, or unique textures to your display.
- While the professionals are here to share their expertise and assist with the installations, this is a student-driven project. All students should be openly participating in the design and creation of the displays as well as leading the presentation sessions. Participation during all phases of the project will directly affect an individual’s grade.
- Students are expected to participate for the entire event. (Please see the instructor separately if you have any other class, sports, or professor meeting conflicts.)

Due Dates:
- Friday, May 1st (10am-10pm): Festival of Lights Event (A more detailed schedule will be provided closer to the event day.)
- Thursday, May 6th: Complete the online survey containing reflection questions related to the event.
Example of Event Schedule

FESTIVAL OF LIGHTS

SCHEDULE

10:00am-10:30am: Coffee, Meet and Greet, Form Teams, Receive Project Packets, Review Schedule for the Day [Insert Location]

10:30am-11:30am: Team Meetings; Develop Theme Ideas and Lighting Concepts (Assigned Team Areas)

11:30am-12:30pm: Lighting Fixture “Auction,” Teams choose material and equipment to use for their displays [Insert Location]

12:30pm-1:30pm LUNCH BREAK and Idea Sharing [Insert Location]

1:30pm-5:30pm: Fixture and Display Installation (Assigned Team Areas)

5:30pm-6:45pm: BUFFET DINNER [Insert Location]

7:00pm: RECEPTION- ALL INVITED [Insert Location]

7:15pm-9:15pm: Final Lighting Adjustments, Team Presentations, Public Viewing and Voting [Insert Location]

9:15pm: Prizes awarded [Insert Location]

9:30pm: Clean Up and Tear Down Displays (Assigned Team Areas)

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Appendix: Page 3
(Experiential Learning for Lighting: Engaging Students in Hands-On Collaborative Lighting Workshops)

Event Photographs

Brainstorming

Lighting Product Presentations

Experimentation

Construction of Display

Final Lighting Installation
Example of Student Reflection Survey Questions:

Student Name:

1) What key roles did you take on during the planning and installation phases of your lighting display?
2) What were the most challenging and/or rewarding parts of your experience with the Festival of Lights?
3) How do you think this event changed your perspective on lighting design?
4) What about the Festival of Lights activity surprised you?
5) Do you think this event was a valuable part of your learning experience at (college or university)? Why or Why Not?
6) Do you think this event had an effect on the campus community as a whole? How? If not, why?
7) What benefit do you think there was to having an event where you can interact and collaborate with professionals? How did the professionals enhance your experience at this event? If not, why?
8) Additional Comments:
## Example of Grading Rubric

**STUDENT NAME:**

**DATE:**

**GRADE:** /10

<table>
<thead>
<tr>
<th>Grading Criteria: Festival of Lights</th>
<th>Excellent, Exceptional (2.5 points)</th>
<th>Demonstrated Strengths (2.2 points)</th>
<th>Average/ Fundamental Mastery (1.9 points)</th>
<th>Questionable or Incomplete Mastery (0-1.8 points)</th>
<th>Total Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Content:</td>
<td>CLEAR and DETAILED presentations of lighting concepts; Lighting display showed complete UNDERSTANDING of different types of lighting design techniques; Concept and design approach was VERY THOUGHTFUL</td>
<td>MOSTLY SUCCESSFUL presentations of lighting concepts; Lighting display showed ADEQUATE UNDERSTANDING of different types of lighting design techniques; Concept and design approach was THOUGHTFUL</td>
<td>Presentations of lighting concepts were INADEQUATE; Lighting display showed LITTLE UNDERSTANDING of different types of lighting design techniques; Concept and approach was UNCLEAR</td>
<td>Did NOT participate in lighting concept presentations; Concept and approach was INCOMPLETE</td>
<td></td>
</tr>
<tr>
<td>Visual and Verbal Presentation:</td>
<td>Verbal presentations were PRACTICED and PROFESSIONAL; EFFECTIVE use of lighting design language; EXCEPTIONAL use of visuals and VERY ORGANIZED presentations</td>
<td>Verbal presentations were CLEAR; MODERATE use of lighting design language; ADEQUATE use of visuals and ORGANIZED presentation</td>
<td>Verbal presentation is somewhat UNCLEAR; MINIMAL use of lighting design language; ATTEMPTED use of visuals and DISORGANIZED presentation</td>
<td>UNPROFESSIONAL verbal presentation; LIMITED use of lighting design language; Visuals are LACKING and presentation is UNCLEAR</td>
<td></td>
</tr>
<tr>
<td>Professionalism and Teamwork:</td>
<td>Student showed INITIATIVE and ACTIVELY participated in the project; Student was PROFESSIONAL and MATURE</td>
<td>Student showed SOME INITIATIVE and MOSTLY participated with his/her team; Student was SOMEWHAT PROFESSIONAL</td>
<td>Student did not participate with his/her team to the FULL EXTENT and showed LITTLE initiative and professionalism</td>
<td>Student did NOT actively participate in the project; Student handled him/herself UNPROFESSIONALLY</td>
<td></td>
</tr>
<tr>
<td>Completion of Assignment:</td>
<td>Student participated in ALL parts of the project to the HIGHEST DEGREE; Student submitted survey responses ON TIME</td>
<td>Student participated in the MAJORITY of the project phases, and/or submitted the survey responses within 12 hours of the deadline</td>
<td>Student participated in VERY FEW of the project phases, and/or submitted within 24 hours of the deadline</td>
<td>Student’s participation was LACKING and/or he/she submitted the survey responses after 24 hours of deadline.</td>
<td></td>
</tr>
</tbody>
</table>
Can Introducing Open Source and Co-designing Opportunities in Design Curriculum Help Grow a Culture of Empathy? How Open Are You?

Moira Gannon Denson & Stephanie McGoldrick
Marymount University

ABSTRACT

“Open design not only forces designers to think about their profession, role, attitude and competencies, but also challenges design educators to scrutinize their educational system” (Hummels, 2011, p.167). When we discuss intellectual property in the classroom, we assure our students that we value their individual solutions to creative problem solving. But what happens when we take design outside the classroom and ask our students to enter the world of co-designing and open source design?

In 2013 and 2014, two interior design faculty at different institutions experienced this approach when they and their students attended the United Cerebral Palsy’s (UCP) Life Lab’s Enabled By Design-athon. The three-day event focused on accessibility and usability for all, utilizing technology, product design and prototyping. The heart of the event was team empathy exercises, where participants were invited to engage with individuals with varying disabilities and simulate their daily challenges. After completing the simulations, the teams developed a realistic inclusive design solution. Each team pitched its ideas to a panel of experts with solutions ranging from assistive bathroom accessories to playful crockery for dexterous dining.

Participating in these immersive experiences sparked the idea of incorporating similar design challenges and empathy activities into the faculty’s programs using two methods: large scale on-campus design-athons and small scale empathy activities in design studios. The goal of the varied activities was to help their students better understand user needs. According to Thomas,
J. & McDonagh, D., it is extremely valuable when training young designers to, “take them outside their comfort zones, by seeking to develop empathy with the end user for whom they are designing. Empathic modelling offers designers the opportunity to develop greater insight and understanding in order to support more effective design outcomes” (2013, p. 1). In this presentation, the faculty will share successes and challenges to immersing students in co-designing and open source design and working with design professionals, persons with disabilities, health professionals, and students at other institutions to solve a problem.

One success was how students’ approach to leadership was enhanced, as they took ownership over the school-wide design-athon events and served as facilitators, bringing what they learned to their own communities. A student participant said, “I was excited and felt more comfortable since I had already experienced it once.” Incorporation of the empathy activities into design studios also changed the students’ views. “This exercise made me view people with these limitations in a new way... experiencing something very similar made me understand much more closely how difficult their everyday lives are” said one. Through, “the empathy exercises I was able to feel personally connected, which inspired me to push a little harder in trying to find solutions to the difficulties I experimented with (which I didn’t before).” As these two faculty members discovered, entering the real world through community based design-athons, where the user’s needs are front and center, can help build a culture of empathy and collaboration.

When taking students outside the classroom and asking them to enter the world of empathy exercises and co-design, their design approach evolves, their outlook changes, and they come away with an experience that alters them as a person and as a future design professional. As student participants shared, “I understood it [Universal Design] in a more personal way since we had an opportunity to collaborate with people with a range of abilities who depended on good design to make their lives run smoothly,” and the Design-athon “opened my eyes to accessibility and changed my way of thinking about design and how it can be used to accommodate everyone, no matter their ability.”

REFERENCES (APA)


EMPATHY EXERCISES

(Group #1: Mobility Issues)

In groups, you will go through the following empathy exercises. One student will participate as the person with a particular limitation. The other students will reenact the thoughts, experiences, and analyze the difficulties experienced by the student with the simulated limitation. Part way through each exercise the students will switch places.

* The student with the limitation should not "cheat" but truly participate in the exercise as if this is a real disability.
* The student recording should NOT help with other student with any of the required tasks. Rather, they should note these difficulties, or note if the student cannot complete a particular task due to the disability. The other student may help if the student is in danger (e.g., don't let them walk into traffic, trip, etc.).
* Take photos! These could be useful for other projects and research during the class. Photograph things that hindered the person with the disability or things that were helpful.
* At the end, write up a summary of the experience, difficulties, and suggested solutions for your design project that were influenced by these empathy activities.

RECORD THE FOLLOWING DURING/AFTER THE EXERCISES:
- What challenges are you currently facing? What issues did you encounter?
- Was it easy or difficult to enter, exit, or move through spaces?
- Were you able to complete the designated tasks? If not, why? If so, was it easy or difficulty and why?
- How were you feeling throughout the exercise? Why?
- How did this particular exercise change your view of someone who might be experiencing this limitation every day?

EXERCISE #1: PHYSICAL LIMITATIONS

1a) Complete all of the steps using the wheelchair

Student #1 in the Wheelchair
- Leave the classroom
- Enter and use the restroom
- Wash hands in the restroom sink
- Use a water fountain
- Exit the building
- Go across campus and enter the cafe
- Create a scenario where you would have to pick up food and pay for the food

SWITCH PLACES

Student #2 in the Wheelchair
- Leave the cafe
- Go across campus to the library
- Create a scenario where you would have to use one of the computers in the lab area of the library
- Return across campus to the classroom
- Enter and use the restroom
- Wash hands in the restroom sink
- Use a water fountain
- Return to the classroom

* Repeat if additional students are in the group until ALL students have completed the exercise using the wheelchair.

EXERCISE #2: PHYSICAL LIMITATIONS

1b) Complete all of the steps while wearing the bulky gloves (simulates arthritis or difficulty gripping things or using hands)

Student #1 with the gloves
- Walk to the vending machines
- Create a scenario in which you would purchase an item in the vending machine
- Return to the classroom
- Type a few sentences on the computer about your experiences so far
- Print the document and pick it up from the printer
- Tape it to the chalkboard and write your name above it.

SWITCH PLACES

Student #2 with the gloves
- Walk to the vending machines
- Create a scenario in which you would purchase an item in the vending machine
- Return to the classroom
- Type a few sentences on the computer about your experiences so far
- Print the document and pick it up from the printer
- Tape it to the chalkboard and write your name above it.

* Repeat if additional students are in the group until ALL students have completed the exercise using the gloves.
Empathy Exercise Images
Design-a-thons: Presentations

Design-a-thons: Team Collaboration
UCP Sponsored Design-athon Outcome: Awarded Best Prototype

Final Prototype

Prototype Design Process
On-Campus Design-thon Outcomes

**Inspiration**

**Empower Bright**
Design-thon 2015

**Two-Part Solution**
- Locator glow strip (¼“)
- Direct guide glow strip (8”)(18”)

**Loss of Sight= Shower Nightmare**

**No need to Fear: EZ Snap is here!**
- Made with Waterproof Material
- No Slip Grip Backing
- Magnetic Snap Latch
- Comes in various sizes, colors and textures making it easy to distinguish all of your bottles!
Implementing Evidence-based Design in Hospital Architecture and Changing Design Process: A Pilot Case Study

Suining Ding
Indiana University Purdue University Fort Wayne

ABSTRACT
As a new paradigm in healthcare design in the 21st century, evidence-based design (EBD) has played a critical role in changing hospital architectural design process and shaping new images of hospital architecture. Evidence-based design is research-informed and its results not only affect patient clinical outcomes, but also medical facility operational efficiency and its staff retention and satisfaction. The design process traditionally consists of four phases: programming/conceptual design, schematic design, design development, and construction documents. Joseph et al. (2008) outlines a cyclical framework for the evidence-based design process that is presented as: 1) Identifying available research evidence-literature, existing knowledge, original data collection; 2) Critically analyzing research evidence; 3) Design Innovations; and 4) Conducting research studies to assess the effect of design innovations (Joseph & Kirk Hamilton, 2008). What remains unknown, however, is how these EBD steps are incorporated in traditional design process.

It has been a promising path forward in healthcare design that design decisions should be made based on evaluation of creditable evidence (Hamilton & Watkins, 2008). Yet, as in any field, execution typically lags behind theory and research (Ulrich, Berry, Quan, & Turner Parish, 2010). Thus, little information has been found regarding how credible research is implemented in healthcare design practice in order to achieve the best possible outcomes. The purpose of this pilot project is to understand how evidence-based design has been implemented in hospital
architectural design process through a case study in Grandriver Hospital in the United States. Grandriver Hospital is a successful project that is designed by implementing research evidence.

This study takes a qualitative approach with grounded theory methodology. The methods used for this research are multiple sources of data collection through document reviews, observations and interviews. Total seven participants were interviewed including architects, designers and contractors. As part of the grounded theory methodology, a three-stage coding paradigm is used to organize and analyze the data. The research findings indicate that value of evidence-based design for healthcare settings is indisputable, and its benefits to patients, staff, and hospital administrators are undeniable. Architects and designers have used credible research evidence to support their design decisions. Comparing with traditional design process, there are two major differences in this project's process. One difference is using Integrated Project Delivery (IPD) approach even though it is not contractual. IPD means all stakeholders were brought on board at the very beginning by participating in several design charrettes. Another major difference in the design process is to build “mock-ups” for patient rooms and nurse stations. It ensured that the users' needs and expectations were met. Regarding the implementation of research evidence, the common theme running through the interviews is that clear research evidence linking positive outcomes is needed.

Sometimes, it is frustrating for designers to read research articles that state future research is needed regarding the research findings. Given the nature of the design activities that are creative and intuitive, architectural theories should propose solutions in the form of analytic-normative complexes of theoretical ideas (Hillier, 1996). The normative statements in the form of prescriptions for particular environment attributes need to be supported by better understanding and explanation (Rapoport, 1987). Since the subject matter of Evidence-based Design is complex and multifaceted, implementing Evidence-based Design in healthcare architecture and mastering the knowledge for the application of research findings in healthcare settings require sensitivity and creativity.

REFERENCES (APA)


Design Process Rubrics: Identifying and Enhancing Critical Thinking in Creative Problem Solving

Marlo Ransdell
Florida State University

ABSTRACT

Background
“Critical thinking is a habit of mind characterized by the comprehensive exploration of issues, ideas, artifacts, and events before accepting or formulating an opinion or conclusion” (AAC&U, 2010b, ¶2). Critical thinking within creative domains is many times difficult to teach and assess. However, CIDA Futures has identified creative and critical thinking skills as paramount for students in design education and professionals embedded within the discipline (CIDA, 2014). While programs seek to teach students critical thinking skills, the delivery and assessment of these are many times difficult to objectively assess. This presentation will explore domain specific research and the pedagogical development of rubrics to assess and evaluate critical thinking in interior design problem solving. Rubrics used in education help assess student work, support student learning, and many times help blur the distinction between assessment of student work and instruction (Andrade, 2000; AAC&U, 2010a). While educational rubrics vary, common features are a list of criteria and gradations of quality with descriptive performance criteria that help instructors and students alike focus on enhancing the development of necessary skills (Andrade, 2000; AAC&U, 2010a; AAC&U 2010b).

Methodology
The rubrics presented here were developed within a larger university wide study on critical thinking in domain specific areas. The university adopted the AAC&U VALUE critical thinking rubric in 2015 for a two-year study of critical thinking of students in their last two years of baccalaureate degree programs. The Critical Thinking Assessment Test (CAT) test was administered to rising interior design juniors in the spring of 2015. The CAT was also given to
graduating interior design seniors in spring of 2015 to represent a control group for the research method. Based on results of the CAT test scores, interventions were developed to enhance the 5 aspects of critical thinking (explanation, evidence, context, position, and conclusions) for implementation over the following two years of interior design courses. Each of the 15 CAT questions was paired with the five critical thinking aspects in the VALUE rubric. Further, each of the five critical thinking aspects was paired with the commonly accepted stages of the design process. The outcome of the study developed detailed domain specific rubrics to assess and evaluate critical thinking within interior design projects and process.

Results and Discussion
This presentation specifically focuses on the adaptation and development of a critical thinking rubric for interior design education and borrows from other rubrics in problem solving, creative thinking, information literacy, inquiry and analysis, and communication skills. It explains the development of explicit and clear descriptions in a common language for students to go from simply understanding new knowledge to applying and generating new knowledge as they move from benchmark to capstone performance criteria within the rubric. Participants will be engaged through a short description of the larger university wide study and focus in on the domain relevant needs of interior design education. The critical thinking VALUE rubric will be shared along with the five adapted sub-rubrics created for the research study in each of the areas of critical thinking including: explanation of issues, defining relevant evidence, using appropriate context and assumptions, defining a position, and assessing conclusions. The development of explicit and specific performance criteria will be discussed along with identifying relevant language to communicate effectively to students through the design of a meaningful rubric for interior design education. Results will also highlight deficiencies found in critical thinking from the CAT test and the way rubrics can enhance these skills for students, not only in interior design problems but as lifelong critical thinkers.

REFERENCES (APA)


# Critical Thinking VALUE Rubric

<table>
<thead>
<tr>
<th></th>
<th>Capstone 4</th>
<th>Milestone 3</th>
<th>Milestone 2</th>
<th>Benchmark 1</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Explanation of Issues</strong></td>
<td>Issue/problem to be considered critically is stated clearly and described comprehensively, delivering all relevant information necessary for full understanding.</td>
<td>Issue/problem to be considered critically is stated, described, and clarified so that understanding is not seriously impeded by omissions.</td>
<td>Issue/problem to be considered critically is stated but description leaves some terms undefined, ambiguities unexplored, boundaries undetermined, and/or backgrounds unknown.</td>
<td>Issue/problem to be considered critically is stated without clarification or description.</td>
</tr>
<tr>
<td><strong>Evidence (Research and Programming)</strong></td>
<td>Information is taken from source(s) with enough interpretation/evaluation to develop a comprehensive analysis or synthesis. Viewpoints of experts are questioned thoroughly.</td>
<td>Information is taken from source(s) with enough interpretation/evaluation to develop a coherent analysis or synthesis. Viewpoints of experts are subject to questioning.</td>
<td>Information is taken from source(s) with some interpretation/evaluation, but not enough to develop a coherent analysis or synthesis. Viewpoints of experts are taken as mostly fact, with little questioning.</td>
<td>Information is taken from source(s) without any interpretation/evaluation. Viewpoints of experts are taken as fact, without question.</td>
</tr>
<tr>
<td><strong>Influence of Context and Assumptions (Concept Development and Schematic Design)</strong></td>
<td>Thoroughly (systematically and methodically) analyzes own and others' assumptions and carefully evaluates the relevance of contexts when presenting a position.</td>
<td>Identifies own and others' assumptions and several relevant contexts when presenting a position.</td>
<td>Questions some assumptions. Identifies several relevant contexts when presenting a position. May be more aware of others’ assumptions than one's own (or vice versa).</td>
<td>Shows an emerging awareness of present assumptions (sometimes labels assertions as assumptions). Begins to identify some contexts when presenting a position.</td>
</tr>
<tr>
<td><strong>Student’s Position</strong></td>
<td>Specific position (perspective, thesis/hypothesis) is imaginative, taking into account the complexities of an issue. Limits of position (perspective, thesis/hypothesis) are acknowledged. Others’ points of view are acknowledged within position.</td>
<td>Specific position (perspective, thesis/hypothesis) takes into account the complexities of an issue. Others' points of view are acknowledged within position.</td>
<td>Specific position (perspective, thesis/hypothesis) acknowledges different sides of an issue.</td>
<td>Specific position (perspective, thesis/hypothesis) is stated, but is simplistic and obvious.</td>
</tr>
<tr>
<td><strong>Conclusions and Related Outcomes (implications and consequences)</strong></td>
<td>Conclusions and related outcomes (consequences and implications) are logical and reflect student’s informed evaluation and ability to place evidence and perspectives discussed in priority order.</td>
<td>Conclusion is logically tied to a range of information, including opposing viewpoints; related outcomes (consequences and implications) are identified clearly.</td>
<td>Conclusion is logically tied to information (because information is chosen to fit the desired conclusion); some related outcomes (consequences and implications) are identified clearly.</td>
<td>Conclusion is inconsistently tied to some of the information discussed; related outcomes (consequences and implications) are oversimplified.</td>
</tr>
</tbody>
</table>
Let’s Build a Cathedral Together: Improv, Collaboration, and the Design Process

Roberto Ventura
Virginia Commonwealth University

ABSTRACT

“Don’t bring a cathedral to a scene. Bring a brick; let’s build together.” -- Del Close

Motivation
At first glance, improvisational comedy and design appear quite different; however, the improv process provides a number of insights useful in design. Improvisers create in real-time by generating specific, unique responses in reaction to partners and situations. Most importantly, because of this reactive give and take, improvisers must be experts at collaboration. The importance of collaboration is significant. In the classroom, collaborative work generally generates greater amounts of information, stimulates creativity, heightens retention, inspires more satisfaction, and provides for greater self-reflection among students (Burke, 2011). These benefits are not limited to the classroom, as good collaborators are highly sought after by employers (Blowers, 2000) who list strong collaborative skills among the top ten desirable traits in potential hires (Graduate Outlook Survey, 2010).

Problem
Given the collaborative nature of interior design, educators should look to develop students who can collaborate well. Although collaboration is important, few people are actually taught how to collaborate. Since collaborative skills are not intuitive, students need directed instruction in order to learn good practices. Because improvisation relies so heavily on collaboration, designers who learn the basics of the improv process might be able to develop better collaborative skills.
Method
In a senior level interior design studio, students explored how improv principles inform the design process as they developed a hypothetical performance space for a local improvisational comedy troupe. First, students studied principles of improvisation - play; acceptance of failure; saying “yes;” yes, and; creating rules (Morris, 2012) - before being led through a workshop by two founders of a local improv company. Studio classes began with exercises reinforcing important improv principles, which then formed the foundation for quick charrettes focused on generating conceptual parts. These charrettes yielded two-dimensional collages, which underwent a series of abstractions before students transformed them into three-dimensional forms and spaces. Once students began schematic and design development, their traditional methods - bubble diagrams, sketching, modeling, and space planning - were disrupted by additional improv experiments. Exercises emphasized the fusion of conceptual three-dimensional work with the pragmatics of organizing interior space.

Results
The studio aimed to expose the students to improvisational principles and to examine how they could inform and aid designers in their process. Initiating each studio with improv exercises enabled students to practice, retain and explain principles with good clarity. The collage charrettes provided the students with a strict framework within which they could develop conceptual work based on improv principles at a brisk pace that had relevance to the studio project. These concepts also informed the design process through construction documents and specifications.

Reflections
Students demonstrated great dexterity and understanding of improv principles, and integrated them well into their design work. In subsequent iterations of this model, an explicit collaborative component should be explicitly integrated. Students worked individually and were not explicitly asked to practice the improv principles in an actual collaboration. More concentration in this area could bring the focus of the studio exploration full-circle. Tangentially, students appeared to enjoy the improv studies, and learned more about each other. The exercises also introduced the students and their personalities to the instructor. Students demonstrated little to no resistance to these introductory improv exercises, which could be attributed to the foundations established in the initial workshop put on by the two improvisors.
REFERENCES (APA)


IMPROV CHARRETTES found material collages based on the improv principle "play" transition to building component analogues

TRANSITION collages evolve from two-dimensional studies into three-dimensional forms and spaces
**DISRUPTION** inspired by the classic improv exercise “mind meld,” three-dimensional collage studies merge with space planning to engage the building site.
PLAY THE GAME final presentation renderings, guided by the improv fundamental requiring performers to intuit rules of a collaboratively created game
IMPROV CHARRETTES found material collages based on the improv principle “yes, and...” transition to building component analogues.

INTERACTION “yes, and...” requires performers to listen to an offering, respond, and build upon it, collaboratively discovering the common thread.
REACT details of main performance space which reacts to the presence of an audience

REACT final presentation
A Product of Sharing: Designing a Culturally Adaptive Exhibit

Kyra Christiansen, Kathleen Ryan
Washington State University

ABSTRACT

Principal Topic
Historically, North American museums have portrayed Native Americans as dying or extinct cultures with exhibitions that were interpreted by non-indigenous curators and designers (National Museum of the American Indian (U.S.), 2000). This mode of design resulted in cultures bifurcated from their representative artifacts thereby removing their culturally associated meanings. Design of cultural exhibits has traditionally been conducted in a colonial vacuum where artifacts are displayed by the museum rather than shared by their originator. Imbued meaning and socio-cultural considerations of the Native Americans are lost in blanket interpretations via Western, empirical thinking. In doing this, many museums misrepresented indigenous populations and misinformed museum visitors about the relevant developmental history of Native Americans (Phillips, 2000). As a result, a few Native populations have sought to represent themselves by coordinating with architectural exhibit design firms that specialize in culturally adaptive exhibitions to share their story. (Lonetree, 2012).

Methods
The research and design intent of this project was to collaborate with Nez Perce representatives to create of the Memories of Celilo Falls exhibit in an academic anthropology museum in the Pacific Northwest. The exhibit is based on slides that were discovered in an academic library and tell a visual story of Celilo Falls before the Dalles Dam was built and flooded the area (Ullin, ca. 1940s). The research attends to the design challenge of sharing the 29 glass slides with museum visitors. The slides were labeled with denigrating descriptions of Native Americans with only brief explanations of the activities occurring in each picture. The short
Design Process • Scholarship of Design Research • Presentation

descriptions did not give the full story of the events that were to unfold on the Columbia Gorge and how it would change the Native culture in that area forever. Two research methods were employed to discover the content for the exhibit: 1) an in-depth analysis was conducted of the slide images to identify the person(s) and activity to uncover archival sources and 2) interviews of Nez Perce tribal representatives as host tribe to the museum.

Results
Life size reproductions of the slides were chosen to immerse visitors in the Native experience accompanied by culturally derived graphics to continue the story. Collaboration with Nez Perce representatives and the academic departments in anthropology and design resulted in an exhibit that conveyed the story of Celilo Falls with a living testament by a tribal member who worked the Falls in his youth. Most of the Native Americans pictured on the slides were identified through this work along with their story of day-to-day interactions, familial and cultural structures and finally the struggle to save their way of life which is otherwise submerged and lost under the Dalles Bridge present day. This exhibit is a product of sharing the cultural context, rather than the simple displaying of artifacts related to the antiquated perception of a dying or dead culture.

REFERENCES (APA)


Are Creativity and Spatial Ability Improved Through Education?: A Longitudinal Study of a Cohort of Interior Design Students

Ji Young Cho & Pamela Evans
Kent State University

ABSTRACT
This longitudinal study is about the changes in the creativity and spatial ability of 23 interior design students from their freshman to senior years. Nurturing creativity is one of the goals of higher education (Runco, 2004); thus improved creative thinking and problem solving are expected. In addition, because interior designers deal with 3-dimensional space, improved spatial ability is also expected. A longitudinal study was conducted in a Council for Interior Design Accreditation-accredited program at a Midwestern university to determine whether creativity and spatial ability change once students enter an interior design program.

The Torrance Tests of Creative Thinking (TTCT), a tool to measure divergent thinking, which is an indicator of creativity and regarded as the best predictor of adult creative achievement (Torrance & Wu, 1981), was used to assess creativity. The TTCT consists of five dimensions (fluency, originality, elaboration, abstractness of titles, and resistance to premature closure) and 13 strengths. Two existing spatial ability tests (Ekstrom, French, Harman, & Dermen’s (1976) paper folding and Shepard & Metzler’s (1971) mental rotation) and the Architectural Spatial Ability Test, developed by the author of this study, were used to measure spatial ability. In their freshmen and senior years, students took the TTCT and three spatial ability tests twice. Their TTCT performances were scored through a professional scoring service. The spatial ability performances were scored by research assistants. The scores of 23 interior design students, who started an interior design program at the same time and successfully completed the program, were analyzed using a paired sample t-test.
The analysis shows that although in all creativity dimensions and spatial abilities scores of fourth-year students were higher than those of freshmen, statistically significant differences were observed in creativity but not in spatial abilities. A statistically significant increase was shown in the following areas: fluency, abstractness of titles, and resistance to premature closure. Fluency is the ability to generate many relevant solutions; abstractness of titles shows the ability to think abstractly, and resistance to premature closure is the ability being openness. In addition, the minimum score of all dimensions of creativity showed substantial increase from freshmen to senior years. To illustrate, minimum scores of originality increased from 2 to 11 from freshman to senior years, elaboration from 46 to 73, and abstractness of titles from 3 to 51. The maximum scores showed no difference.

This result shows that the education process contributed to creativity, particularly the ability to generate numerous relevant solutions, abstract thinking, and openness. Students with lower scores in creativity also improved; however, no significant influence on originality, elaboration, and spatial abilities were observed. It appears that spatial ability is innate or less influential than creativity at best. The presentation will include discussion on the comparison of findings from the current study and those from the literature of other disciplines and will provide an opportunity to discuss and reflect on the content of interior design education with regard to creativity and spatial abilities.

REFERENCES (APA)


Connecting Millennials with Clients: Examples from Studio projects

Christina Birkentall
University of Kentucky

ABSTRACT
At upper class levels, students need to expand on basic design principles and technical skills with programming and communication skills for clients. Two studio courses focused upon the collaborative nature of interaction with end users to help create the critical thinking skills needed of the student.

Statement of the problem
Millennials often lack the skills to effectively communicate with clients and each other (Winograd & Hais, 2011). Client-based learning projects are perceived by the student to be more challenging, interesting and valuable than traditional theory-based assignments and help the student develop skills in problem-solving, critical reasoning and adaptability. With the use of client-based pedagogy, students learn how to effectively respond to real clients by developing better communication skills (Addams et al, 2010). Students gain project management and collaboration experience, a portfolio piece and valuable preparation for internships. Clients gain fresh insight and new technologies employed by the students (Cooke, Williams, 2004). The challenge for the professor is to engage students in collaboration with the stakeholders while reinforcing course objectives.

Method
Using the studio as the learning platform, the professor set up the opportunities to interact with stakeholders on fictional projects. In the Retail studio, the individual students produced a prototypical store design for an existing business to franchise. Lectures included the future of the physical store; retail as experiential design; branding and historic preservation concerns. No
footprint was given and the concept store needed to fit into an existing Main Street of any town. Students utilized web based meeting opportunities to interview and present to the client. In the Healthcare studio, students were tasked to create from the ground up a medical home and life center for young people afflicted with Autism Spectrum Disorder. In teams, they researched and created programming questions for a variety of stakeholders including parents, doctors and consultants. Designs showcased solutions via plans, 3D modeling, product selections and wayfinding. In addition, the teams worked with an outside Environmental Graphics class to help create site specific way-finding solutions. The teams presented to the stake-holders in-person, showcasing unique and diverse solutions.

Outcomes
The projects allowed students to engage and learn how to work as a team; with related professions and with real clients, solving complex problems through design. All students responded positively to the concept of working with real clients; developing their listening and summary skills. The class that worked in teams discovered their own leadership skills and respect of the others opinions; learning how to work with the diverse skill sets of each individual to create the best outcomes for the clients.

Future implications
The student’s technical knowledge is measurable with final portfolio pieces, but teaching critical skills of collaboration and communication is often missing in the curriculum. By providing the student access to real clients and projects, the process creates a learning experience that allows them to be more at ease with their future collaborations once they become professionals in the building industry.

REFERENCES (APA)

The design problem...

Teams of Seniors were tasked to design a medical home and life center for people with Autism Spectrum Disorder (ASD). This concept was to be completed within one semester. The programming and design were created by researching the medical needs and concerns of a person with ASD. They interviewed 4 parents of children with autism and Dr. Laurence Sugarman, a pediatrician who treats children at Easter Seals and who also runs a hypnosis clinic at the university. They also interviewed Marika Beise, a professional design consultant who is currently working with University of Rochester on their design of a similar type of medical facility. Way-finding designs were created in collaboration with Prof. B. Meader’s Environmental Design Graphics junior class as part of the Vignelli Center for Medical Design Studies. Stuart MacKenzie, a licensed landscape architect along with being a parent of a child with autism and a Board member of Equicenter, a therapeutic horse riding center; worked with the students to design outside gardens to create a natural play area used for therapy for the patients and their caregivers.

Solved by the students...

The teams created 3 uniquely different concepts and designs, each determining what was the most important for their visions.

Turn The Tide- One team designed for all needs to be served in one larger organically shaped building. This building features a fish tank flanked by the stairs leading to the second floor. The first floor has a fitness center, a café and medical offices and the second floor holds therapy rooms, an apartment for training independent life skills and staff offices.

Four Connections - Another team designed separate buildings centered on an interior courtyard; each space dedicated to servicing the needs of the patient and family. The buildings are identical in shape, but each functions in a different capacity. One holds medical functions, another houses therapy rooms. The other two function as life and fitness areas, with extended training areas for life skills.

Find Your Piece - The third team created a series of buildings to provide for the variety of functions required. The larger medical facility includes more formal therapy needs, while the life center can also be used to assist with therapy of soft skills. A separate apartment area allows for training of life skills while providing respite rooms for families in need.
Design Concept

The Turn the Tide Center will create an inclusive medical treatment and life center to accommodate all the needs of an individual with Autism Spectrum Disorder of all ages, encompassing all areas of treatment, education, and recreation. As a result, it will create a comforting home-like experience where needs are understood and satisfied. Because the Autism Spectrum is so broad and diverse, the accommodation of all needs requires a very versatile design. It is of utmost importance that different sensory needs of the patients are addressed. Furthermore, unexpected change makes individuals with ASD feel uneasy or stressed, so controlling aspects such as color and form will help the users feel more comfortable.

Our design will be based on the natural forms created in water and will emulate the ebb and flow of the ocean, which relates closely to the ups and downs of each person who will utilize the space. Water is known to naturally create peace within a person and the repeating wave formations will invoke predictability and repetition. The building as a whole will also follow this formation using organic forms and open spaces. This will allow for easy navigation, connection, and ease of access for all users. The end result will be a comforting space that encourages activity, socialisation, communication and overall well-being.
Concept Statement

At Four Connections Autism Center, the central mission is to improve the lives of individuals and families challenged by Autism Spectrum Disorder. By providing balance and an engaging environment for its user, the facility provides help and hope through its design as well as its exceptional quality of comfort. The use of a puzzle piece is incorporated into the space in a more conceptual form. Organic forms and natural materials are also utilized wherever possible.

ASD resources for individuals and the community are distributed throughout four distinct buildings. Each structure is connected by a series of glass passageways that unify the site as a whole. Spaces include repetition, rhythm, and outdoor elements to stimulate users while respecting their sensory sensitivity. A sense of predictability is apparent in all wayfinding, through use of continued lines, soothing colors, and features in design elements, to promote freedom for ASD individuals and relaxation in their families.

Mood Board

Exterior Landscape
Exterior Four Connections

Exterior Plan
Finish Selections

First Floor Plan

Second Floor Plan

Furniture

Wayfinding

Interior Designers: Berhan Amane, Angela Freeman, Mallory Monick, and Sarah Gualtieri

Graphic Designer: Samanthia Watson
The design of the space will create a welcoming environment that will support the physical and emotional needs of the users. From inspiration of a tree, the entire facility will be connected as limbs. Using muted tones and finishes found in the natural environment, the design will create a calming space where the patients will feel at ease. Utilizing color coding in wayfinding will lower the stress level of the users as they navigate the space. The motif of meandering rivers in a forest will alleviate anxiety of the patients and caregivers; Individuals with ASD find the motions of water calming and this element will be used in the facility to reduce anxiety during transitions and appointments. A design goal is to help facilitate independence for individuals with ASD as well. With assisted living apartments and a life center where people will have employment and life skill training, this facility will help individuals “find their piece” in the world. Placing the different therapy methods in the same area will reduce the distance between appointments as well as reducing transitions to the different spaces. Minimizing the clinical feel of doctors offices and adding familiar objects from Rochester’s natural environment will help calm the patient and make them feel at home. Overall the design will create an environment that will reduce the stress and panic among patients and caregivers while also helping patients to gain independence.
Making Surfaces Material Learning

Diana Nicholas
Drexel University Interior Design Program

ABSTRACT

Problem Identified
Richard Sennet in his book “The Craftsman” explores a concept he refers to as “being as a thing” he maintains that at a certain point in the process of making, after a definite amount of time, the maker attains a mastery of fabricating and no longer feels a separation between their hand and the act of making (Sennet 2008). Lisa Iwamoto categorizes current modes of making in the following way: Sectioning, Tessellating, Folding, Contouring and Forming. (Iwamoto, 2009) All of these categories in some way relate to the way that the works have been produced or made with the machines available. Projects that use folding for example will employ parametrics to determine the relationship between form and material, in such a way that the form can be flattened for cutting on a router. A project that involves contouring might involve software to generate the tool paths for the machine that will rout the material. Each process is has its own set of criteria, constraints and challenges based on the methods of fabrication. The high demand of fidelity and investment for such digital practices raises the question of how to inculcate students in to a making practice that will bear fruit when the stakes are higher? How does the scale of the Interior inform this learning?

Strategies Employed
This presentation approaches the problem of fabrication, the interior environment and learning as one in which students will build fidelity through making a set of surfaces exploring pattern, scale, light and translucency. The students during the term examined pattern, texture and materials producing their first set of materials boards following general instructions. The students then experimented with making their own interior “materials” in a panel divided into four quadrants. Four basic themes were assigned for consideration: opaque and heavy;
translucent and light; translucent and deep; transparent and shallow. In addition, students are asked to keep the materials choices fairly simple and monochromatic: Plaster, Plexi-glass, basswood, concrete and metal were the base choices. The panels produced were to be drawn from the same scale as the material explorations earlier in the term. The scale of these explorations is decidedly interior and the students were encouraged to consider the repetition of one pattern through all four panel iterations. Each quadrant was considered as a translation through the crafting of these pattern based panels.

Analysis of Outcomes
Student outcomes in iterative experimentation- create new areas for exploration and discussion. Students were assessed based on how far they were willing to push their explorations-either in terms of pattern, scale or material experimentation. The material ability and fluency of the students in terms of their production of a “material for the interior” will be examined in the presentation conclusion through a course survey and comparison of work. Students’ post course outcomes will examined in addition to the work of the course.

REFERENCES (Chicago)


The Use of Visual Attention Software (VAS) for Communication and Wayfinding Design and Analysis; Is VAS an Effective Tool for Environmental Communication

Henry Hildebrandt & Chris Auffrey
University of Cincinnati

ABSTRACT

Signage and environmental graphics serves an essential role in wayfinding and identity communication on several levels: the city scale, commercial interiors and in large multi-building complexes such as airports and hospitals. An expanding global society now demands effective and efficient navigation graphics with strong product identity packaged in international commercial markets. This new evolving ‘messaging’ system often serves as public art as well as directs movement, establishes ‘identity’ and indexes the context while maintaining brand recognition. This requires an acute understanding of sign and symbol effectiveness and sign conspicuity. (Evans-Cowley & Nasar 2004; Morris, et al. 2001; California Electric Sign Association and International Sign Association 1997).

Rapid advances in technologies are now combined with the increasing use of electronic message centers (EMC) and other new digital communication modes such as QR (Quick Response) Code identification and onboard car screens linked to personal communication devises. This has accelerated branding strategies beyond traditional on-premise graphic signage. Industry estimates predict that the number of digital signs will exceed 22 million by the end of 2015 (Schroeder 2012). These communication systems are elements of marketing as well as communication, requiring a systematic methodology for evaluation and effectiveness to insure design communication goals. Commercial venders have developed Visual Attention Modeling
software products based on human vision science. This software allows designers to interactively design communication and identity products with better predictability, and thus, in theory, better success. Visual Attention Modeling and 3M’s Visual Attention Software (VAS) was developed to predict how human pre-cognitive attention is focused across a visual field. VAS provides designers a tool to predict which elements in the visual scene or ‘field’ will have the greatest impact in the first 3 – 5 seconds in a view. VAS software selects five critical visual elements vision science deems most dominate – edges, intensity, red/green contrast, blue/yellow contrast, and facial recognition. The VAS system outputs a human fixation ‘heatmap’ showing saliency and a prioritized map according to the five elements for viewing probability of eye fixation image. VAS is marketed as both an analytical design tool and a creative process tool.

This presentation summarizes assessment of VAS in:
- Utility and accuracy in predicting the prioritized visual field within a range of different contextual environments: urban cityscape; interior complexes and branded retail; on-premise sign and symbol placement.
- The application as a up-stream design tool applied to environment communication (wayfinding) and signage.
- The utilizing visual computational modeling software and effectiveness for establishing visual goals in design process in the academic setting and professional practice.

The 3M VAS software represents a powerful tool in flushing out effective communicational messages in early eye scans. Combined with direct field observations by a trained eye, and the understanding of contextual conditions, better signage and more effective communication results can be achieved using objective analytic tools such as VAS to better understand the how built and natural environment context impacts the effectiveness of environmental communication. There are many advantages and limitations of VAS compared with the traditional field surveys used by designers. The objective in this presentation is to provide insights into analytical methods for visually mapping the built environment for signage effectiveness, compare knowledge gaps in various visual mapping analytical tools such as VAS, and expand the discussion of emerging technologies in environment signage communication.
REFERENCES (Chicago)


CLIENT DESCRIPTION

- A restaurant bar located on Vine St. at 12th St. in Over the Rhine.
- They sell many types of quality Belgium foods and beers including their famous Belgium waffles.
- The restaurant is open long hours; from 7am to 11pm during most of the week with brunch hours on Sunday and Monday from 9am to 3pm.

TARGET AUDIENCE

- Younger wealthy residents of the neighborhood living in the new apartments.
- Business men and women coming up from down town for lunch or a drink after work.
- Student and faculty of UC coming for weekend brunch or drinks after class and on the weekend.
Creating an Interior Space: A Design Studio Integrating Parametric Modeling with Human-Interactive Design

Saleh Kalantari
Washington State University

ABSTRACT

Context and Relevance
This paper examines how parametric modeling techniques can be integrated into the conceptual stage of the interior-design process, and offers some pedagogical suggestions for cultivating students’ proficiency in parametric design. Previous studies have shown that parametric modeling can have substantial benefits when used as a drawing-generator for digital fabrication. It can enable the designer to experiment with numerous new design and tooling possibilities (Moussavi, 2009; Jabi, 2013). The use of parametric modeling to inform these processes has been described as initiating a “psychological change” in designers’ approach to form creation (Tang & Anderson, 2010), and it is often seen as leading to a more adaptive and responsive design outlook (Achten & Kopriva, 2010). In this paper, interior architectural spaces are considered as a site for linking parametric modeling techniques with human-interactive design, and for teaching students basic parametric techniques in interior design studios.

Problem
The interior design studio discussed in this paper integrates parametric approaches with human-interaction design. This project is intended for a third-year interior design studio with a foundation of hand-drafting, basic CAD skills, and practical application of the elements and principles of design. Students in the studio work in digital and physical environments to develop group projects that improve an interior design by simultaneously interconnecting and
Design Process • Scholarship of Teaching & Learning • Presentation

coordinating disparate design elements (Woodbury, 2010). The design problem for the studio is to use parametric modeling techniques to create a human-interactive design solution for a pavilion intended to be installed in an interior public space.

Method
The project is executed in four parts: inspiration through nature, parametric modeling theory, human interaction, and presentation. First, students examine mathematical analyses of naturally occurring geometric designs, which helps them understand the basic concepts of parametric theory. Rooted in their inspiration from nature, students then sketch out a basic pavilion design using a coordinated parametric formula. The students can explore this parametric design either through physical modeling or with the aid of 3D-modeling software such as Rhino/Grasshopper. Once the basic form is developed, students then gather data about how people might interact in such an indoor public space using observation research methods. The results of this data-gathering exercise are folded into the parametric design, leading to a deeper human-interactive design solution. Ultimately, the students are asked to develop a digital model of their design solution (to demonstrate their understanding of virtual design systems) as well as a physical prototype (to demonstrate their understanding of detailing, connections, structural stability, and contextual compliance).

Outcomes
The most significant outcome of this project is to demonstrate that parametric modeling is not only useful for form-generation and fabrication, but can also be a valuable tool to inform human-interactive interior design solutions. The project also offers practical suggestions for how students who have little experience with parametric approaches can learn to explore them using logic, hand-renderings, and physical modeling, initially without the aid of 3D-modeling software. The project supports a process that builds students’ 3D-modeling skills, graphic design and presentation skills, and a broad conceptual understanding of form-generation in interior design.

REFERENCES (APA)


Episode One:  
Form Generation Based on  
Mathematical Analyses of Naturally  
Occurring Geometric Designs

Students' Project for Episode 1: Cole Hilton & Robin Olsen

Students' Inspiration: Cole Hilton & Robin Olsen

Students' Project for Episode 1: Candie Wilson & Tish

Students' Project for Episode 1: June & Miranda
Episode Two:
Form Generation Based on Human Interaction
Episode Three: Parametric Modelling Development

Students' Final Project: Cole Hilton & Robin Olsen

Students' Final Project: Dani & Erra

Students' Final Project: Candie Wilson & Tish
MIRROR GALLERY
The second part in the pavilion will be the mirror gallery. In this space people will be able to look at their images from different angles because of the mirrors that are attached to the tubes' interior ends in some of the structure units.

CLIMBING
The last function in this pavilion is the climbing. The part that serves this function will include fixed tubes that are not able to be pushed or pulled, and holes on the exterior faced of some of the structure units.

CRAFTING A SPACE
The first function is creating a space that meets people desire or needs. The part that is dedicated to this function is designed to have movable tubes, which are able to be pushed and pulled, in order to create a chair to seat on, a table to put things on, or a couch to lying on.
Link to Video
https://www.youtube.com/watch?v=AXa89PukCfU

Student Project: Candie Wilson and Tish Barnes
School of Design and Construction, Washington State University
Design Process • Scholarship of Teaching & Learning • Presentation

The Hunger Games

Katherine Swank
East Carolina University

ABSTRACT

Introduction
The entry level design student struggles with the development of meaningful design concepts. Design precedents integrated within a social justice narrative inspired by entertainment media in popular culture provide a vehicle for developing design concepts that are original, theory driven and comprehensive. This presentation demonstrates the use of contrasting design precedents in studio instruction to symbolize opposing societal ideals. Design concept development is interwoven with a creative storyline that explores issues of social justice.

Background
Architecture represents societal ideals. In the Hunger Games trilogy, classical architecture represents high taste culture for the Capitol of Panem. And in the manner of the Roman empire of classical antiquities, outlying districts are subjugated to the needs of the ruling class in the Capitol. With the uprising of districts against the Capitol, parametric design is proposed as a new architecture for a new regime. The methodology for integrating design precedents in studio instruction was a semester length project assigned to first semester, freshmen students. Students developed a narrative sequel to the Hunger Games trilogy by Suzanne Collins. Their storyline included development of 2-D and 3-D compositions that provided opportunity for creative thinking about relations between meaning and design from the vantage point of the societal views portrayed in the story. Students were required to address the following:
• Develop three-dimensional study models of the Temple of Saint Peter to explore the formal spatial organization and static classical proportions of Italian Renaissance architecture by Donato Bramante.
Utilizing a manual modeling process with serial planes, employ principles of repetition and progression to transition from geometric to organic planar elements that create three-dimensional forms in the manner of parametricism.

Inspired by the parametric designs of Israeli architect, Zaha Hadid, develop three-dimensional study models of commemorative architecture based on the dynamic spatial organization and proportions that are evident in forces of nature (e.g., tidal movement, plant growth, etc.).

An underlying challenge of the studio project was to integrate creative thinking and imagination within a social justice narrative. Students were required to develop design concepts that attributed societal meaning to original 2-D and 3-D compositions. Seminal designs of Donato Bramante’s Renaissance architecture and Zaha Hadid’s parametric architecture provided contrasting approaches to the application of elements and principles of design. Spatial schema were developed contrasting stasis and movement to establish visual tension associated with uprising of districts against the Capitol of Panem. Elements of design were selected in each schematic (i.e., line, shape, light) to achieve a rhythm that represented stages of the rebellion. Established rhythms were utilized as spatial organization, culminating in a design parti for each design composition.

Conclusion/Implications

The use of contrasting design precedents in studio instruction improved integration of design concept development in 2-D and 3-D compositions. Students who developed a design parti integrating opposing forces of classic and parametric architecture achieved a greater sophistication in the sequence of 2-D and 3-D assignments. Integrating an historical precedent approach to design within a storyline grounded concept development in the familiarity of popular entertainment media.

REFERENCES (APA)


Samples of Student Work

**Plan/Perspective I** - Interpretation of Temple of St. Peter: Renaissance architecture by Donato Bramante. Integration with Hunger Games Narrative: Classicism as metaphor for power of the Panem ruling class.

**Model II** – Development of genocide memorial in memory of District 4 whose industry is fishing: Fish Bones, Tidal Waves, Capitol Dome.

**Model III** – In the manner of parametric architect, Zaha Hadid, design is inspired by the Sleuk Rith Institute Cambodian Genocide Memorial (http://www.bing.com/images/search?q=hadid+architecture+images).

**Plan/Perspective IV** – District 4 Genocide Memorial.
Student Abstract Submission to Undergraduate Research and Creative Activities Forum
Outcome: 3rd Place in the category, Creative Activity

All semester long, we explored the relationship between meaning and form using design elements and principles as a visual language. Based on the Hunger Games trilogy, we created 2-D and 3-D artwork to convey messages behind the original story about one of the 12 districts. We developed skills to convey meaning in our design through each project assignment.

My first work is a 2-D composition that represents what motivated District 4 to participate in the uprising against Panem. Although a reason why they did is not mentioned in the book, in my opinion, they joined the revolt to gain the liberty from the capitol authority. I used fish and circle shapes as symbols of District 4 and Panem. Waves represent the people’s emotions and hopes in terms of shape and color. The second work is a 3-D sculpture that includes contrasting serial shapes to represent the undermining of capitol authority by District 4. A gradual change of the serial shapes make the sculpture more dynamic and shows that the people get to send the great power into decline. The third work is a construction model that symbolizes architecture style for a new government and to commemorate the residents who were dehumanized by the capitol. Asymmetrical balance of the architecture caused by the open space contrasted with the dense structure represents liberation from the old system and peace for the new world. The fourth work is an interior rendering that exhibits grieving, remembering and honoring of the victims of the uprising. Wave-shaped exterior casts a shadow on the floor, and designs created by light and shadow represent hope for the future.

There are two reasons why it is important for a designer to understand the relationship between meaning and form. One is to interpret a message of modern creators that was implied in their design products, especially architecture. For the other, more clients request creative design today. The process of transforming meaning into design is a useful approach to develop creative and unique designs.

Samples of Student Work

Model I – Interpretation of Temple of St. Peter: Renaissance architecture by Donato Bramante
Integration with Hunger Games Narrative: Classicism as metaphor for power of the Panem ruling class.
Model II – 3-D composition representing the undermining of capitol authority by District 11 whose industry is agriculture.

Model III – Engagement of District 11 in rebellion against the capitol of Panem.


Sample Excerpt from Draft Abstract Submission to Undergraduate Research and Creative Activities Forum.
Outcome: 2nd Place in category, Creative Activity.
of district 11 and its reason for participating in the uprising, the death of their adored tribute Rue.

- **Final B – 3-D Sculpture.** How did you use placement of serial shapes (planes) for contrast to represent the undermining of capitol authority by your chosen district? : Incorporates planar elements that symbolize the undermining of Capitol authority by District 11. Black tribal trees capture the strength of District 11 as the Agricultural and African American District. Again I played on negative and positive spaces in the trees that makes it jump out and fulfill its purpose as a force to be reckoned with. The holes of negative spaces represents the blows the district has taken from the Capitol. The district did not allow the Capitol to ruin them but is still standing even stronger. The trees are the focus of the sculpture and seem to be growing out of a white geometric dome that represents the Capitol. The dome mimics the dome arena of the 75th Hunger Games. The dome seems to be coming apart because of the growth of the tree from within it. This represents the weakening of the capitol by the revolution of the districts, specifically District 11. In addition there is a repetition of the tree three times. The three planes as trees are a symbolization of the hand signal of the revolution that Katniss holds up first in commemoration Rue’s Death.

- **Final C – Exterior Architecture.** How did you use informal balance of serial planes to represent a new architecture for a new government? : Incorporate planar elements that symbolize the honoring of those belonging to the districts of Panem who were dehumanized and discarded by Capital authority. The open-air building is to serve as a place of reflection to commemorate victims of the Panem Regime. Free Formed rather than classical to symbolize the revolution as a diversion from the norm of the overpowering strength and of the Capitol’s rule. Classical; Symmetry, regular shapes, sharp edges, structure and equal balance, versus Parametric; curved, serial planes, irregular shapes, free forms which give off a revolutionary nonconformist aura. Gives off the feel of freedom, movement and growth (___) and build on how the strength and fire that is the rebellion continued to grow.

- **Final D – Interior Architecture.** How did you use negative and positive space of the serial planes to form areas for grieving and remembering and honoring? : Again I play with negative and positive spaces. Represents the blows the districts have taken from the Capitol. The districts did not allow the Capitol to ruin them but is still standing even stronger together supporting each other. Showing that the deaths of the tributes, members of the rebellion and victims of the terrible Capitol’s deaths were not just for nothing but are for a greater purpose, for the good of all the citizens of Panem. Also used as a tribal feel to recognize the structure as a nod to Rue and district 11 specifically as the African American agricultural district.

Why is it important for a designer to understand the relationship between meaning and form? As Designers we tell a story and convey our messages and thoughts through our art, our works. One should immediately get the purpose of what we’re doing and telling with a glance, and with further evaluation see that every line, motion, form, and all other elements are for a reason. Each element incorporated adds to the bigger picture. So we must understand that each line and form has a meaning so that we can be successful in telling our stories. For example in my structures free formed lines and curved lines were
The Experiential Learning Impact of International and Domestic Study Tours: Class Excursions That Are More Than Fieldtrips

Lilia Gomez-Lanier
University of Georgia

ABSTRACT

Educators have long supplemented formal classroom activities with strategies, such as fieldtrips and guest speakers, to interweave formal classroom learning with real-world practices and make it more engaging. Experiential education programs, such as international and domestic study tours, bridge the limitations of formal learning classroom by allowing students to experience reality in a new learning dimension. This study compares a new domestic study tour to New York City and a popular, established international study tour to China operated by the same fashion-merchandising and interior-design department at a public college in the United States southeast region.

The tours were structured to allow students to meet industry professionals and to investigate and analyze issues, such as collaborative work, cultural differences in business and creativity, and cultural and social identity in the environment and personal development. Before and after the study tours, students completed a survey developed by the researcher to gauge their perceived level of understanding and attitudes toward the study tours. Additional student feedback was obtained from reflection journals documenting students’ personal development, design expressions in the environment, and experiences that might have affected students’ personal views of the industry.

The present research findings strongly suggest that both study tours not only provided participants with a positive academic learning environment but also promoted cultural learning
and expanded students’ personal worldview, especially among the China study-tour participants. The findings indicated that participants in international study tours tend to have more positive attitudes and experiential learning experiences than those on domestic study tours. The findings suggest that, in addition to academic learning, study tours enhance participants’ worldviews through the exposure to different cultural contexts, whether domestic or international. Finally, the findings support making reflection journals an integral part of experiential learning. Overall, international study-tour participants appeared to gain more appreciation for the learning experiences obtained on the study tour than domestic study-tour participants.

REFERENCES (APA)


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*Pre-study Tour Descriptive Group Statistics by Study Tour*

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Table 10
*Post-study Tour Descriptive Group Statistics per Study Tour*

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Table 12

*Mean Responses to Survey Questions Conducted Before and After the Study Tour*

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Interior Design in Research Universities: Optimizing Opportunities and Thwarting Threats

Ruth Tofle & Laura Cole
University of Missouri

ABSTRACT

Interior design as an academic field of study is critically tested to demonstrate its scholarship and position in a research university. This presentation will identify competing demands and dilemmas exacerbating this problem and also address how one CIDA accredited interior design program in an AAU public research institution has attempted to optimize the opportunities and thwart the threats.

Method or strategy

Organizations present themselves by the records and documentary data they accumulate (Silverman, 2004: 3). These records are useful in a Strengths/Weaknesses/Opportunities/Threats (SWOT) analysis of an academic program review. Review of textual documents will be reported for an academic program in a research university with membership in the Association of American Universities (AAU) with Research I Public ranking. Internal and external data and narratives are reviewed along with funding opportunities, national doctorate completions, and perspectives on the association with architecture programs. This background provides a rich understanding of opportunities and threats. Analysis of the outcomes: Documents from interior design accreditation and AAU metrics highlight dissimilar and competing demands. Specifically, interior design accreditation standards focus on undergraduate education, preparing students to be practicing professionals while AAU metrics focus on doctoral education and research. The competition for resources, particularly in a small program, is serious. Based on review of AAU metrics (see Appendix) with national comparative benchmark data, the greatest threats to an interior design program in a research university are:
1. Lack of federal research funding. Is interior design not considered a high impact critical-mission field of study?
2. Low scholarship nationally. Few faculty are publishing research in books and Digital Object Identifier (DOI) journals with scholarship citations where the rewards are located in AAU schools.
3. Wide fluctuations in enrollment and job placement demand.
4. Budget threats. Reallocation, cut-backs, down-sizing, and the increasing need for programs to generate new dollars are customary.
5. Degrees awarded annually. Large number of professional degrees and few research doctoral degrees granted -- risking sustained scholarship.

The presentation will address one program’s attempt to optimize the opportunities and thwart the threats to stay competitive in its Research I environment. The challenges presented require both long term strategic planning as well as flexibility that values opportunities and quick reaction to change.

Strategies are organized as:
1. Balancing enrollment demand with increased collaboration
2. Adapting composition of faculty involved in teaching and research
3. Balancing tradeoffs between undergraduate and graduate instruction
4. Communicating performance and campus rewards to faculty campus rewards
5. Generating new dollars

Implications
Interior design as a field of study will continue to be defined by scholarship in creating new knowledge. The broader implications for interior design’s search for its place in the academy will require addressing the following questions to sustain the profession’s teaching and learning:
1. How can interior design faculty contribute scholarship productivity in generating new knowledge within an AAU university?
2. What strategies can be utilized to balance the competing demands and reward systems academically and fiscally?
3. Beyond teaching interior design as a specialization for employment, can we make the case that our teaching and learning contributes to general education addressing intellectual and moral missions? (Deresiewicz: 2015)
4. Can interior design scholarship demonstrate high impact for the betterment of society?
REFERENCES (APA)


Appendix - AAU Membership and Indicators:

AAU Membership Policy
“The Association of American Universities is an association of leading comprehensive I research universities distinguished by the breadth and quality of their programs of research and graduate education. Membership in the association is by invitation. The association maintains a standing Membership Committee, which periodically evaluates both non-member universities for possible membership and current members for continued membership, with the goal of ensuring that the association in fact comprises comparable leading research-intensive universities. Nonmember universities whose research and education profile exceeds that of a number of current members may be invited to join the association; current members whose research and education profile falls significantly below that of other current members or below the criteria for admission of new members will be subject to further review and possible discontinuation of membership. “

http://www.aau.edu/WorkArea/DownloadAsset.aspx?id=10972

AAU indicators with sources
1. Competitively funded federal research expenditures (source: National Science Foundation NSF)
2. National Academy Members  (source: National Academy of Science, National Academy of Engineering, Institute of Medicine)
3. Honors and awards - National Research Council Highly Prestigious faculty quality ratings (source: Academic Analytics, The Faculty Scholarly Productivity Database)
4. Citations (source: Thomson Reuters, Web of Science)
5. USDA, state, and industry research expenditures (source: NSF)
6. Doctorates granted (source: Integrated Postsecondary Education Data System completions survey)
7. Post Docs (source: NSF)
8. Faculty (source: Integrated Postsecondary Education Data System completions survey)
9. Normalization (data are normalized by dividing by the US institution’s 3-year average faculty numbers...)
ABSTRACT

Question or theory being explored
This study explores a fundamental precept of interior design education: that design students are being taught to see in a new way. Design educators often believe this to be true, but lack data that would support their belief; academic discussions often turn on matters of taste and intangibles that might be difficult to tie down. While in the past it has been difficult or impossible to test this in an empirical way, new advances in neuroscience have made this study possible. If it can be shown that design students measurably differ from non-design students in the way that they pay attention to and focus on building elements within an illustration, it can be inferred that design students have learned to see in a new way. The outcome of this study can be used to inform decisions about design education.

The framework of exploration
In this study, an eye tracker (Fig. 1) recorded the eye movements of thirty participants while they each looked at 58 architectural illustrations evenly divided between two categories: awarded and non-awarded (The American Society of Architectural Perspectivists, 1996). It was theorized that the awarded illustrations had been chosen partly because of the way they presented complex information, and that design students would read that information in a different way than the non-design students. The study was structured around the ability to record the eye’s target while a subject views a series of images. While the eye moves as many as 20 times per second (Shepherd, 1986), the typical targeted eye focus for this study was 3 to 4
targets per second, with each image displayed for seven seconds. When multiple subjects targeted the same spot on an image, a strong “heatmap” resulted, showing consistency of attention. The hypothesis was that the difference between the visual attention of design students and non-design students would be higher when looking at the awarded architectural illustrations in comparison with the non-awarded illustrations. The cognitive process of visual attention is driven by the process of eye movement target selection (Schütz et al., 2011).

In this study, the heatmaps of fixation points on each image is represented as a probability distribution that describes the likelihood of fixating on a target within an image. Figure 2 illustrates the process of building the probability distributions constructed from the fixation points of the design students and non-design students. The consistency of the eye movements of the design-students and non-designs students on the images is measured by Kullback-Liebler Divergence (KLD) (Fig. 3). KLD is a method to measure the difference between the two probability distributions (Riche et al., 2013). Figure 4 illustrates the probability distribution among awarded and non-awarded architectural illustrations, along with four examples of the highest and the lowest dissimilarity between the heatmaps.

Conclusion
Results showed a significant difference between the visual attention of the two populations of design and non-design students (M = 0.84, SD = 0.26) while they were looking at the awarded architectural illustrations as opposed to the non-awarded illustrations (baward = -0.19, t(54) = -2.89, p = 0.005) (Fig. 5). Therefore, this tends to support the hypothesis, and examining individual heatmaps showed that the design-students paid more visual attention to architectural details while looking at awarded illustrations in comparison with the non-design students. The methodology developed for this study can be applied to a whole host of similar studies about design education. In particular, we recommend a future longitudinal study that examines design education’s effect on eye movement consistency. This would measure the consistency of freshmen eye movements at the beginning of their program and compare that with measurements over the course of each design student’s academic course of study.

REFERENCES (APA)


Figure 1. An eye tracker was used to help creating heatmaps showing where the hot spots are in each illustration. The camera, at upper right, is calibrated to follow the eye while the subject views the images. (a) Shows the scan-path of the participant’s eye movement; the path that the subjects’ eyes follow, and (b) shows the heatmap where the test subjects’ eyes spend most of their time.
**Figure 2.** Average heatmaps of design and non-design students are considered as matrices. Each pixel of the heatmaps considered as an element for those matrices.
Figure 3. The difference between the heatmaps of design-students and non-design students is measured by Kullback-Liebler Divergence. (a) $h_{id}$ is the average heatmap of design students for $i$-th image, (b) $h_{in}$ is the average heatmap of non-design students, and (c) the schematic of difference between the two heatmaps (or probability distributions).

Symmetric Kullback-Leibler Divergence is calculated using

$$d_{idn} = \sum_{k=1}^{h} \sum_{l=1}^{w} \frac{1}{2} \left( h_{id}(k,l) \log \frac{h_{id}(k,l)}{h_{in}(k,l)} + h_{in}(k,l) \log \frac{h_{in}(k,l)}{h_{id}(k,l)} \right).$$
Figure 4. The probability distributions of dissimilarities between heatmap of design and non-design students for awarded and non-awarded architectural illustrations, along with 4 examples of the highest and the lowest dissimilarity between the visual attention heatmaps. (a) The lowest dissimilarity of average heatmaps among awarded illustrations, (b) the highest dissimilarity of average heatmaps among awarded illustrations, (c) the lowest dissimilarity of average heatmaps among non-awarded illustrations, (d) the highest dissimilarity of average heatmaps among non-awarded illustrations.
Figure 5. The difference between the visual attention of design-students and non-design students is significantly higher when looking at awarded architectural illustrations in comparison with the non-awarded illustrations ($b_{award} = -0.19$, $t(54) = -2.89$, $p = 0.005$). The linear model of this experiment is $Y = 0.83 - 0.18X$, where $Y$ is the difference between the heatmaps of design and non-design students, and $X$ is the type of the architectural illustrations. Awarded illustrations coded as 0, and non-awarded illustrations coded as 1.
A New Way of Thinking: Teaching Design Management in an Integrated College Setting

Manish Kumar & Shauna Corry Hernandez
University of Idaho

ABSTRACT

The concept of “Design Thinking” or thinking about solving problems not from a business perspective, but from the perspective of a designer is actively influencing business processes worldwide (Breen, 2005). Today’s design schools are looking at this concept from the opposite angle, and asking how can we better prepare our students to become successful leaders in the business world (Granet, 2011). This paper presentation will highlight one approach to this problem through the development of an interdisciplinary Design Management course. The goal of this presentation is to not only share a successful course design, but to encourage and expand the existing dialogue of how we as interior design educators can better prepare our students to become successful leaders in professional practice.

The dialogue between design educators and practicing professionals has been ongoing for many years. Interior design educators (Tew, 1991; Lee & Hagerty, 1996; Granet, 2011) have examined the need for student understanding of businesses practices. While Tew (1991) found that business skills can be best learned on the job, Lee and Hagerty (1996) found the perceptions of upper division students and design practitioners differed in expectations in terms of understanding business management. Granet (2011) calls for increasing the business management knowledge design students receive in undergraduate education from a design perspective.

To address this need in an integrated design college, a Design Management course was developed and has been taught as a cross listed seminar for three years. The course is now offered by the Interior Design program and is available to all design majors. Primary emphasis is
placed on managing business processes; decision making; change management; product development; competitive advantage; creativity & innovation; productivity; business ethics and cost benefit analysis. The course addresses the need for design students to gain business knowledge through the instruction method of the design case study. Although interior design students complete precedent case studies in studio projects and lecture classes, the format of a traditional business case study encourages students to analyze the decision making process and gain an understanding of how business management influences the success of design initiatives in regards to project, people and organizational contexts.

The outcomes of this course have been assessed through evaluation of student work (case studies), student interviews, and reviews of student course evaluations for three years. Students report the course to be very meaningful, and that it has had an impact on their understanding of the business of design management and overall focused business practices not covered in the professional practice course. Students noted the course increased their understanding of specific business issues including negotiation, project management and team management. Student evaluations have improved each year with scores in the 3.8-4.0 (4 is considered excellent) range this year. Students specifically noted the course encouraged them to “think in a new way,” and look at situations with more of a business thought process.

This presentation will share the story of how the course developed, course content, development changes made to address specific needs of Interior Design students, course assignments and examples of student work, along with a discussion of the perceived impacts of the course from both students and faculty perspectives.

REFERENCES (APA)


Course Description: This course provides an overview of the Design Management phenomenon. Primary emphasis will be placed on managing business processes; decision making; change management; product development; competitive advantage; creativity & innovation; productivity; business ethics and cost benefit analysis. This class also explores the toolbox that modern design professionals use for successfully running or managing their own businesses. This is a lecture and case study base class.

Course Objectives:
1. Gain an understanding of how management—in project, people, and organizational contexts—influences the success of design initiatives.
2. Learn how organizational structure and job roles reflect the culture of a business—what the business values and how decisions get made.
3. Develop skills in project management, including skills in people management and communication, and also in influencing project profitability through time and budget management.
4. Examine the key components of a successful business.
5. Examine various ethical and financial challenges designers may face while running a business.

Team Selection: To create a synergy effect, teams should ideally have a mix of several different majors. We will need to divide into these teams and I am willing to use any one of three possible methods to form teams. We can: 1) self-select, or 2) use a randomized process, or 3) have team “captains” perform a “draft”. There are pros and cons to each method so we will talk more about this. Last semester the students decided to self-select, but then several teams had “issues” among their members. So, think about this carefully over the next week or so. Once teams are established, you may encounter difficulties. DO NOT wait until the end of the semester to raise these issues—see me immediately to help resolve problems. We will be using a peer evaluation system, and each of you will be required to complete a comprehensive peer evaluation of your co-team members, as well as your own evaluation. These evaluations will be used in grading to reflect individual contributions.

Evaluation & Grading:
About 70% of your final grade will be based upon your individual effort; the remainder will be based upon your team’s efforts on the related assignments. Specifically:

Interview a Designer .......................................................... 50 points
Case Studies ................................................................. 400 points
Class participation & attendance ................................... 50 points
Total 500 points

Assignments:
Interview a Designer (team assignment): (worth 50 points)
Interview an early stage design entrepreneur (within the first five years of business operations) using the attached format. Each group will be required to deliver a summary of their findings in class with a 20 minutes max presentation time and 10 mints for QA. Grading will be based 60% on content and 40% on creativity and expression.

Case Study (individual and team assignment): (Worth 400 points)
There are 4 case studies in the course pack. Teams will make presentation for 4 case studies as identified below and one case study would be individual write up. For team presentation you will have approximately 15 minutes to present and 10 minutes for Q & A. This time may vary from project to project depending on amount of assigned work, amount of time available, etc.
## Course Schedule

### Overview of Case Study Lecture

<table>
<thead>
<tr>
<th>Date</th>
<th>Topic</th>
<th>Reading/Study Material</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/21/2014</td>
<td>Introduction to Design Management &amp; How To Do a Case study Life’s work of Philippe Stark</td>
<td>Managing as Designing- Stanford Press, Reading – Life’s work of Philippe Stark (course pack) and Managing as Designing (Blackboard).</td>
</tr>
<tr>
<td>1/28/2014</td>
<td>Business &amp; Financial Management/ Introduce Apple Case Study</td>
<td>Class Lecture</td>
</tr>
<tr>
<td>2/4/2014</td>
<td>Human Resources/ Introduce Interview Assignment</td>
<td>Class Lecture</td>
</tr>
<tr>
<td>2/11/2014</td>
<td>Marketing Plan</td>
<td>Class Lecture</td>
</tr>
<tr>
<td>2/18/2014</td>
<td>Case: Design Thinking and Innovation at Apple</td>
<td>Class Lecture/ Articles On BBLearn, Teams Present/ Write up</td>
</tr>
<tr>
<td>2/25/2014</td>
<td>Project Management/Product Development Introduce Allston Case</td>
<td>Class Lecture/ Articles On BBLearn, Teams Present/ Write up</td>
</tr>
<tr>
<td>3/4/2013</td>
<td>No Class Work on Allston Case in Teams</td>
<td>Teams Present/ Write up</td>
</tr>
<tr>
<td>3/11/2014</td>
<td>Allston: Brand Vs. Architecture</td>
<td>Teams Present/ Write up</td>
</tr>
<tr>
<td>3/18/2014</td>
<td>Negotiations/ Introduce Mistry Architects Case</td>
<td>In Class Assignment, Bring Laptops</td>
</tr>
<tr>
<td>3/25/2014</td>
<td>Negotiations</td>
<td>Bring Laptops</td>
</tr>
<tr>
<td>4/1/2014</td>
<td>TBA</td>
<td></td>
</tr>
<tr>
<td>4/8/2013</td>
<td>Mistry Architects</td>
<td>Teams Present/ Write up</td>
</tr>
<tr>
<td>4/15/2014</td>
<td>Building The Management Team</td>
<td>Slides and Articles</td>
</tr>
<tr>
<td>4/29/2014</td>
<td>Interview A Designer</td>
<td>Team Presentation</td>
</tr>
<tr>
<td>5/6/2014</td>
<td>No Class Review Week</td>
<td></td>
</tr>
</tbody>
</table>
Case Study Lecture and Preparation

Overview of what a Case Study is
Objectives of a Case Study
How to Solve a Case Study Question
How to Develop a Structured Answer to a Case Study Question
Presentation Purpose
Presentation Methodology
Presentation in Action
Presentation Content
Preparing a Written Case Study
Comprehensive Written Case Analysis Content
Recommendations
Maximizing Participation in Case Study Discussions

Selected Design Management Course Evaluation Comments

Overall, how would you rate the quality of this course? (4 is the highest and 0 is the lowest)...and...Comment on the quality of this course. What was most helpful? What could be improved?

There were a lot of topics covered in this class that was very helpful even in terms of everyday life i.e. doing business with friends/family and negotiating with them. Also it made me realize to put more value on my labor as well as other people’s labor. It's nice to learn stuff outside of just designing and understand how handling business operations can make your design your known by marketing

This class was great! I enjoyed taking a class other that a design specific course because it encouraged me to think in a new way. I had never taken a business class before so I was not sure what to expect, but I loved how this class touched on every aspect of the business field and the case study assignments were a good way for us to understand how to apply what we had learned. Looking at situations with more of a business thought process will be very helpful in the future.

There was a lot to cover in a relatively short period of time, and as a business class aimed at non-business majors, I feel I learned a lot about negotiations understanding a client/consumer mindset and how to sell yourself. There is a lot of value in this class.

I am now thinking of some of the key elements taught in this class. Perception, deciding how to work with others to get a result that helps everyone win. Creating value, knowing how to look at situations and seeing how one might take advantage of the situation by doing homework; knowing the numbers to see what one should expect to be paid. or how much profit a company is really getting from the services they are offering.

Overall, how would you rate the instructor's performance in teaching this course? (4 is the highest and 0 is the lowest)...and...Comment on the instructor's performance. What was most helpful? What could be improved?

Business is a hard topic for us designers to understand, but he worked very hard to make sure we all understood the concepts fully and would go over anything the class did not understand. The class activities were fun and a great way to put the class lectures into practice. The instructor is great. There aren't many instructors who can keep a group of students alive and participating in discussions for a three hour class; let alone a class that runs 3pm-6pm. Great information and feedback for our performance. Though I am not a business major, and it is a design management class, it's hard not to enjoy the time spent there.

I learned a lot in this class. I do not know how helpful it will be in the future, yet. It has opened my eyes to the possibilities I have in the field, the option of becoming an entrepreneur is something that I had never thought of before. It has also given me the knowledge to help me feel comfortable negotiating my salary as well as planning my future career. The teacher worked very hard to make sure that everyone understood what he was teaching and that was very helpful because often times I did not completely understand because I have no business background.

I’m really glad I took the course! Its material thats not offered anywhere in the college and is really useful. I learned a lot from the case studies. I think it would be better to spread them out toward the beginning of the semester more, so we dont have two due back to back near the end of the semester. I liked the activities in class, like the negotiation situations that made the material that were learning into a more realistic situation.
The Age of Information Overload: Perceptive Filtering in an Interior Material’s Course

Lyndsey Miller
Mississippi State University

ABSTRACT

According to Mitchell Kapor1, “Getting information off the Internet is like taking a drink from a fire hydrant.” Information overload has become commonplace. In higher education, the internet is a common tool used by students for information seeking. In fact, based on a study conducted by the Pew Research Center, teachers said that 94% of their students were likely to use Google as a form of research, while less than 20% would look to traditional resources such as textbooks, the library, and scholarly references. The trouble is that students are often unable to decipher between vital, credible resources and the alternative when using search engines. This holds true for the research of materials and products being used in interior design projects.

Practitioners are constantly exposed to emerging products through lunch and learns, continuing education courses, trade shows, and constant interactions with product representatives. In contrast, a student’s typical exposure lies within a Google search. Students and emerging professionals alike should be knowledgeable on how and where to look for credible resources related to materials and products and be able to filter through them in order to make educated decisions on appropriate applications. These skills coupled with simple networking with product representatives and keeping up with emerging products is foreign in many academic settings. Students are tasked with developing projects within tight timelines focusing on a variety of market sectors, all while flying blindly to make material and FF&E selections. While many interior design programs have resource libraries, the contents are often discontinued or dated products. In short, students should be better prepared with the skills to locate resources, make material and product selections, communicate with product representatives and be versed in the related terminology.
This presentation will discuss an assignment incorporated into an interior materials course, taught in the first semester of third year. The assignment promotes the development of the aforementioned skills. Termed “Weekly Product Presentations”, students are asked to research a product in the categories of floors, walls, ceilings, surfaces, and FF&E. Appendix A represents the project assignment sheet and displays the process that students go through to complete it. The entire project process is intended to prepare students with real-world skills and vocabulary, all while building a more immediate catalog of current materials and products that can be used on academic projects.

This presentation will discuss more details about the process of the assignment, including information about the online database. In addition, it will disclose strategies on how to implement the assignment in either a lecture or studio course. The presentation will outline both the positive and negative aspects of the assignment, and the modifications that have been made in response since the assignment’s inception five years ago. Finally, it will highlight the many benefits that have been realized as an outcome to the project for the “materials” course and other studio related courses. This assignment has responded to the overwhelming amount of online information by preparing students to drink in information slowly and thoughtfully.

REFERENCES (APA)

APPENDIX A

WEEKLY PRODUCT PRESENTATIONS

1. Begin by selecting a product advertisement from a valid design publication or online resource (use those discussed in class). The product should fit within the category specified for your group. [See below for group list.]

2. Select an image that best represents your product and save it as a .JPG file.

3. Go to WIX.com and click LOGIN/SIGNUP in the top right corner.
   EMAIL: MSUinteriordesign@gmail.com
   PASSWORD: xxxxxxxxxxx

4. Once logged in, click on edit under MY HTML WEBSITE.

5. At the top left corner, next to page, select the appropriate page to post your advertisement to.

6. Click on the gallery of images and choose ORGANIZE IMAGES.

7. Click ADD IMAGE.

8. In the image gallery dialog box, click UPLOAD IMAGE.

9. Navigate to your advertisement (on your computer). Select the file to upload. Once it is added to "MY LIBRARY", select the image and click OK in the bottom right corner.

10. TITLE: PRODUCT MANUFACTURER
    DESCRIPTION: Enter a detailed description of the product highlighted in the advertisement.
    LINK TO: [select WEB ADDRESS] Paste in the URL for the specific product on the manufacturer’s website
    CLICK OK

    Once your image is loaded to the page with fitting information

    click SAVE at the top right and then PUBLISH.

    Then click UPDATE.

    Click No for each additional option.

11. Each Wednesday, be prepared to present your product, using appropriate vocabulary. You have 30 seconds to explain:
    a. Who is the product manufacturer?
    b. What do they specialize in?
    c. What is the product highlighted in your advertisement?
    d. What can it be used for?
    e. What is their website?

12. Call the product company (through the main company or through the local representative) and ask them to send both a sample and literature for the product. (worst case scenario, they tell you that they can only send literature, which will work) This step does count toward the overall grade so make sure you have something physical to show.

*No duplication of advertisements is permitted throughout the semester.

**FF&E: Furniture, Fixtures, & Equipment- Can include anything from furniture, to lighting, to unique technology items

***Surfaces: Include all finishes that cannot be incorporated into walls, floors, and ceilings (i.e. countertop material)
<table>
<thead>
<tr>
<th>GROUP 1</th>
<th>WALL, FLOORS, CEILINGS, SURFACES, FF&amp;E</th>
<th>HALEY AUSTIN, JOY BOTTOM, LAUREN DAVENPORT, CAITLYN FLEMING</th>
</tr>
</thead>
<tbody>
<tr>
<td>GROUP 2</td>
<td>FLOORS, CEILINGS, SURFACES, FF&amp;E, WALLS</td>
<td>TYLER HARRISON, AMBER HENRY, KATIE HUGHES</td>
</tr>
<tr>
<td>GROUP 3</td>
<td>CEILINGS, SURFACES, FF&amp;E, WALLS, FLOORS</td>
<td>GEORGE KINSEY, RYLEE LABORDE, ANASTASIA MILLER</td>
</tr>
<tr>
<td>GROUP 4</td>
<td>SURFACES, FF&amp;E, WALLS, FLOORS, CEILINGS</td>
<td>ANNAH PENNEBAKER, MAGGIE RAY, TORI REYNOLDS</td>
</tr>
<tr>
<td>GROUP 5</td>
<td>FF&amp;E, WALLS, FLOORS, CEILINGS, SURFACES</td>
<td>ABBY RICHARDSON, CAROLINE SMITH, MARTINA WALKER</td>
</tr>
</tbody>
</table>
APPENDIX B

IMAGE: Online database homepage

IMAGE: Secondary page for the category of “SURFACES”
IMAGE: When the mouse rolls over each image, a description appears, allowing viewers to find products more easily.

IMAGE: When clicked, a separate box opens to show the full image, the details, and a link to the manufacturer’s website.
APPENDIX C

*Mitchell Kapor is the founder of Lotus Development Corporation and the creator of Lotus 1-2-3, the software that launched personal computers ubiquitously into the business world in the 1980s. He is considered a “pioneer” of the personal computing industry and remains on the forefront of information technology.
Meaning Making and the Design Student: Fostering Self Authorship in a Studio Based Design Course

Kat Keller
Radford University

ABSTRACT

The designers of our future will enter the work force at a time like no other. Globalization has created an interconnection between cultures and diversity has become a social norm. Political and economic crises erupt on a daily basis and climate change has become the focus of worldwide concern. The rapid change in technology provides an endless supply of new knowledge and brings these complexities to our daily lives. The students that enter design school today will have no choice but to make meaning of and navigate through these complexities in order to respond to the ever-changing needs of the clients and stakeholders. To adapt to these changes, the design industry itself is calling for design education reform. The calls for reform describe a designer with new skill sets, such as capability of complex thought, autonomy, and an ability to make meaning in the context of experience. Research indicates that for the student to make meaning of these complexities, they must develop a complex meaning-making framework.

Self-Authorship is one theory, derived from student identity development, attempts to define the complex meaning-making framework. The Self-Authored person has the capacity for reflective judgment, intellectual power, the ability to make mature decisions and solve problems in context, the ability to recognize and comprehend social issues, hold respect for self and others identities and cultures, empathy, confidence and awareness. Since these are also the desired traits being called for in design education reform, it is clear that the shift in design pedagogy must move in the direction of the development of the whole human being. Building on the current literature for fostering Self-Authorship as well as alternative pedagogies, this thesis
explores how to foster the complex meaning-making framework in the context of the studio based design course.

This was an interventional study spanning two consecutive semesters for which I was the primary instructor. The course plans were developed independently of one another, allowing for flexibility for modifications to adapt to unforeseen conditions. Semester 1 was an introduction to design theories, methods, and form making with emphasis on visual language and visual encoding practices. The course provided a thorough basis in research, principles, methods, form and meaning of two and three-dimensional design. Objectives included primary meaning making of how theory influences design, awareness of multiple points of view, articulation of critical thought and awareness of self. Semester 2 placed emphasis on discussions of domesticity and space making, as well as methods in analogue modeling of architectural space. Utilizing complex design theory, students worked through the linear phases of the design process to develop a three dimensional architectural representation of space. Objectives included making meaning of complex design theory and application, understanding process, articulation of theoretical constructs and the development of a design voice.

Fourteen sophomore interior design students participated in the intervention and were assessed both pre and post study to determine their level of meaning making. Each participant experienced varying degrees of development ranging from minimal to high levels. Grounded theory method was used to analyze which methods and techniques utilized throughout the intervention fostered positive results toward development. Through this analysis, a model and framework were developed as a tool for fostering Self-Authorship in a studio based design class. The framework has implications for both current and future design students as it provides the design educator a blueprint for implementing a variety of techniques for fostering development into the current curriculum. The framework was designed to be flexible so that it could be modified and evolve with unforeseen conditions and the changing needs of the design student.

REFERENCES (MLA)


Canniffe, B. (2011). Designing in and for communities: Breaking institutional barriers and engaging design students in meaningful and relevant projects, STIR Symposium, The Ohio State University, Columbus, OH.


Emerging Themes

For theory to emerge and a hypothesis to be formed, I first had to return to what it was I was trying to accomplish and what the question was I was trying to answer, “what methods are effective for fostering self-authorship in the context of a studio based design course”? The methods I implemented into the intervention were derived from various pedagogical theories that support identity development. Since the objective was to help students make complex meaning of the new knowledge, I first identified which traits associated with Self-Authorship that students were demonstrating. The traits were identified by the frequency in which they appeared in relation to the techniques and effects associated with each of the methods utilized throughout the intervention. Meaning, most students demonstrated these traits when specific techniques were utilized associated with each method. These traits included articulating decision making, developing a design voice, confidence, awareness, and acceptance of multiple points of view. Figure 5.17 lists each of the emerging themes and its relationship to the methods analyzed. Following is a detailed description of each theme and its relationship to the methods.

<table>
<thead>
<tr>
<th>Methods</th>
<th>Critical Literature</th>
<th>Critical Writing</th>
<th>Discussions</th>
<th>One-on-ones</th>
<th>Demonstrations</th>
<th>Critiques</th>
<th>Self-Reflection</th>
<th>Visual Curriculum</th>
<th>Self-Assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>articulating decision making</td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
<td></td>
<td>⬤</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>developing a design voice</td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
<td></td>
<td>⬤</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>confidence</td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
<td></td>
<td>⬤</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>awareness</td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
<td></td>
<td>⬤</td>
<td></td>
<td>⬤</td>
<td></td>
</tr>
<tr>
<td>acceptance of multiple points of view</td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
</tr>
</tbody>
</table>

*Figure 5.17: Observed Traits in Relation to Methods used for Fostering Self-Authorship*
Self-Assessment

What I found to be most interesting through the self-assessment was how students reported their level of enjoyment throughout the project. Most students’ levels of enjoyment typically coincided with how they viewed their thinking and their performance. This was interesting because I had observed an increase in rigor in relation to their projects in those students who were reporting an increase in enjoyment of the project. This would suggest that when students felt more confident with the new knowledge and their decision-making, they were more likely to enjoy the project more and work harder in finding solutions. Figure 5.14 illustrates how students assessed their enjoyment of the project.

Figure 5.14: Overall Results of Students’ Self-Assessment of Enjoyment.
The Mappings

As previously stated, all of the methods and techniques utilized throughout S1 and S2 were mapped out. This created a timeline of the journey through the interventional study. As students demonstrated one or more of the developmental traits associated with the methods and techniques, this trait was identified and marked on the timeline. Methods and techniques on the timeline that do not indicate any demonstration of developmental traits are due to either a student not being present for an activity or their failure to complete an assignment. Timelines were created for each of the 14 students for each of the 2 semesters. Figure 5.28 illustrates each students’ mappings throughout the intervention.
Dimensions of Development

The intent of this analysis was to determine both how demonstrating specific traits compared to overall development as well as to determine which methods used in the intervention impacted the cognitive, interpersonal and intrapersonal dimension of development.

To begin the analysis of the dimensions of development I redistributed the identified traits of each student that were demonstrated into a concentric circular format. This would provide a comprehensive visual in which to compare the number of times a student demonstrated developmental traits with their overall development that was determined by their assessments. Figure 5.29 describes how the dimensions of development were redistributed. The following figures display the results of each students’ redistribution of the dimensions of development.

6.1: Proposed Model For Fostering Self-Authorship In A Studio Based Design Course

To develop the model for fostering Self-Authorship in a studio based design course, I began with Nevitt Sanford’s (1966) theory of challenge and support. The challenge was to make meaning of the new knowledge in the context of the studio project, the context of design as a whole and in the context of the designer. Making meaning of new knowledge in the context of the studio project means that the student understands how to apply the new knowledge to their project. Making meaning of the new knowledge in the context of design means that the student understands how the new knowledge might apply to the bigger picture of design, how they might apply the new knowledge in another context and how it might relate to professional practice. New knowledge introduced to meet this objective may require using sources outside the field of design. This
technique supports Steven McCarthy and Christina Melibeu De Almeida’s recommendation for fostering Self-Authorship using an integrative pedagogy, where students cross disciplines to broaden their meaning-making abilities. Making meaning of the new knowledge in the context as designer means the student understands what it means to them or what it is they value about design. As students become more aware of what they value as a designer, they develop commitments to these values, thus an internal voice to guide them through design decisions. The three contexts were integrated to form a Venn diagram that represents complex meaning making. It is holistic in that, as the student makes meaning in one context, meaning is often facilitated in the other two.

![Figure 6.1: Proposed Model for Fostering Self-Authorship in a Study Based Design Course](image)

To identify the appropriate support, I returned to the emerging themes to determine what appeared to have the greatest impact on fostering developmental traits. The supporting themes were identified as connect, assess and time and are illustrated as a continuous triqueta that is interwoven through the Venn diagram of the challenge. It is continuous because the educator never stops connecting with students or connecting the new knowledge to the students’ experiences. Assessments are constant to determine each student’s ability to make meaning as well as to assess techniques and whether connections are being made. Time is continuous, as development takes time but there is also time involved in connecting with and assessing students as well as providing them with the appropriate feedback and expectations. Time is also involved in developing an intention plan for fostering development and may require additional time to modify the plan in the event that students’ needs change.
Transit Studio: Interior design for Boats, Trains, Buses

Amy Campos
California College of the Arts

ABSTRACT

As forms of transportation provide increasing opportunity for new forms of public space, work space and social space, this series of junior-level undergraduate studios have produced comprehensive proposals for the re-conceptualization of a fleet of public/private vehicles to serve the growing commuter population in the San Francisco Bay Area. Transit in California is undergoing a major transformation from an individual car-centered private environment to an increasingly public mass transportation model. BMW has recently proposed a redesign of the BART trains in the Bay Area and plans for a high speed train connecting major urban areas in California, including San Francisco and Los Angeles providing hope for a more connected, ecologically responsible public infrastructure on the West Coast. Many of the larger tech companies in Silicon Valley provide transportation from San Francisco to offices in the South Bay, essentially allowing employees to commence work at the start of their commute.

These studios function as a design research think tanks, centered on the question of a new territory for interior design beyond architecture. Given the significant economic and cultural shifts in the last decade, particularly in relation to the way we work, designers will need to consider and address a new attitude towards travel, community, and labor. We simultaneously work with urban infrastructural issues and human-scaled material prototypes and details. Global transit precedents are studied in detail. Locally specific criteria for design offered by San Francisco, its public transit system and private transit networks, frame the approach to design. Programmatic zones included in the project will be determined through site, program and precedent research, but all projects must address a commuting working population, as well as,
traditional public transit populations including the elderly, the disabled, families with children
and a variety of socio-economic demographics.

Each student participates in imagining the site in terms of large-scale infrastructural
programming and finishes the semester with a detailed design for his/her proposed
programmed transit fleet. The studios are structured with a unique design process – asking the
students to first work in teams to produce 2-week ‘competition-style’ proposals for each of the
three transit types (bus, ferry and train). After these three competition phases the students have
the last third of the semester to develop each scheme individually. The studio has run three
times, with two of those studios producing Donghia Scholarship winners, a very prestigious
national $30,000 award for Interior Design Students.

REFERENCES (APA)

'Without and within: essays on territory and the interior' by Mark Pimlott, episode publishers:
Rotterdam 2007
With today's technology and scientific advances, human beings are busier and busier, and managing time becomes extremely important. It is quite common for people to work or check e-mail wherever they are with personal products, such as laptops and smartphones. Public transportation, in particular, provides one of the best opportunities to make productive use of in-between time. Unlike other forms of public transportation, the ferry relies on a body of water. It is possible to commune with nature while commuting or traveling. In addition, San Francisco ferries sail on San Francisco Bay, which has great scenery. Therefore, the interactive cinerama maximizes outside space to allow riders to enjoy their trip as well as to use valuable time to complete work.

The seats on our ferry are on steps like a movie theater so that it is possible for everyone to watch the bay from any seat. To let riders enjoy their time more, the seats are randomly divided into several sections by different types and sizes of groups, such as family or friends, couples, and individuals. Rows are designed in consideration of a weak point of seats in movie theaters: people kicking the seats on the row below them. Thus, people can have any seats they want for their situation or their condition, and they do not need to be concerned about any interruptions from other users. A bicycle deck, restrooms, and a snack bar are located under the deck with seats.

The ferry is colored yellow and white. Yellow has the effect of giving people in an optimistic mood, and white is associated with simplicity and innocence. Therefore, the color combination gives travelers, who are the main users of the ferry, mental comfort and stability.
Project Overview

As forms of transportation provide increasing opportunity for new forms of public space, work space and social space, this studio will produce comprehensive proposals for the re-conceptualization of a fleet of public/Private vehicles to serve the growing commuter population in the San Francisco Bay Area. Transit in California is undergoing a major transformation from an individual car-centered private environment to an increasingly public mass transportation model. BMW has recently proposed a redesign of the BART trains in the Bay Area and plans for a high speed train connecting major urban areas in California, including San Francisco and Los Angeles providing hope for a more connected, ecologically responsible public infrastructure on the West Coast. Many of the larger tech companies in Silicon Valley provide transportation from San Francisco to offices in the South Bay, essentially allowing employees to commence work at the start of their commute. The studio will function as a design research think tank, centered on the question of a new territory for interior design beyond architecture. Given the significant economic and cultural shifts in the last decade, particularly in relation to the way we work, designers will need to consider and address a new attitude towards travel, community, and labor. We will simultaneously be working with urban infrastructural issues and human-scaled material prototypes and details. Locally specific criteria for design offered by San Francisco, its public transit system and private transit networks, will frame our approach to design. Programmatic zones included in the project will be determined through site, program and precedent research. Each student will participate in imagining the site in terms of large-scale infrastructural programming and will finish the semester with a detailed design for his/her proposed programmed transit fleet. Students will be expected to work in various groups throughout the semester.

Course Description

This junior-level studio requires students to take analytical and critical stances before making formal design moves. A series of graphic and diagrammatic exercises precede a larger project that challenges the students' sense of scale and complexity while maintaining principals of design for the human body as learned in earlier studios. Students at this level will be asked to envelope interpersonal activities and exchange in more civic settings than in previous studios. Traditional typologies will be in question. Scale and complexity will be approached via studies in simple enlargement vs. accumulation and composition of repetitive elements. Cultural context will temper these abstract maneuvers in order to maintain a relevance to contemporary thought. By the end of Studio Practice 4, each student will be an agent of modern culture with a design skill set that will allow them to make innovative and culturally vital, yet logical space. Pre-requisites: Inter-300, Inter-308. Co-requisites: Inter-320.

Learning Outcomes

Studio Practice 4 prepares students to:

• Develop and utilize a coherent and constructive design process
• Develop design elements, theories and principles towards a relationship between human behavior and the built environment
• Clearly express and communicate conceptual strategies of design through a variety of media and presentation techniques: sketching, photography, drawing, collage, modeling, oral and written presentation, etc
• Practice effective and professional communication of ideas through presentations and critique
• Develop a clear and sophisticated agenda for program (use of space) and context (circumstances of place) and begin to exploit opportunities inherent within them
• Develop complete, precise floor and reflected ceiling plans, sections, elevations and 3D renderings (constructed and sketched)
• Develop clear conceptual and practical strategies for lighting, furniture, materials and finishes
• Develop an awareness of professional ethical considerations including knowledge of client and user needs, consciousness of alternate points of view, global perspectives, critical, analytical, strategic and creative thinking
• Effectively collaborate with fellow students and colleagues
• Learn how to benefit from diverse opinions expressed by various resources
• Learn research skills through practice: collaborative research, brainstorming skills, the design process, and implementation

Course Outline

Each exercise and project approaches design thinking as a set of techniques and strategies that can build upon each other. In this sense, revision becomes a necessary and effective tool for design and essential part of your process throughout the semester.

1. Project 1 – Site Research and Program Analysis

   Research will be conducted in teams and will contribute to the studio's collective body of knowledge to be used for the duration of the semester by all students. This exercise will frame the discussion of the studio.

2. Project 2.3 – Strategy & Project Statement Development / Environment/Spatial Development

   a. Each student will produce a clear design strategy derived from precedent research conducted in Project 1. This precedent study, along with the development of your site and program analyses will develop into a clearly defined project statement. You will be applying your own research and creative thinking to define the specific parameters and criteria of your approach to redeveloping Market St.

   b. Students will rotate among groups of two or three to develop Smith Street as a major thoroughfare. The studio will be divided into: one section along the south side, two on the north side.
b. Produce a series of scaled studies that explore spatial, formal and environmental strategies for site and program.

c. Consider procession through space, organization of program zones and their potential overlaps, scale, material, texture, form, volume, light, etc.

3. Project 4 - Design and Detail Development

a. With a clear agenda for program organization, design, detail, and material, further refine your strategies to accommodate the following criteria:
   i. Consider sequencing or procession as a design element. How do scales of sequence shift from the approach to the site, the entrance to the project, the sequence through the site? What happens within the project and how does the interior design signal, accommodate and enhance this experience?

b. 3d models, scaled drawings, diagrams, and 3D renderings will be required to describe your prototype.

c. Produce a clear lighting plan and shade and shadow studies through drawing and model photography.

d. Provide a cohesive agenda for the support of the body in motion and stationary in plan and 3d imagery.

e. Provide a clear prototypical material and color palette expanded from your design strategies.

Readings

Readings, in the form of assigned articles and excerpts, will be posted to Google Drive will be used throughout the semester to frame the discussion of the studio. Students will be asked on a roughly bi-weekly basis to read and participate in reading and reference discussions. These discussions will count towards the "Participation" portion of the final grade.

Grading Policy

Studio is structured to learn by making iteratively. Students should ask a new question or examine the same question at a higher level of sophistication with each iteration. There is no single "correct" response, or "right and wrong" design solution. Students will be given feedback in the direction they have chosen, as well as suggestions for further work and assessment of their projects' spatial implications. Assigned exercises should always be considered a minimum. In addition to these guiding exercises, the student is asked to recognize his/her own developing process and employ that understanding in the practice of making and the development of his/her own abilities.

Each project will be evaluated in terms of analysis, progress and production, paced development over the entire duration of the semester, execution, verbal articulation, written articulation, participation, and attendance. Timely completion and presentation of all written and graphic assignments, as well as verbal participation in class discussions will be taken into account.

Final grades and evaluation will be based on:

- Substantial new work prepared for each class meeting
- Sustained and thoughtful response to criticism
- Ability to develop a clear and workable idea and move it forward in a coherent and inspired manner
- Sustained quality of work from the beginning to the end of each exercise
- Completeness of work at each class meeting, pin-up and review
- Success of collaboration in joint/group projects; constructive class participation
- Attendance and promptness at all class meetings, ability to meet deadlines
- Significant progress over the semester within your own frame of reference
- Development of critical thinking exhibited through design assignments
- Progress of design skills over the course of the semester

- Completion of all required work including readings and presentations
- Respect for your own work, your classmates and instructors/critics

All undergraduates are graded according to the following system. Please note that Interior Design major courses must be repeated if the final grade received is C- or below.

<table>
<thead>
<tr>
<th>Grade</th>
<th>Description</th>
<th>Grade Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>outstanding achievement—significantly exceed standards</td>
<td>4.3 grade points</td>
</tr>
<tr>
<td>B+</td>
<td>commendable achievement—meets standards</td>
<td>3.7 grade points</td>
</tr>
<tr>
<td>B</td>
<td>marginal achievement—below standards</td>
<td>3.3 grade points</td>
</tr>
<tr>
<td>C</td>
<td>acceptable achievement—meets standards</td>
<td>2.7 grade points</td>
</tr>
<tr>
<td>D</td>
<td>passing</td>
<td>2.3 grade points</td>
</tr>
<tr>
<td>F</td>
<td>failing</td>
<td>1.0 grade points</td>
</tr>
</tbody>
</table>

All of the above grades are used in the calculation of the grade point average (GPA). All undergraduates are graded according to the following grade system:

<table>
<thead>
<tr>
<th>Grade</th>
<th>Description</th>
<th>Grade Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>commendable achievement—meets standards</td>
<td>4.0 grade points</td>
</tr>
<tr>
<td>A+</td>
<td>commendable achievement—meets standards</td>
<td>4.3 grade points</td>
</tr>
<tr>
<td>B+</td>
<td>acceptable achievement—meets standards</td>
<td>3.7 grade points</td>
</tr>
<tr>
<td>B</td>
<td>acceptable achievement—meets standards</td>
<td>3.3 grade points</td>
</tr>
<tr>
<td>C</td>
<td>acceptable achievement—meets standards</td>
<td>2.7 grade points</td>
</tr>
<tr>
<td>C+</td>
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<td>2.3 grade points</td>
</tr>
<tr>
<td>D</td>
<td>passing</td>
<td>2.0 grade points</td>
</tr>
<tr>
<td>D+</td>
<td>passing</td>
<td>1.7 grade points</td>
</tr>
<tr>
<td>E</td>
<td>failing</td>
<td>1.3 grade points</td>
</tr>
<tr>
<td>F</td>
<td>failing</td>
<td>1.0 grade points</td>
</tr>
<tr>
<td>F+</td>
<td>failing</td>
<td>0.7 grade points</td>
</tr>
</tbody>
</table>

Midterm Progress Reports

Near the midpoint of the semester, all instructors have the option of providing a midterm evaluation of the progress of each of their students. Progress is evaluated with one of two possible ratings:

- UP = unsatisfactory progress
- AT = attendance problem

Only one rating can be assigned for each class. A student who demonstrates unsatisfactory progress and attendance problems in a particular class may be assigned an evaluation of UP or AT by the instructor, but not both. Students who have been assigned an evaluation of UP or AT will be notified by email of a problem with their progress. This report will be sent to the student’s email account. The report may be sent to the student’s email account. The report will be sent to the student’s email account. The report is meant to warn of problems while there is still time for the student to improve the grade or withdraw from the class. Students who receive these reports are strongly urged to consult with their instructors and their advisors to discuss their options and develop strategies for improving their academic performance. The lack of receipt of a midterm warning should not be taken to indicate that a student’s performance in a given class is satisfactory. Students should always consult with their instructors regarding their progress in classes.

Grade Breakdown for Studio Practice 4

<table>
<thead>
<tr>
<th>Assignment</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project 1</td>
<td>15%</td>
</tr>
<tr>
<td>Project 2</td>
<td>20%</td>
</tr>
<tr>
<td>Project 3</td>
<td>20%</td>
</tr>
<tr>
<td>Project 4</td>
<td>25%</td>
</tr>
<tr>
<td>Participation (readings, class discussions, lecture responses, general participation)</td>
<td>10%</td>
</tr>
</tbody>
</table>

Archive

Final grades will not be submitted until the archive is turned in and accepted according to the instructions attached to this syllabus.
Project 1a: Precedent Research

"It's about an entirely reconfigured relationship between density and sprawl, and it's going to need new maps to help us navigate this landscape...What we're talking about is the replacement of an entire system of urban inter-relationships, built-up over generations and stratified in ways that make sense within an urban context — now short-circuited by the inexorable demands of the (suburban) digital technology landscape."

— from Eric Rodenbeck’s “Mapping Silicon Valley’s Gentrification Problem Through Corporate Shuttle Routes” in Wired Magazine September 2013

Synopsis

Assigned teams will each become experts on one significant transit system in the Bay Area and on one of the following workplace topics. Each teams’ research will contribute to the studio’s collective body of knowledge to be used for the duration of the semester by all students. This exercise will frame the discussion of the studio:

- CiCi, Hoang, Gigi
  - Train: BART
  - The Cubicle
- Shuzhen, Holly, Josh
  - Train: CalTrans
  - The Desk
- Adam, Emile, Dolven
  - Bus/Train: MUNI
  - Ergonomics
- Ryan, Jillian, Dongsun, Yiqiao
  - Boat: SF Ferry Service
  - Collaborative space

For each transit system and topic, teams are asked to thoroughly research and present their topic considering the following:

1. Ride your assigned transit system for at least 30 minutes. Take extensive notes, take photos where appropriate while being mindful of fellow passengers.
2. Describe the main, relevant attributes of the system and the topic.
3. Show a map of the transit system.
4. Include demographic information: who uses the services, when does it run, when is it crowded, what does it offer in terms of amenities, what are common complaints about the system.
5. Consider what information about the workplace topic will prove particularly fruitful to the studio project, your own interests, and potentially the interests of your colleagues in studio.
6. Each team will present a 30-minute PowerPoint slide presentation of their work and will post the presentation with relevant notes on Google Drive.
7. Each team should present with a minimum of 25 slides.
8. Sketches, diagrams, and any other authored material should be credited.
9. The city transit research should include at a minimum:
   a. Strengths and weaknesses of the system
      i. Design, efficient circulation, overall function, use, tourist attractability, gathering space, opportunity for public art, etc etc
   ii. Be extremely thorough, mine your precedent for all relevant and inspiring information
10. A list of references / bibliography should be included as the last slide in the presentation.
11. Be sure to title the presentation and include names of all team members on the title slide.

Reading 1: Mark Pimlott’s excerpt “Only Within” — group discussion Monday

Due Monday, January 27
Project 2/3 – Part 3: Third part of your fleet design competition

Each spring we are invited to participate in the Angelo Donghia Foundation Scholarship competition in which two BFA students from each participating school, both entering their senior year, compete for up to $40,000 in funding for their final year of study.

Synopsis
Using the Donghia submission guidelines as a format for your work, you will each have 2.5 weeks (not including Spring Break) to develop a "competition ready" design for your third transit type. If you have not had the opportunity to work as part of a group - it is highly recommended to do so this round. Because Spring Break falls in the middle of this competition, you will have slightly more time to develop your third transit design.

Format
Refer to the Donghia submission guidelines as a reference (in the Assignments folder in Google Drive).

• One 32” x 40” vertically or horizontally formatted presentation board per student
• Board must include:
  o A 2-3 word descriptive Title of the project
  o a 250-word brief description of the project strategies
  o Scaled plan
  o Indication of the project strategies
  o "2-3 interior renderings / 3D drawings
  o Physical model of a detailed physical model
• Notes:
  • Indication of a specific material palette must be evident on the board
  • This can be shown in the renderings or through captioned swatch images.
  • Indication of the body in space and the use of space must be evident through furnishings and details, and people in your drawings
  • This should be shown in plan, in the renderings/3D drawings, models, and/or details
• Do not include your name on the front of the board – this should be noted on the back of the board.

References:
Refer to the instructor’s “Board Layout”, “Models” and “Drawings” Pinterest boards for reference. Also look at competition entries on Bustler.net and Archinect.com. Post your own references to the shared Pinterest boards.

Due Monday, March 31st for guest review.
Winning at Retail: Strategically Integrating Competitions Into the Curriculum.

Brian Davies & Ann Black
University of Cincinnati

ABSTRACT

Introduction
There is a mixed history of integrating design competitions in academic curriculum, in part due to a lack of options and opportunities. This presentation delivers a positive case study on doing so. The student learning, the program’s reputation, and the curriculum have all benefited from adopting an international retail design competition as the annual upper level studio problem. The specific competition was first considered because the brief is written around a market driven opportunity. The faculty members consider this valuable as it enables them to push students to consider holistic stakeholder experiences and feasible design proposals. The competition briefs also serve as points of engagement with professionals from top firms who specialize in retail design. The studio consciously collects and shares its own nascent insights of millennial behavior so obsessed over across marketplaces. Additional value to contributing firms is recruitment for internships and full time employment after graduation.

Method
The studio faculty have developed and employed a method that synthesizes multi-disciplinary professional input, brand strategy, trend research, and benchmarking to elevate the launch point for design ideation. The structure enables students to stretch their thinking and form a solution from a broader network of information and expertise. The method also aids students in establishing explicit objectives to guide and evaluate their ideations. The faculty coordinate interactions with professionals from trend forecasting, packaging, and retail design at critical stages in the design process. From the professional input the methodology leverages group research efforts by the students into elevated individual creative solutions. The method also
requires students to study and define explicit user groups and their behaviors to imagine four-dimensional experiences that go beyond the requirements of the brief. A unique aspect of the studio is the ability to insert, at key points, interactions with practicing professionals for feedback. These multiple interactions with professional design firms inform the students’ design processes. In the upper level of the curriculum, faculty demand students stretch their thinking and form a solution from a broader network of information, personal values, research, and expertise. The jury process of selecting a dozen or fewer awardees from a field of over 400 entries rewards immediate and hierarchical visual communication. Students are taught to assume they have 5 seconds to pique the judges’ interest, 30 seconds for a second look, and 3 minutes for a deeper dive. Storyboarding and narrative are stressed early in the process to refine both the presentation and content of the entries. Entrants are forced to be concise in their written content and persuasive in their visual content within the format limitation. The program archives the top proposals each year, both digitally and physically, to serve as exemplars in subsequent years. The archive of outstanding work has motivated increased sophistication in overall design solutions year after year.

Value
The student outcomes have been validated by blind review consistently over the past five years. The work of our students and that of other entrants offers inspiration to the sponsoring company and often-implementable ideas. Each of our winning students has been invited to industry networking events and actively recruited by professional firms for both internships and fulltime employment after graduation. The rigorous benchmarking, market and trend research, and user definition better prepares students to define their own senior capstone project the following academic semester. This presentation offers to share a tested and replicable methodology with peer institutions to benefit an expanded pool of young designers entering areas of retail design. The presentation is highlighted with original work from awarded submittals.

REFERENCES (Other)


1. BE EDUCATED
   at the Girls for a Change Info Bar

2. BE INSPIRED
   at the beauty wall

3. BE INFORMED
   by your cosmetic fingerprint

4. BE EDGY
   with the hot new products

5. BE SELECTIVE
   but explore

6. BE DARING
   try out a bold new look

7. BE SWIFT
   instant checkout!

8. BE Rewarded
   with good looks and good deeds

9. BE INSPIRATIONAL
   post your look to the beauty wall

SEPHORA & girls for a change Campus Tour

KNOWLEDGE IS BEAUTY

doing good is good business

511
The Sephora coach will stay in a single metropolitan area for no longer than one month, and then will be transported to the next location via ocean carrier. This limitation will allow the women of the area to become aware of the train car’s presence in the city and get an opportunity to experience it, without letting the hype and excitement of the store dwindle.

Traveling within nearby cities, the length of the train ride will range between approximately 45-90 minutes. This creates a substantial and ideal time interval, in which the guests can explore what the coach has to offer and immerse themselves in all things Sephora.

The coach is proportional to the standard sizing of a typical double-decker train car for successful travel on existing railway systems. The overall dimensions of the Sephora coach are 60’ L, 10’ W, and 17’ H, for a total of 1,000 square feet.
Like any other woman who is 43 years old, Mei just wants to look as young as she feels. She is always on-the-go, and constantly trying to keep ahead of the newest trends in fashion and beauty. Mei is looking to express and impress - express her love of all things chic and moderne, and impress her husband for an overdue date night. Her focus is anti-aging products, and a facial consultation from Sephora will help her inner beauty to be reflected in a new outer glow.

Fun is all that this 19 year old, teenage girl knows. Sophie leads a carefree life that is full of adventure and spontaneity. She is a natural beauty by day and the life of the party by night. Sophie has only two loves - surf and sun. She wants to shimmer and shine, exuding sensuality with a seductive scent. Her focus is organic skincare and fragrances. A skin consultation with Sephora and a fresh, seasonal scent will help to reflect her whimsical personality.

In Priya’s culture, weddings are lavish social events, where the bride is presented to her new husband in traditional costume, jewelry, and makeup. Even though she is only 26 years old, she is already anticipating one of the most important days of her life.

Priya is preparing for a new life and a new look. By enhancing her natural features, she wants to exude the essence of beauty. Her focus is luscious makeup, and a makeover from Sephora will help her achieve the perfect look for the perfect day.
Trends in ID Capstone Design Project

Suchismita Bhattacharjee, Thelma Lazo-Flores & Elizabeth Pober
University of Oklahoma

ABSTRACT

Interior Design (ID) gained wide acceptance as a profession over the last forty years, but has been in existence for more than a century. The origin of ID can be traced back to the art of decorating (Martin & Guerin, 2006). Since then the profession has evolved into a specialized area of expertise that requires several years of education and experience. In spite of this progress, there are still several significant issues that need to be resolved, especially increasing the ‘universal acceptance from allied professions of the value of Interior Design, and recognition of Interior Design as a discipline within the academia’ (Guerin & Thompson, 2004). Today there are approximately 167 schools in US offering Bachelor degree in Interior Design that are recognized by Council of Interior Design Accreditation (CIDA). Students graduating with a Bachelor of Interior Design have several options, where they can either join the workforce as an Interior Designer or pursue higher education.

As part of their undergraduate education, students select a capstone project which demonstrates their knowledge gained during the course of four or five years in the degree program. Senior year projects across all discipline provide undergraduate students the opportunity to solve real-world design projects, and have been highly regarded as important learning activity. There can be several guiding factors behind the reason for the choice of a capstone project by an ID senior student. Their choices can be based on their future career pathways, their sensitiveness to social issues, directed by faculty, grants or competition projects, or personal design interest. The goal of this study is to understand the patterns in the senior year projects across different CIDA accredited schools.
A survey of senior year projects of students across few schools was performed to identify the pattern of the design project and analyze the reason behind the students’ choice for the projects. Survey of the CIDA accredited programs was performed to identify the type of senior year design projects. The overall process for the study involved the following steps: (1) selecting sample CIDA accredited interior design programs; (2) performing cognitive interviews of Interior Design program faculty teaching capstone design studios or final year design studios; (3) collecting data to examine the type of projects designed by the final year Interior Design student and (6) analyzing the collected data.

Results indicate majority of senior year design projects focusing in the area of hospitality. Evidence based design has been utilized as a preferred approach by the students in the past few years. The study further identified the health related, safety, comfort, and environmental parameters addressed in the senior year projects. Moreover, sustainability had been identified as a common aspect addressed in these projects. Future study will investigate the overlap of the project types the new graduates handle in their profession and the ones taken up during senior year design projects.

REFERENCES (Chicago)


Color and Reflectivity in Interior Spaces

Esther Hagenlocher & Landry Smith
University of Oregon

ABSTRACT
This research paper focuses on the connection between daylight, color, and color reflectivity in understanding how to optimize reflectance and improve lighting efficiency and visual comfort. Buildings consume 70% of all U.S. electrical energy production, most of it for electrical light. Therefore daylighting is an important strategy to save energy and ultimately reduce greenhouse gases and mitigate global warming and its effects. Reflectivity is also important architecturally in the experience of a space, although rooms are not typically design with highly reflective colors and surfaces. There are several reasons that designers tend to use interior surfaces of low reflectivity. First, colors are perceived to be richer in cultural value such as deep red velvets and dark blues (i.e. colors typically assigned to royalty). Dark wood finishes with low reflectivity like mahogany are perceived to be more desirable; dark floor coverings in interior spaces that have lower reflectivity are also seen as easier to keep clean. The aesthetic values assigned to deep colors in short conflicts with high reflectivity – a far more effective strategy for daylighting. Hypothesis: The average reflectivity of an interior space can be increased without changing people’s perceptions of the color in the space. This can be tested empirically.

Three experiments were designed to determine whether interior designers could achieve the perception of deep colors while also providing reflectivity. In Experiment 1, out of twenty-five colors, each group on average correctly evaluated only three colors. All the other colors were perceived to have a higher LRV (Light Reflectance Value) than they actually had. Most colors in the range of 40%-50% were perceived as having a 20% higher reflectivity than was actually the case. This shows that designers tend to overestimate the reflectivity of colors. Colors in the LRV ranges of 0%-9% and 90%-99% were usually correctly perceived. Colors in these ranges were discovered to be much easier for users to evaluate. In Experiment 2, both skilled observers
and layman perceived a room to be the most colorful room when it was in the reflectivity range of 30%. In Experiment 3, seven boxes with different shades of red were presented, ranging between 15% and 80% LRV. Despite the actual performance of the LRV, the box with the highly reflective pinkish-red was perceived by all the observers to be the most colorful chroma, contradicting the assumption that colors with the lowest reflectivity values are the most colorful.

The eye is capable of making separate judgments about color reflectivity. Daylighting is well documented, as well as the architectural role of reflectivity. However, the connection between daylight and reflectivity lacks thorough study. Although these are preliminary experiments and results, the implications were felt to be of sufficient interest to continue the work. Multiple personal tests are being conducted, including a significant number of studies with human subjects. These results will be evaluated to find a rule for the perception of color, which will lead to design applications for the use of color in interior spaces. These experiments will aid in the designing of color schemes for building interiors. It is of value for the designer to know with a greater degree of skill the colorfulness and the reflectivity of the space and to be able to anticipate both environmental and aesthetic effects.

REFERENCES (Chicago)


View into the kitchen
Health and Wellbeing: Uncovering Evidences of Interior Impacts on Occupants

Amber Ortlieb & Amanda Gale
Kwantlen Polytechnic University

ABSTRACT

The built environment can impact building occupants’ health and wellbeing through various satisfaction parameters. This awareness of the positive and negative effects of the built environment has resulted in a demand for better indoor environmental quality (IEQ), which is a core issue for interior designers. Ultimately, people want to flourish in their environments (Guerin & Kwon, 2010). Applying user-centered theory, this study examines IEQ through the lens of the occupant by measuring their level of satisfaction with the indoor environment to pursue its relationship with workplace wellbeing.

The premise exists that an environment can affect individuals’ physical and psychological health as well as cognition, behavior, and overall wellbeing (Stokols & Altman, 1987). Low levels of occupant satisfaction with IEQ were found to correlate to low levels of health and wellbeing (Steemers & Manchanda, 2010). In addition, unhappiness and discomfort were connected to poor psychological or physical health (Steemers & Manchanda, 2010). Literature demonstrates that dimensions of health are impacted, positively or negatively, by the indoor environment through air quality, levels of lighting, acoustics, access to daylight, and comfortable furniture (Ghodrati, Samari, & Shafiei, 2012). In the built environment, occupants express satisfaction with the interior environment as a means of conveying their health, comfort, and happiness, articulated broadly as wellbeing (Steemers & Manchanda, 2010). In previous studies, the relationship between the quality of the indoor environment and occupant satisfaction has often been supported, but these studies have inferred the outcome of this relationship is wellbeing without empirically supporting the inference, a gap addressed in this study.
This study employed an online survey of 199 full-time employees that were working in six buildings at a southeastern university between September and October of 2014. The survey questionnaire included measures of respondents’ self-rated health (physical and psychological), workplace wellbeing, job satisfaction, and satisfaction with the IEQ in various dimensions including lighting, lighting control, daylight, views, indoor air quality, thermal comfort and control, acoustics, acoustical control, privacy, control of the environment, comfort of workstation and chair, aesthetics, cleanliness, and safety.

Key results indicate that satisfaction with indoor air quality and thermal comfort positively influenced both occupant physical and psychological health, which in turn increased their workplace wellbeing. Satisfaction with privacy was also another significant predictor of psychological health, although its impact was not extended to influence workplace wellbeing. Further, satisfaction with acoustics was found to have a direct influence on workplace wellbeing despite that its effect on physical or psychological health was not significant. This research identifies the IEQ variables that are an integral part of the indoor environment experience based on the occupant’s satisfaction of the environment at the center of the phenomenon.

This study contributes to the IEQ research by establishing the connection between IEQ satisfaction and workplace wellbeing mediated by health (physical and psychological) through the generation of empirical evidence for the influence of IEQ of a building—specifically, indoor air quality, thermal control, acoustics, and privacy—on its occupants’ health and workplace wellbeing. By focusing on these areas of IEQ in both education and practice of interior design, higher quality indoor environments can be developed enhancing occupant health and wellbeing. This study’s findings align with the interior designer’s fundamental responsibility to support the health, safety, and wellbeing of occupants through enhancing their quality of life in the interior environment (Guerin & Kwon, 2010).

REFERENCES (APA)


Intersections of Interior Design, Well-being, and the Home Environment

Angelita Scott & Denise Guerin
Georgia Southern University

ABSTRACT

The purpose of this phenomenological qualitative study was to understand how the physical home environment affects psychological well-being for stay-at-home mothers. Interior designers are charged with the responsibilities of ensuring occupant health, safety, and well-being. To fulfill this charge, it is important for interior designers to understand the connection between people, the built environment, and the role their profession plays in improving quality of life. This connection is mediated by psychological and physiological responses. The concept of well-being is difficult to quantify (Becker et al., 2010; Kopec, 2012), but there are factors such as stress and satisfaction that are predictors of well-being (Deiner, 2009; Dilani, 2001; --- & Martin, 2010; Ulrich, 1991). As stay-at-home-mothers spend a significant amount of time in their homes, it is important to address their well-being as caring for infants and children can physically and mentally take a toll on a mother’s life.

Studies have shown a link between a mother’s mental health and developmental delays in children (Manuel, Martinson, Bledsoe-Mansori, & Bellamy, 2012). Due to the influence the physical environment has on people’s emotional health, well-being implications support the need to identify any physical environment factors in the home that can reduce stress, increase control, or improve quality of life in any way. The design of space may indirectly and directly impact individual well-being on a micro level and, therefore, public health on a macro level (Frumkin, 2005; Jackson, 2003). This inquiry explored what well-being means in the home, what physical characteristics or features in the home environment increased and/or decreased stay-at-home mothers’ well-being.
Face-to-face interviews, observation, and photo elicitation were used to collect data. The sample consisted of 14 stay-at-home mothers who had one or more children from birth to five years of age and lived in a metropolitan area. Kreitzer’s (2012) well-being model was used as a conceptual framework informing questions and directing analysis. Findings revealed that quantity of space, access to nature, personalization, and privacy/retreat were important for well-being in the mothers’ homes; clutter and lack of cleanliness detracted from their well-being.

Suggestions for creating well-being in the home were generated from the findings in the study. These suggestions support well-being by reducing stress levels for mothers and their families in the home environment. In addition, outcomes of this study will aid interior designers in home design that supports well-being, health practitioners in understanding potential stressors in the physical home environment, and may potentially affect housing policy to impact planning and building practices of homes for those who reside in affordable housing with minimal resources to increase their quality of life.

REFERENCES (APA)


After the Unthinkable: Revisiting Design & Security in the Built Environment

Rula Awwad-Rafferty & Linda O'Shea
University of Idaho

ABSTRACT

Context
The year 2015 challenges us “So far this year, there have been at least 294 mass shooting incidents. There have been 274 days” (1). The FBI released a report on Active Shooter Incidents in the US. The number of “active shooter” incidents, defined as “an individual engaged in killing or attempting to kill people in a confined and populated area,” more than doubled (2). Those incidents claimed the lives of 468 people and left 557 others wounded, while undermining public’s sense of safety, predictability, and place. The goal of the FBI study was to provide data to better understand how to prevent, prepare for, respond to, and recover from these incidents. The report points out that the majority of the incidents occurred in commercial places, then educational settings. This abstract translates the FBI’s goal into actionable strategies and recommendations for Interior Design.

Research Question/Theory Explored
The threat of active shooters in public space is real and can cause substantial psychological and physical costs. As design scholars, educators, and practitioners, it is imperative to understand the role that Interior Design plays in combating fear, reducing risks, and mitigating threats. Through case analysis the authors explore ways by which Interior Design can anticipate threats, prevent potential security breach, mitigate incidents, and modify practice. Framework of Exploration Embracing an integrative approach that values physical and psychological security, the authors utilize a model developed in 2009 (3) to situate safety and security within a contextual, sustainable, and user centered systems approach. Review of a representative sample of incidents characterized as Active Mass shooting incidents, was conducted. Facility types
Health Safety and Welfare • Scholarship of Design Research • Presentation

selected for investigation were public building where most incidents have occurred: commercial spaces, educational facilities, and government facilities. Incident reports, expert analysis, spatial layout, and image analysis were reviewed, focusing on design and management features that play a role in anticipating, mitigating, and reducing impact of threats while maintain the spirit of engagement in the public domain. Public spaces are challenging because of the inherent spatial complexities. Religious facilities offer a different challenge; people gather in identifiable places for worship and community. The majority of these facilities offer daycare and educational programs, and all offer places of refuge in times of emergencies (4). Inclusive Security Paradigm:

The layers of analysis for each setting include:
Context and Experience: qualitative and quantitative metrics of physical affordances
Threats and vulnerabilities: threat assessment conducted by internal and external teams.
User Centered Design: expert driven and participatory approaches
CPTED 3-D application: Designation, Definition, Design
Addressing CPTED guiding principles: Access control, Natural surveillance, Territoriality and Territorial Reinforcement, Maintenance, Target Hardening.

Conclusions and Implications
It is our responsibility to assess, create, evaluate, and improve the overall quality of life and experience in designed environments. An integrative paradigm where design for safety and security merges with inclusive and sustainable design in authentic responsive to human needs is needed. According to the UN Commission on Human Security “Human security means protecting vital freedoms. It means protecting people from critical and pervasive threats and situations, building on their strengths and aspirations. It also means creating systems that give people the building blocks of survival, dignity and livelihood. To do this, it offers two general strategies: protection and empowerment. Protection shields people from dangers. Empowerment enables people to develop their potential and become full participants in decision-making.” (5); Interior Design is uniquely positioned to meet this dual goal.

REFERENCES (Other)


Showing the Invisible: Gateways to New Frontiers in Interior Design Education and Practice

Fred Malven &
Iowa State University

ABSTRACT
This paper addresses the professional and functional implications of interior design’s long-standing emphasis on visual dimensions of the built environment. It enumerates a list of some of the field’s most important issues, and notes that many of them involve abstract, intangible factors not easily communicated in conventional visual terms. With this preface, the paper proposes consideration of an expanded repertoire of communication methods that affords more effective abstract, intangible aspects of design, not fully served by current methods. Communication fuels professional growth. Vision being the dominant human sensory mode, design methods have historically also been visual methods. Vision has driven the advancement and achievement of many—perhaps, most-- of the field’s highest priority objectives. Student designers spend countless hours in studios, mastering the discipline’s visual languages and dialects. They are far more likely to study and “know” noteworthy examples of their craft based on photographs, digital images and drawings and other visualization than through physical, first-hand experience. And, ultimately, interiors, themselves, are generally conceived, developed, refined and shown via a series progressively refined illustrations.

It is easy to see why interior design is often characterized by the public and its practitioners as a “visual problem-solving” field. However, as Fitch (1972), Malnar & Vodvarka (2004) and other prominent design theorist’s have noted, designers of the human environment are facing far more than visual problems. The greater breadth of the field’s scope of practice is evidenced by models of the field, such as Malven’s “Systemic Definition of Interior Design (2012). He defines the field in terms of six categories, the so-called C.H.O.P.P.S. functions: 1) Cognitive and perceptual, 2) Health, safety and welfare, 3) Operational, 4) Psycho-behavioral,
Physical/physiological, and 6) Setting or contextual functions. Especially if the field hopes to more fully integrate the product of its investigation, analysis and resulting evidentiary basis into the problem–solving process, one could reasonably ask whether design’s conventional methods of visual communication are sufficient to “show” solutions related to intangible factors such as these. If not communicated by existing means, by what means can information on these and other abstract design issues be conveyed?

The body of this presentation will focus on experimentation and refinement (and later incorporation into the instructional process) of a series of verbal/graphic methods—adjuncts to the field’s traditional illustrative and orthographic methods. These were aimed at more effectively imparting information of an abstract, conceptual nature. The exploration was initiated during the planning for a revised human factors course shared by sophomores in interior design and industrial design. It came to the author’s attention that integration of non-visual sensory experience into the design process was complicated, by the absence of clear, familiar tools for “illustrating” such problems and design responses.

The paper will report on key results of this search: 1) development and utilization of a hybrid, verbal/graphic system of abstract communication comprised of combinations of nine static methods, 2) application of graphic narrative (comic book) methods and pattern language to the exploration of design theory, and 3) extensive use of charrette-like verbal/graphic examinations to assess learning and reinforce key concepts. The performance of selected examples of verbal/graphic information was tested against more conventional technical narratives in terms of short-term recall, long-term recall and detailed knowledge of concepts. The session will include examples of the various types of communications cited above, along with the results of preliminary evaluations of the tools under discussion.

REFERENCES (APA)


Figure 1—Example of Lecture Journal Sketchbook focused on personal interest area (PIA)—Stress Related to Waiting Areas

Figure 2—Example of Charrette-Type Examination, One Block of Lecture Content Applied to Student PIA (80 minutes)
Figure 3—Example of Assignment to Develop Family of Symbols Corresponding to Primary Health, Safety & Welfare Threats.

Figure 4—Example of Assignment to Develop Emotionally-Related Concepts and Communication Relevant to Student’s PIA.

Figure 5—Graphic Theory Statement (Fashioned After Graphic Novel)-- Preliminary Development.
IN THE ABSENCE OF OTHER INFORMATION, ROUTES WITH SIMILAR SURFACES ARE PERCEIVED TO BE MORE COMPLETE THAT THOSE WITH DISSIMILAR SURFACES.

**Exit Path Continuity**
Figure 7—Section of Test Instrument Used to Evaluate Legibility of “Pattern Language” Symbols vs. Text Description.
Historic Preservation and Interior Design - Community Engagement at Work

Valerie Settles
University of Central Oklahoma

ABSTRACT

The Council for Interior Design Accreditation (n.d.) states that accredited interior design education helps insure students are prepared to be “responsible, well-informed, skilled professionals” in the field so they can best serve their clients. Fortunately, interior design exposes practitioners to a wide range of clients in a variety of locations – interior designers can serve anyone from wealthy clients to non-profit community organizations. Therefore, it is incumbent on the interior design educator to expose students to experiences that provide relevant examples of the breadth of the profession so they are able to learn what area best fits their skill set and interests. When students have the opportunity to work with clients in the community, they are able to grow as designers while also helping others; experiential learning is an important component in assisting students to reach a deeper level of understanding for their discipline.

Thompson and Beak identify five basic criteria for projects integrated into experiential learning: they are directly integrated in the curriculum; they force students to engage the critical aspects of their discipline; they involve students in productive inquiry; they are largely student-driven; and they are representative of real-world scenarios (Thompson & Beak, 2007). Experiential learning is also an effective technique for developing the critical thinkers and effective problem solvers so important to the professional market in which students will soon be competing. This practice helps students develop “responsibility, independence, and discipline” while learning to be accountable to themselves and their peers so that everyone participates equally in the completion of the final product (Bell, 2010). As students engage in experiential learning experiences, they are also able to gain a better view of “the big picture” that
is so important in motivating them to become more interested in learning, rather than simply completing assignments. The “big picture” suddenly becomes very clear when students have the opportunity to speak to someone in the community with a need; they begin to understand the importance of the work interior designers do and the importance of doing that work well.

This case study presentation follows interior design students in a historic preservation course as they implement criteria of Thompson & Beak and learn about the challenges of preserving older buildings and how interior designers play an integral role while interacting with local community organizations. Working with a local chapter of the National Main Street Organization, students were asked to develop a design to convert an upper floor in a historic building to residential spaces to provide housing in the central business district of a small western town. After meeting with the client, students organized relevant project groups, developed the program, researched pertinent information, and completed working drawings that were presented to the client. Following completion of the project, students completed a reflection exercise that asked them to evaluate what they learned during the course – about historic preservation and about themselves as designers.

Comments made by students included: “This class broadened my mind with design and the possibilities there are...it made me think outside the box in other classes of what I could do.” “I see the process of design in a more complete way... having to rely on the work of others makes you realize how important each part of the design process is.” “After taking this course I realize that saving and repurposing historic buildings is environmentally responsible.” Students who completed the Historic Preservation course were not only exposed to a potentially new area of specialization in their future practice, but grew to understand the importance of their role in helping others in the community while maintaining the common culture held within our historic resources.

REFERENCES (APA)


Spring 2015

Historic Preservation

Course Description

This studio course will introduce students to concepts and case studies in historic preservation and implications for the interior design profession. Prerequisite(s): Enrollment open to interior design majors only with junior or senior standing.

Course Objectives

- Define terminology from the preservation field
- Recognize techniques for managing historic buildings
- Learn common methods of researching historic buildings
- Gain experience in participating in and leading a project group
- Apply research and design solutions to a project in the community
- Stimulate critical thinking and expression of thoughts in relation to the historic preservation field and integrated designs
- Evaluate accessibility of historic buildings and threats to historic nature

Grading

Numerical scores will be assigned in accordance with the expectations of the instructor and the department. Numerical grades will be based on the following 100 point scale:

90 – 100    A
80 – 89    B
70 – 79    C
60 – 69    D
0 – 59    F

The final course grade will be based on the following requirements:

Class Projects    60%
Final Reflection Paper 20%
Participation in Class 10%
Group Peer Evaluation 10%

Total   100%
Spring 2015

Historic Preservation (cont.)

Grading for projects will include the following criteria:

- **Visual Presentation** – neatness, impact, accuracy, and professionalism, as well as creativity displayed in the development of the design solution

- **Color and Material Coordination** – as applicable

- **Written and Verbal Material** – correct grammar and spelling, and clarity of explanation for a project

- **Student’s Ability to Follow Instructions** – observing project requirements, utilization of design concepts, and creativity displayed in the development of the design solution

**Teaching Methods**

- This course will consist of lecture periods where students will actively listen to and discussing the topics presented, along with class periods dedicated to project work in groups and/or on an individual basis.

- Site visits to a project location will be integrated into the schedule to expose students to examples of historic buildings.

**Textbook**


ISBN 9781306015091 (required)
Project 2

Babcock Building

Grading Rubric

The goal of this project was to provide experience in developing a design solution for a contemporary use within an existing older building. Residential spaces of varying sizes were arranged within the 3<sup>rd</sup> level of the Babcock Building in downtown ____________. Finishes, lighting and furnishings were selected for all spaces.

**Drafting Conventions for Drawings**

- Room names (2 pts)
- North arrow (2 pts)
- Title block (2 pts)
- Drawing titles (2 pts)
- Spelling (2 pts)
- Overall neatness (text easily read, items not overlapping) (5 pts)

**Program Requirements**

285 Points

**Conceptual Development**

- Research on ____________ – culture, demographics, history (20 pts)
- Concept statement (20 pts)
- Conceptual sketches for space planning, furniture plan, etc. (20 pts)

**Presentation Materials**

- Colorboard(s) with renderings, plans, finish and furniture selections (20 pts)
- Specifications booklet
  - Cover page for specification booklet (5 pts)
  - Concept statement (5 pts)
  - Plans at applicable scale (20 pts)
  - Renderings of selected spaces (30 pts)
  - Finishes w/ notations keyed to room finish and color schedules (30 pts)
  - Furnishings w/ notations keyed to furniture plan (30 pts)
  - Lighting w/ notations keyed to reflected ceiling plan or legend (15 pts)
  - Room finish and color schedules (20 pts)
  - Cost estimate (10 pts)

**Renderings**

- Ability to reflect and communicate overall design concept (20 pts)
- Overall technique and presentation (20 pts)

Total: ____________

Total Points for Project: ____________
Historic Preservation Final Reflection Paper

Spring 2015

Your opinion of this course is invaluable in helping me improve the course for the next time it’s offered. Please write a short paper (2 – 3 pages max) describing your experience in the course; please address the topics below, but feel free to add any other issues that are important to you.

- Summarize what you learned about the field of historic preservation as a result of this class, and compare it to what you knew or thought about preservation before you took the class.

- What did you learn about yourself and your skill set?

- Discuss your thoughts on the design process for the two projects (programming, concept development, design development), as well as team dynamics in individual groups and the manner in which class members worked as a whole.

- Finally, what did you take away from this class that you can implement in future projects? This could be a skill or a new contact with a classmate, or even a new idea of an area where you might want to specialize as a future designer.
Teaching Detailing Through History / Teaching History Through Detailing

Peter Greenberg
Wentworth Institute of Technology

ABSTRACT

The paper presents the outcomes of an academic course where lessons about material detailing and the history of modernist design have been combined. By focusing on the material detailing of a historic project - rather than its spatial organization or its strictly historical or stylistic narratives – students can learn important lessons about both the history of design as well as about material assembly for their own studio projects. Twentieth century designers like Mies, Aalto, Lewerentz, Saarinen and Scarpa developed a vocabulary of interior material relationships and assemblies that is still quite relevant to a young generation of designers. As student demystify how materials go together in exemplary ways, they can envision the creative possibilities of material assemblies by applying them in their own contemporary designs.

There are two problems being addressed by the paper: first, students do not always see the applicability of the important lessons of history for their own studio work. The traditional method of teaching history as a chronological cascade of styles and dates and names may not be ideal for the preferred hands-on learning styles of most interior design students (Watson). The second problem is that the teaching of detailing can sometimes emphasize pragmatic proficiency rather than creative solutions that omit important possibilities (Ballast, e.g.). While an emphasis on detailing necessarily involves some understanding of technical issues (Ford), it is the expressive content that makes it most significant for the student’s development. Combining detailing and history offers the possibility that students develop a more lasting understanding of both. While historical precedents are generally introduced into the curriculum through broad surveys and precedent analyses that emphasize planning decisions, a concentration on the design detail itself offers several distinct pedagogic advantages. By focusing on the architectural
details of historical precedent, the academic discussion shifts to issues of architectonic character from questions of spatial organization or the context of historical innovation. A detail is at least as effective a tool to describe the most salient aspects of a scheme as traditional ordering devices like the plan or the parti – and arguably more so to embody issues of spatial character (Frascari 23, Frampton 307). Details also offer the benefit of focusing on materiality and how spaces are actually made, thus making the historical model more relevant for advanced students who benefit from investigations that more directly parallel professional activities. Details thus prioritize the built reality of the precedent over its theoretical construction.

An analysis of the outcomes will be based on evidence of student work from the course, which is an advanced level seminar that has been taught for four years. Specific exercises help to structure a discussion to compare and contrast strategies of assembling materials in historical modernist examples as well as to apply those lessons in new student designs. Analysis exercises include analysis of photography and drawings in print as well as site visits to important case studies; synthetic design exercises demonstrate the integration of the lesson’s application. By using case studies of such high quality, the conversation about the details of historical projects allows for an advanced discussion inviting subtle comparisons and illuminating contrasts. By focusing on the design detail to understand important Modernist spaces, the student of Interior Design is challenged to understand how great designs are made from actual materials, how they are assembled and how they embody design intent. By looking closely at the details of historic case studies, a connection is established between a student’s understanding of constructed material issues, the history of design, and their own studio work.

REFERENCES (MLA)


By focusing on the material detailing of a historic project - rather than its spatial organization or its strictly historical or stylistic narratives – students can learn important lessons about both the history of design as well as about material assembly for their own studio projects.

Within this modernist linguistic consistency, different designers offer various approaches: the material planarity of Mies, the idiosyncratic sensuality of Aalto, the direct material essentialism of Lewerentz, the ebullient celebration of conditionality of Scarpa.
Figure 2: Site Visits to Significant Modernist Spaces

Site Work allows hands-on understanding of how detailing works - how materials are assembled with intent. Site Visits bring historic Modernist buildings alive.

Above (L & R): Site Work at Le Corbusier’s only North American structure; below: students figuring out detailing by Alvar Aalto and Paul Rudolph.
Analysis exercises include analysis of photography and drawings in print. Students are asked to focus on the detailing within a specific historic structure; to find published details as well as to create drawings that explain details from the space that might not be otherwise clear in the publications.
One synthetic design exercise challenges students to design a guardrail two ways: once with concealed connectors, again with revealed connectors. Both designs should be options for the same space, with the same spatial character. The exercise is designed to get students to embed details with clear design intentionality.
Figure 5: Examples of Student Outcomes

Student design exercises are crafted to emphasize their own design intent in the detail rather than visual similarity to precedents. The lessons from the case studies are thematic in nature rather than formal. The lessons of history are substantive, not superficial.

The analysis of the outcomes should be based on the intentionality of student designs rather than any visual similarity to the Case Studies.
Historic Narrative Inquiry: Contextualizing Political, Cultural, and Social-Economic Factors in Design History Through Visual Thinking

Moira Gannon Denson & Robin Wagner
Marymount University

ABSTRACT

Why did Richard D’Oyly Carte decide to build the luxurious Hotel Savoy in Britain? What social/cultural events involving the Knickerbocker Set of New York City shaped the hotel’s design? These and other questions were posed to students in two study abroad courses – design history course and visual sketching course. The goal was to structure the courses to enhance one another and improve the student’s learning experience by engaging “historic narrative inquiry”; that is, an understanding that history is not isolated into styles and periods, but is more comprehensive involving political, social, and cultural events.

Traditionally, design history courses involve a lecture format relying on cognitive recall of knowledge; however, Erin Cunningham (2014) in her essay expresses the need to look at the teachings of history “as a tool for broadening perspective and forging connections, allowing for a more nuanced understanding of issues that are critical to developing design thinking” (p. v). Therefore, we sought to foster creative and critical thinking skills through an experiential, narrative inquiry and visual literacy experience.

1. To engage students experientially, students were taken to London England to explore and study architectural and interior spaces over a broad historic time line. The sites were grouped into three categories: residential, places of worship and public spaces. Historic guides, lectures and meetings with architects who specialized in British preservation supported the visits.

2. To engage students to explore different perspectives of design history, we used narrative inquiry. Mitchell (as cited in Danko, Meneeley & Patillo, 2006) defines narrative inquiry as an
analytical method to understand the user’s experience and “how design responds to the cultural, social, and personal needs of users” (p. 10). Using notes from a lecture by Dr. Bruce Peter (2013), a pre-departure lecture was presented on historic, political, social, and cultural impacts on hospitality design. Using the lecture as a framework for the students own narrative inquiry, students were asked to use The (United States) Secretary of the Interior’s Standards for Rehabilitation and Guidelines for Rehabilitating Historic Buildings, Brief 17 to organize information gathered at specific historic sites.

3. To help students critically analyze, visual literacy was documented in a sketchbook. According to Colin Ware (2008), “It is known from human memory research that recognition is vastly easier than recall. In other words, we can recognize what we have seen far more easily than we can reconstruct a memory” (p. 160). Students learned various visual note taking techniques to assist them to constructively see and recognize elements and components within the built environment.

In summary, the incorporation of narrative inquiry and visual note taking into experiential learning courses creates successful responses to creative and critical thinking skills. In course outcomes, student’s demonstrated an understanding of narrative inquiry. Questions and discussions with historic guides and faculty ranged from the effects of the Reformation on design to the design restraints caused by the window and brick tax. Additionally, student’s sketchbooks and design briefs documented critical analysis through visual note taking and revealed the positive use of “Brief 17” as an organizational tool for the analysis of architectural and interior spaces. However, the briefs exhibited several weaknesses, such as student’s inability to work in groups and a failure to translate their vocal perception of narrative inquiry into writing. But most importantly, responses from a post survey identified students comprehended design history as more than just design periods and styles; that is, their responses supported they understood the basic element of “historic narrative inquiry” – that design is a reaction to historical, political, social, and cultural events.

REFERENCES (APA)


Peter, B. (2013). Lecture on Hotel Architecture: Renaissance to post WWII. Personal Collection of B. Peter, Glasgow School of Art, Glasgow UK.

Appendix Page 1-3: Course Project Assignment - Historic Briefs Instructions

ID 585 London Study Abroad: Summer 2015- Historic Briefs

Group Project: the group project will consist of 3+ briefs completed by each group member and compiled into a brief book on their historic subject. Therefore, two groups containing 3 members will have a total of 9+ briefs and one group containing 4 members will have 12+ briefs

Historic Design Brief Subject and their groups

GROUP 1: Residential Homes: Royalty and Upper Class of London and Surrounding Areas. (Residential homes we will visit that fall into this category: Hampton Court, Ham House, Chiswick House, Osterly Park, Strawberry Hill, Two Willow Road, No. One Royal Crescent, Leed Castle, Red House, and The Royal Pavilion. Independent visits the fall into this category: Buckingham Palace, Carleton House Terrace, Kensington Palace, Linley Sambourne House, Leighton House Museum, William Morris Gallery (was his family home), and Denis Sever’s House)

GROUP 2: Places of Worship: Throughout London and Southern Britain. (Places of worship we will visit that fall into this category: St. Paul’s Cathedral, Westminster Abbey, Canterbury Cathedral, Bath Abbey (visit on your own when in Bath) and when in Hampstead Heath St. Jude’s Church on the Hill. Independent visits that fall into this category: All Saints Margaret Street, All Souls Church, St. Mary Le Bow, Westminster Cathedral, St. Paul’s Church Covent Gardens, Church of St. Martin in the Field, St. Bartholomew the Great, and St. Stephen’s Walbrook.)

GROUP 3: Public Spaces: Throughout London and Southern Britain. (Public Spaces we will visit that fall into this category: Victoria and Albert Museum, Palace Pier in Brighton, Parliament Building, Banqueting House, The Pump Room in Bath, Roman Baths in Bath. Independent visits that fit into this category: Pall Mall, Victoria Station, Tate Modern Museum, Tate Britain Museum, BoxPark Mall, Wilton Music Hall, Design Museum, Royal Albert Hall, and Battersea Power Station.)

What the Briefs Contain:
The information in the briefs will be researched and investigated in the following methods: 1) research on the property including architecture, history of the building and those who designed and resided within, the interiors, historical/political/cultural/sociological events occurring at the time the structure was originally built (maybe subsequent years when major additions were made), and their impacted on the design of architecture/interiors (research maybe done on the internet but be sure the sites are not biased and are reliable and/or reviewed); 2) information gathered on the sites while visiting London. This includes
guides/lectures, brochures, docents information, books and other material; and 3) Your own photographs and hand sketches as documentation of the exterior and interiors of the building and its spaces (Utilize sketch journal from ID 515 as the basis for this analysis)

You are to analyze the following (based on The Secretary of the Interior’s Standards for the Treatment of Historic Properties):

A. Architecture Character: Identify the Overall Visual Aspect of the Architecture (at a Distance)
   - Identify its distinguishing physical features without focusing on its intricate details.
     - Look at the building from a distance to understand the character of the site and setting -- it involves walking around the building where that is possible. Some buildings will have one or more sides that are more important than the others because they are more highly visible. (Defined through elevations and various shots from differing positions)
   - **SHAPES**: The shape of a building can be an important aspect of its overall visual character. Define characteristic shapes such as overall structure, patterns of window layout, bands, molding etc. Any and everything that defines the basic shapes -- watch getting detailed – this is ONLY the main foundational shapes. **Identify the floor plan and elevations of the structure.**
   - **OPENINGS**: Those openings and entries that dominate the structure in size/shape/location.
   - **ROOF and RELATED STRUCTURES**: Roof structure and others – dormers, towers, cupolas, chimneys, pattern work, etc.
   - **PROJECTIONS**: projecting components such as porches, hyphens that extend to another area, bay windows, etc.
   - **TRIM**: Now comes the detail – Quoins, carvings, moldings – what are the elements that make up the trip work.
   - **SITE ANALYSIS and SETTING**: Identify the site (maybe done working with Google Maps -- suggest do prior to visits for familiarity of location). Look at the site as it exist now and in your research try to find out how the site existed when the property was originally built and maybe even subsequent changes through the year.

B. Interior Character: Identify the Overall Visual Aspect of the Interiors and individually important spaces
   - **Individual Important Spaces**: The character of individual spaces that are important to the to the function and character of the building. Assessing size, ceiling, and the space in relation to the others and the design of the building. Examples are large dinning hall, ballrooms in a hotel, etc. Please use floor plan to help indicate their location.
   - **Interior Features**: Look at three-dimensional building elements or any architectural details that are integral to the buildings character – not furniture. Interior features that define the character of individual rooms or spaces. Ex. Large ornamental staircase, fireplace and its marble carved fireplace, lighting fixtures, or a large caged elevator lift.
• **Surface materials and finishes**: What materials and finishes comprise the *surfaces of walls, floors and ceilings*. Handcraft or machine made products that are important contributors to the visual character, including patterned or inlaid designs in the wood flooring, decorative painting practices such as faux painted surfaces, etc.

• **Furniture**: What furniture – style, finishes, etc. – were employed in major spaces. Handcraft? Machine work? Intricacies of the work – marquetry, inlays, carvings, etc. (Only identify major pieces, we could be forever if you do not limit)

• **Accessories**: What accessories – style, finishes, etc. were employed in the major spaces. Can be light fixtures, decorative mirrors, etc. (only major pieces used again.)

C. Factors that impact the design in history. Looking at Political, Socio-economic, and/or Cultural/Religious impacts that defined the style and the design in history.

• **Political factors** that may have impacted the design and style period of the architecture and interiors. Example: The Pitt Window Tax in Britain (England, Scotland and Ireland) and in France during the late 17th century into the early 19th century. The tax was on the number of windows a structure possessed.

• **Socio-Economic factors** that may have impacted the design and style period of the architecture and interior. Example: The impact of cars and the freedom to travel had on main-street in towns. Traveling to a mall was easier, one stop shopping area for all.

• **Cultural/Religious factors** that may have impacted the design and style period of the architecture and interiors. Look at cultural issues and changes that have occurred. Example: Changes in how Americans use spaces in their home from early 20th century to the late 20th century. Changes due to how we use a kitchen, family areas for TV viewing and entertainment.

**EACH group will compile the briefs into one book. The beginning of the book will begin with a timeline indicating when each site was built (or maybe distinctive time rebuilding the building). The buildings you choose should be in various historical periods/centuries, that is, of the 9 briefs in your book (for a group of 3) you MUST HAVE 5 sites that are in a different century/style period. The other four maybe within similar style/century periods.**
Appendix Page 4: Final Student Project Brief Examples

St. Mary le Bow

**INTERIOR CHARACTER**

The interior of the church has a square floor plan (see Figure 5.5). It has a high barrel-vaulted ceiling that is decorated with bright blue paint and gold leaf molding (see Figure 5.6). The ceiling is supported by corinthian columns. Simple, elegant brass light fixtures illuminate the space.

**Figure 5.5 St. Mary le Bow Floor Plan**

drawing credit: Debra Callahan

The church has a large pipe organ that is the centerpiece of the west elevation (see Figure 5.6). The organ is housed in a dark wooden case with Ionic columns holding a large pediment, similar to the entrance of a Greek temple. The pipes are on the second level of the structure and tower over visitors. A coat of arms of the monarch are shown on front and center of the structure.

**Figure 5.6绘哩 Organ**

drawing credit: Debra Callahan

On the east wall, opposite the organ, is the altar. Framing the altar are three large stained glass windows. The altar is covered with an ornate altar cloth and behind the altar is a simple wooden screen (see Figure 5.7).

**Figure 5.7 View of Altar**

drawing credit: Debra Callahan

St. Paul’s Church Covent Garden

**ARCHITECTURAL CHARACTER**

St. Paul’s Church Covent Garden is located directly to the west of Covent Garden Market in central London (see Figure 4.1). It was designed by Inigo Jones in 1633. It has a long-standing relationship with the theater community (the London Opera House is nearby) and is known at “The Actors’ Church.” In addition to church services, theatrical productions of a secular nature are produced here for the public to enjoy.

**Figure 4.1 St. Paul’s Church Site Map**

drawing credit: St. Paul’s Church Covent Garden brochure

The church sits in a vibrant area of central London. It is surrounded on three sides by gardens and the east side of the church opens to a busy plaza where street performers are a constant (see Figure 4.2). There are five entrances to the church, with two accessible entrances. The main entrance is located on the west side of the church.

**Figure 4.2 Artist View of St. Paul’s Church**

photo credit: Debra Callahan

St. Paul’s Church resembles a Greek temple with a rectangular shape. It is made of stone and brick with a wooden roof. The roof has large eaves that extend out a few feet and are continuous around the structure. Doric columns support a simple pediment that houses a clock on the east side of the church. The columns are arranged symmetrically with two square columns at the corners and two round columns in the center. These form the outline boundary of a portico. There are also two large windows that flank a tale door on the portico that continue the use of symmetrical balance (see Figure 4.3).

**Figure 4.3 East Facade**

drawing credit: Debra Callahan
Appendix Page 5: Final Student Project Brief Examples
Literature as Design History: A Study of Kate Chopin’s The Awakening

William Riehm & Robin Anita White
Mississippi State University

ABSTRACT

The study of literature and writers can serve as a tool for design history research. A familiar example, Edith Wharton, the chronicler of New York society, left her mark on the interior design academy with the 1897 publication of The Decoration of Houses, which has become a seminal work in design theory and an important piece of American interior design history (Al Shihabi 2015). Kate Chopin’s 1899 novel, The Awakening, contemporaneous with The Decoration of Houses, has yet to be analyzed within design studies. This analysis shows that The Awakening reveals Chopin’s keen awareness of the design trends and movements of her time, and shows how her understanding of design is interwoven in this seminal piece of American literature. The Awakening, although studied at length under many literary lenses, resists easy classification, having characteristics that are radically modern, protofeminist, and southern gothic.

The Awakening challenges social norms of the time and tells the story of protagonist Edna Pontellier’s journey to independence and self-awareness in 1890s Creole Louisiana. An outsider, Edna Pontellier hails from Kentucky, but finds herself entrenched in Creole culture through marriage. Beginning at a vacation home on the Louisiana Gulf Coast, Edna’s journey of self-awareness parallels changes in setting, from vacation home to a dignified New Orleans city home, through various acquaintances’ apartments, a home renovation, and a final move into a “pigeon house” artist studio. Through a detailed analysis of the text, this paper investigates Chopin’s masterful description of interiors, unpacking her imagery to reveal a better understanding of Victorian excess and exoticism, American traditionalism, and the aesthetic movement. For example: “The Pontelliers possessed a very charming home on Esplanade Street...
History • Scholarship of Design Research • Presentation

in New Orleans . . . The house was painted a dazzling white; the outside shutters, or jalousies, were green. . . Within doors the appointments were perfect after the conventional type. The softest carpets and rugs covered the floors; rich and tasteful draperies hung at doors and windows. There were paintings, selected with judgment and discrimination, upon the walls. The cut glass, the silver, the heavy damask which daily appeared upon the table were the envy of many women whose husbands were less generous than Mr. Pontellier.” (Chopin 1972, 83) Here Chopin places Edna in a conservatively white home with a richly decorated yet conventional Victorian interior (fig. 1).

It is in this setting where Edna’s transition from a married woman confined in a highly structured culture into a more independent and self-determined artist begins. Chopin uses aesthetic movement descriptions for Edna’s new artist’s studios. When Edna throws her own birthday dinner to celebrate her “moving on,” Chopin describes an aesthetic movement visual feast. Chopin’s skillful understanding of interior design is revealed in subtleties as well. Worn images of Victorian exoticism place the reader in the Creole milieu (fig. 2), and a soft nostalgic description of a rustic Acadian cottage bedroom surround Edna as she first feels her innerself (fig. 3). In one of Chopin’s most insightful, prescient descriptions, Mr. Pontellier mounts a home renovation effort to give the appearance that all is well at home, a contemporary reader can clearly see the similarity to the much studied renovation of Irving Place by Elsie DeWolfe (fig. 4) (Sparke 2005).

In conclusion, this study shows through literary analysis, design theory, and related images that Kate Chopin was versed in the interior design trends of her time. She uses them to visually move her reader through the story of Edna Pontellier’s radical journey to self-awareness and uses design to support a story that challenged the norms of her time. The Awakening serves as a document of design history, giving insight and context to a current understanding of design theory.

REFERENCES (Chicago)


Figure 1. Chopin’s description of the Pontellier residence is also embodied in the New Orleans Guild Home shown here, 2504 Prytania Street, New Orleans, decoration 1890.
Figure 2. Chopin’s descriptions of Creole spaces includes images of exotic birds and imported furniture consistent with the exoticism movement of the Victorian era as shown here in Fredrich Churchhill’s Olana House, Hudson, New York, 1888-91.
Figure 3. Chopin’s nostalgic vision of an Acadian cottage includes a description of a bed similar to this Acadian style low-post bedstead with trundle bed (1780–1840) that is held in the Holden Family Collection, Pointe Coupée Parish, Louisiana.
Figure 4. Elsie De Wolf, dining room renovation, Irving Place, New York, 1898. Mr. Pontellier’s renovation is described in a similar fashion.
Reduced Legislative Support and New Interdisciplinary Collaborations: Development of Iowa State’s Hybrid Funding Model for Masters Program in Historic Preservation

Diane Al Shihabi
Iowa State University

ABSTRACT

In an era of reduced legislative support for universities, academicians and administrators seek creative financial models to fund new interdisciplinary and cross-disciplinary graduate programs in design disciplines. While in 2009, 32.7% of Iowa State University’s (ISU) revenues came from state appropriations and 1.3% came from federal appropriations, in 2014 only 23.5% of the University’s revenues were state funded and 1% were federally funded. Additionally, between 2012 and 2015 Iowa’s legislature imposed tuition freezes, further constricting the University’s budgetary resources. Within this monetary milieu, four departments in ISU’s College of Design - Interior Design, Architecture, Community and Regional Planning, and Landscape Architecture - collaborated with the University’s Provost, the College’s Dean, Iowa’s Economic Development Authority, and Iowa businesses to creatively visualize and finance a new interdisciplinary masters program in Historic Preservation.

Phase One culminated with the selection of a five-person interdisciplinary committee to jointly determine the developing program and the implementation of the first new faculty hire, financed through an innovative hybrid-funding model that integrated external and internal capital, and contractually guaranteed funding for a decade. With successful execution of the program’s first phase, this study asks 1) How developing university programs in design
disciplines can collaborate with regional businesses and existing governmental agencies to fund new interdisciplinary graduate programs of mutual interest without compromising academic freedom, and 2) What are the key characteristics and essential strategies of a successful contemporary interdisciplinary and cross disciplinary collaboration, within and beyond the institution?

To address question one, the study’s methodology examined pecuniary and non-pecuniary strategies employed to initiate the new program, the benefits financiers envisioned for their organizations, and the mutually agreed upon terms of implementation. The study also examined the Historic Preservation Exploratory Committee’s (HPEC) feasibility study, which assayed interdisciplinary graduate programs that succeeded and failed within the College of Design and reviewed practices of successful interdisciplinary graduate programs in Historic Preservation across the United States. Among external programs analyzed were the University of Florida, Cornell University, and Ball State University. To address question two, the study analyzed HPEC’s collaborative process, from the perspective of the participants, and identified key stratagems, implemented and in process, designed to ensure an interdisciplinary model that allows all participants equal voice and equal opportunities. It also evaluated the alignment of university goals for new interdisciplinary programs with the faculty’s concern of promotion and tenure criteria.

The study finds that equity of participants, transparency of information, efficiency of process, and prioritization of common goals were essential characteristics of the successful collaboration. The University’s High-Impact Hires Initiative, combined with funds from the Iowa Economic Development Authority, helped realize the first hire of the new Historic Preservation program, while HPEC’s involvement in contractual negotiations ensured execution of the program as envisioned by the founding academicians. Importantly, this study shows that a hybrid-funding model can serve as an important catalyst in the developmental process for a new educational initiative and that fully engaged interdisciplinary academicians can realize academic goals, even when a new program is substantially externally funded.

REFERENCES (Chicago)


Design History, CIDA Standards, and NCIDQ Examination: Rethinking Educational Priorities Amidst Global Destruction of Cultural Heritage

Diane Al Shihabi
Iowa State University

ABSTRACT
In the late 1990s, the elimination of the history component of the National Council of Interior Design Qualification exam reflected the reorientation of interior design education and accreditation standards away from an academic model with a liberal arts emphasis towards a more practical model of technical training. In 2015, in an era of technology and globalization, growing themes in design pedagogy and research include not only technological needs, but also social and cultural objectives, expanding upon earlier work of Clive Dilnot, Victor Papenek, and others. Contemporary research and events support a need for change. Harvard economists Claudia Goldin and Lawrence Katz found that technical skills, developed through college education, led demand in the late twentieth and early twenty-first century (1980-1905), but that wage premiums went to persons with top problem-solving skills. Fortune editor Geoff Colvin argues that as the twenty-first century develops, it will be the human abilities to collaboratively create, culturally empathize, build relationships, express thoughts, and convey social sensitivity – qualities generated through history and humanities - that will generate value and distinction.

Recent destruction of cultural heritage properties in Non-Western and Western countries, including Iraq, Syria, Turkey, France, and the United States, and UNESCO’s call for change through education, further suggest that design history’s central educational objectives, including those of the interiors specialization, need re-evaluation. Hence, this study asks 1) What social and cultural roles interior design history can contribute to twenty-first century
design education that will generate public value, through human abilities (creativity, empathy, building relationships, self-expression, social sensitivity and so forth), and 2) What changes in accreditation standards and examination qualifications are needed to rebalance the interior design profession’s technological and Liberal Arts emphases, to rouse and propel design history’s role in ameliorating contemporary social and cultural concerns.

The study’s methodology identifies potential social and cultural roles that design history can play in the sustainability of global cultural identities and the preservation of global cultural heritages. Next, it examines the application of design historical precedents to solve contemporary problems through experiential projects, stakeholder collaboration, and globally focused assignments. It then analyzes Student Learning Expectations in CIDA’s 2017 Professional Standards in terms of social and cultural applications of design history, and proposes how the Standard can be reoriented. Lastly, it considers the significance of reintroducing the history section of the NCIDQ exam to reframe the minimal qualifications required to practice at an entry level today.

Findings show that design history increases relevancy and meaning to students, when it is utilized to address contemporary problems related to cultural identity and cultural heritage. It finds that Standard 10 – History of the CIDA’s 2017 Professional Standards Standard (final draft) falls short of recognizing and encouraging contemporary social and cultural applications in design history and recommends restructuring. Finally, reintroducing the history section of the NCIDQ exam would communicate the importance of design history, and its social and cultural applications, to students and practitioners. Significantly, it would realign design history’s educational objectives with current global concerns and desired skills.

REFERENCES (APA)


Lighting Considerations in Healthcare Applications: 
An Extrapolation from Evidence-Based Design 
Accreditation and Certification Guidelines (EDAC)

Cherif Amor & Kevin Woolley 
Virginia Commonwealth University Qatar

ABSTRACT

Introduction/Issue
Lighting impacts users’ psychological and physiological well-being. In healthcare interior design applications, a growing body of knowledge is emerging relative to the psychology of behavior (privacy, territoriality, personal space); human perception and cognition (wayfinding, semantics of the built environment, and aesthetics); and environmental risk assessment (stress and stressors, environmental pollution, and security) (Kopec, 2006; Bechtel & Churchman, 2002; Stewart-Pollack & Menconi, 2005). While there is a growing body of literature relative to environmental related activities (e.g., wayfinding, perception, cognitive mapping, privacy), and their behavioral consequences (happiness, stress, anxiety, and arousal), there is a lack of data relative to lighting design strategies in emergency waiting rooms, which educators can adopt in their projects’ pedagogy. Then, the question would be how design educators address the present deficiency? The purpose of this study is to 1) identify lighting design techniques that address environmental related activities (i.e., wayfinding) and their behavioral consequences (i.e., stress), and 2) to examine the impact of the adoption of these lighting techniques on the project’s process and product.

Methodology
To do so, an interior design junior course, including 20 students, served as the setting and sampling for the present teaching report. Using an evidence-based design approach, as extrapolated from the Evidence-Based Design Accreditation and Certification guidelines
(EDAC, 2011) including 4 of the 8 steps: 1) define evidence-based goals and objectives, 2) find sources for relevant evidence, 3) critically interpret relevant evidence, and 4) create and innovate evidence-based design concepts. The remaining EDAC steps 5-8 (develop a hypothesis, collect baseline performance measures, monitor implementation of design and construction, and measure post-occupancy performance results) were not included in this report as they were related to performance, implementation and post-occupancy evaluation of completed projects. Students were required to address the design needs of an existing emergency waiting room, taking into account 1) the aforementioned EDAC steps, 2) art for lighting considerations, extrapolated from Michel Lou’s (1995) The Shape of Space: Designing with Space and Light, and 3) lighting for behavioral considerations, extrapolated from Pollack & Menconi(2005) Designing for privacy and related needs.

Discussion
Findings suggest that the use of Evidence-Based Design Accreditation and Certification (EDAC) guidelines generated well-evidenced holistic design solutions. Likewise, the EDAC guidelines paved the way for the establishment of well-informed design concepts, and facilitated the development of well-evidenced subsequent design phases—schematic, preliminary and final outcomes. Important findings suggest that the combination of lighting for artistic considerations (phototropism, tenebrism, metaterism, interspatial brightness, and others) and lighting for behavioral considerations (relaxation, spaciousness, pleasantness, and others) provided pedagogic holistic solutions that included not only environmental related activities, but also their behavioral consequences. Other reflections on the findings of the present teaching report relative to the combination of the Evidence-Based Design Accreditation and Certification guidelines, behavioral and artistic lighting considerations will be discussed with the conference attendees for feedback.

REFERENCES (APA)


PROJECT STATEMENT

You are commissioned to design male and female emergency waiting rooms of Hamad General Hospital. This will not only require understanding of basic constituents of the emergency waiting rooms but will also necessitate acquaintance with the context, including but not limited to: EDAC guidelines, culture, demographics, project’s site—square footage, density, ceiling heights, traffic, furniture, etc.—, existing problems, and their repercussions on either facilitating or hindering the waiting experience. Effective, creative, and sustainable lighting approach to support the chosen theme and accentuate the architectural elements is one of the client’s major concerns.

METHODOLOGY AND PROCEDURES

This assignment will require the following guidelines:
- Evidence Based Design Accreditation and Certification (EDAC guidelines)
- See attached document—EDAC steps 1-4.
- Lighting for Artistic Considerations—i.e., phototropism, tenebrsim, etc.
- Lighting for Behavioral Considerations—i.e., privacy, wayfinding, etc.

OBJECTIVES

- To develop skills in preparation of construction documents as a system of drawings, schedules, and specifications (schedules, specifications, lighting reflected ceiling plans, elevations, sections, and details.
- To research and evaluate selection criteria including photometric data and methods of control.
- To attain a high level of ability with regard to the selection and application of lighting fixtures and sources.
- Application of color themes and schemes that address culture, application, and gender.

PRESENTATION REQUIREMENTS

The following items are required on 20”x 30” sturdy boards.
Number of boards: your choice.

1. Plan, Elevation and Perspective
   - Concept: including theme, sketches, illustrations, annotations, and statement
   - Color rendered furniture floor plan, labeled and annotated
   - Lighting/reflected ceiling plan
ASSIGNMENT II: EMERGENCY WAITING ROOM DESIGN

PROJECT REQUIREMENTS AND EVALUATION CRITERIA

CONCEPT AND OVERALL DESIGN-- (25 PTS.)

Concept: Write down one short paragraph to delineate impressions, styles, and feelings that are sought in the present project. Use ketches, pictures, and annotations. See EDAC steps, lighting for artistic and behavioral considerations.

Symbolism: Does the project translate concept to forms and shapes

Application: Is the lighting design suitable for and consistent with the aesthetic and performance requirements of the space? Use light concepts studied earlier.

Lighting Design Flexibility: Does the design permit flexibility in terms of lighting control (i.e., multiple-switching, dimming, etc.)?

LIGHTING/REFLECTED CEILING PLAN AND SCHEDULE (35 pts.)

Lighting/reflected ceiling plan with appropriate symbols: switches, switch legs, outlets, and overall lighting.

Show shapes, materials, levels, and annotate as much as you can

Lighting schedule (see Lightolier’s samples of schedules).

Include a legend.

RENDERED DRAWINGS: ELEVATION AND PERSPECTIVE (20 pts.)

Elevation and perspective of spaces that decipher lighting themes

Appropriate line weights to indicate depth, differentiate elements, etc.

Accurate and appropriate detail of significant areas

Accurate correspondence to plan—use standard graphic symbols

Technique and use of color media: expressive use, effective shading and shadows, contrast of light and dark, conveyance of textural qualities, reflection, light, and wood surfaces,

Scaled figures inserted to demonstrate relationship to human dimension.

PRESENTATION: ATTENDANCE, COMPOSITION, AND DELIVERY (10 pts.)

Are concepts effectively and skillfully communicated?

Is the design professionally presented, applying appropriate techniques and conventions (e.g., drafting, lettering, detailing rendering)?

Does the lighting design concept exhibit uniqueness?

Composition of Layout (effective use of boards)

Title blocks

CREATIVITY AND INNOVATION (10 pts.)
WHAT DOES INFORM THE CONCEPT?

- How much are we extrapolating from the Culture under study?
- How much are we borrowing from the Application under study?
- How much are we evidencing from the Precedents?
- How much are we sensitive to the Site and context—Doha, Qatar?
- Use EDAC guidelines (steps 1-4) to generate the project’s concept

Using mnemonics, it is CAPS

CONCEPT SHOULD INCLUDE BUT NOT LIMITED TO:

- Concept title
- Concept statement
- Explanatory Graphics—sketches
- Illustrations/photos
- Annotations

DRAWING REQUIREMENTS:

- Drawing surface: 20"x30" sturdy board
- Media: designer’s choice—white pencils/markers are preferred
- Must be visually clear at a distance of 10' -0"

PRESENTATION:

- Verbal
- Visual
PROBLEM(S)
Awful Waiting Experience that generates stress and anxiety, hence worsen health condition... People are shuffled mechanically—losing human dignity ... What else? What the literature suggest?

CONTEXT(S)
Demographic Context
Different age bracket and needs
Cultural Context
Local culture, Ex pats, langage, religion, etc...
Healthcare Guidelines
Generation of pleasant waiting experience

DESIGN CONSIDERATIONS
Environmental stressors—light, noise, privacy, wayfinding, etc...
Flexible layout—space, furniture, accessibility, adjacencies...
Cultural context and demography
Positive distractors
Technology
Art work
Consumer friendly features
Interactive Kiosks

PROGRAMMATIC DATA (@ YOUR DISCRETION)
THE LIST BELOW IS JUST FOR SUGGESTION:
• Main entry
• Reception
• Sitting
• Restroom
• Traffic
• Miscellaneous—feel free to interject spaces that you deem will make the space generate a healing/therapeutic environment

EDAC Guidelines-- The Center for Health Design, https://drive.google.com/drive/folders/0B4esPW2elTc6djNld0xLUE9TQjg

5 Design Ideas For Healthcare Waiting Rooms

Sheikh Khalifa Project Brings Specialty Care to UAE
http://www.healthcaredesignmagazine.com/article/sheikh-khalifa-project-brings-specialty-care-uae

Innovative codesign project reinvents the hospital waiting room
http://www.designcouncil.org.uk/news-opinion/innovative-codesign-project-reinvents-hospital-waiting-room

Colour Consideration In Waiting Area in Hospital
http://www.academia.edu/1513384/Colour_Consideration_In_Waiting_Area_in_Hospital

Positive Distractions
http://www.healthcaredesignmagazine.com/article/positive-distractions

Advances in Healthcare Design
RESEARCH (HOSPITAL WAITING AREA)

SOLUTION:

WHEN DESIGNING WE WANT OUR COSTUMERS TO HAVE THE OUTCOMES AND SATISFACTION DRIVE REIMBURSEMENTS. NOW THE VALUE IS SHIFTING TO THE FRONT OF THE HOUSE AND THE CUSTOMER SERVICE ASPECT."

WHAT TO PROVIDE:

THIS SHIFT IS DRIVING CHANGES IN THE DESIGN APPROACH, FROM THE RIGHT-SIZING OF THESE SPACES TO THE AESTHETICS, FURNISHINGS, AND TECHNOLOGIES THAT ARE BEING PUT TO USE.

- Artwork – Another important feature that goes a long way in distinguishing an environment is artwork. Ideas can include photography of local landmarks or scenes from nature. Or use the opportunity to reinforce brand ties.
- Free Wi-Fi
- TV screens
- Leaflets – telling them what services in the hospital is provided.
- Children playroom
- Borrow iPad
- Free services, (finger food, drinks, man comes around and offers healthy teas, coffee)
- Large open space windows (You can see what is going on, on the other side)
- Ambient lighting, task light.
- Furniture layout
- Colors used
- Theme

INTERACTION

Their suggestions include a communal table where patients and their family can prepare for consultations, a smartphone application for patients to track their progress in the queue and a modular seating system that would allow pushchairs and wheelchairs to sit alongside family members. As resources are increasingly overstretched, some degree of waiting is inevitable for most healthcare services. And yet hospital waiting rooms tend to be some of the most uncomfortable spaces to spend time, both physically and emotionally. Research shows that a well designed waiting experience has the potential to improve the overall perception of a health care service and to optimize care delivery processes.

HOW TO STIMULATE:

- As soon as the patient gives there documents to the register, and is seated in the waiting room, after a while of waiting the nurse would check there heartbeat, and weight, and necessaries, then would go back to wait to see the doctor. (This is a technique to help clients not feel like they have been waiting for too long)

BASHAYER ALNAIMI
Hospital Waiting Room
The Impact of Branding on the Third Place Environment

Sarah Kibler & Lisa Waxman
Florida State University

ABSTRACT

Introduction
Third places can be define as spaces, other than home or work, which serve as informal gathering places in communities. During the past 50 years, a decline in the number of third places has been observed across the United States (Oldenburg, 1999). At the same time, commercially and virtually staged experiences are rising in popularity, providing ever fewer localized environments in which people may gather (Crick, 2011). Research indicates spaces designed with the influence of the locale lead to positive emotional attachment for those who live within a community (Lippard, 1997). As the culture, ambiance, and “brand” of a third place evolves, it has also been suggested that these places should reflect the communities in which they are located.

Purpose
The purpose of this research was to determine the preferred physical features of third place environments, as well as those that contribute to the “brand”, the perceptions of that brand, and the corresponding likelihood of patronage. Method The methodology included an online survey completed by 120 millennials where respondents were asked questions regarding the physical factors of a space using the Place Attachment Model for Coffee Shops by Waxman (2006). In addition, photographs of four coffee shops including a locally owned coffee shop, a global corporate coffee shop designed to look like a local coffee shop, a regional coffee shop, and a global corporate coffee shop easily identified as such were presented to respondents in the survey. Using heat map survey technology allowed respondents to click on parts of the photographs that indicated the “branded” elements within each coffee shop. The number of
clicks, as well as a color-coded heat map image was generated to identify perceived branded elements. Additional questions also identified their likelihood of patronage.

Findings
Sixty-seven percent of respondents reported that they visited a coffee shop on a regular basis. The most important physical features can be found in Table 1. The physical design features selected in the heat map show those that most contributed to the branding (see Figure 1). They included: Wall finishes and wall décor, the cash wrap, built-in cabinetry, furniture (selection and arrangement), lighting, and menu displays. Findings also revealed that the perceived level of brandedness had an effect on the overall perception of the space (positive or negative) as well as the likelihood of patronage. Specifically, the two most preferred coffee shops were the unique locally owned coffee shop and the easily identifiable global chain. Not surprisingly, the coffee shops viewed as having a positive brand resulted in a reported greater likelihood of patronage.

Conclusion
By better understanding the design features preferred in third places as well as the elements that contribute to a brand, designers will be better informed when designing similar spaces.

REFERENCES (APA)


Appendix

Table 1 Respondents Valuation of Design and Ambient Characteristics of the Ideal Coffee Shop (1= Most Important; 5= Least Important)

<table>
<thead>
<tr>
<th>Physical Factor</th>
<th>n</th>
<th>Mean</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cleanliness</td>
<td>120</td>
<td>1.37</td>
<td>.56</td>
</tr>
<tr>
<td>Comfortable Furniture</td>
<td>120</td>
<td>1.71</td>
<td>.78</td>
</tr>
<tr>
<td>Access to Natural Light</td>
<td>120</td>
<td>1.81</td>
<td>.88</td>
</tr>
<tr>
<td>Overall Visual Appeal</td>
<td>120</td>
<td>1.94</td>
<td>.71</td>
</tr>
<tr>
<td>Adequate Lighting</td>
<td>120</td>
<td>1.96</td>
<td>.76</td>
</tr>
<tr>
<td>Views to the Outside</td>
<td>120</td>
<td>2.08</td>
<td>.95</td>
</tr>
<tr>
<td>Outside Seating</td>
<td>120</td>
<td>2.33</td>
<td>1.02</td>
</tr>
<tr>
<td>Color</td>
<td>119</td>
<td>2.55</td>
<td>.89</td>
</tr>
</tbody>
</table>

Figure 1. Examples of Heat Map Identifying Branded Elements
The Impact of the Interior Environment on Resident Falls in Japanese Skilled Nursing Facilities

Akemi Kotaki, Mitzi Perritt, Ray Darville, Sally Ann Swearingen & Leisha Bridwell
Stephen F. Austin State University

ABSTRACT

Japan has the oldest population in the world; 23.3% of citizens are 65 years or older. Japanese life expectancy is 83.1 years increasing to 86.6 by 2060 (Ministry of Internal Affairs/Communications, 2010). Older adults in the US comprise 13% of the population (U.S. Census Bureau, 2012). Falls are common among nursing home residents and pose a significant problem in many countries. Falls result from environmental hazards, medications, vision problems, and impairments in strength, gait, or balance (Bradley, 2011). Shobha (2005) identified environmental hazards as a leading cause of falls.

This study investigated the interior environmental risk factors for falls within 13 Japanese nursing homes, using documented fall incident report data of 1,228 falls, to determine which locations and interior environmental features (flooring, furniture, assistive devices, and lighting) were associated with higher risk of falls. Fall rate served as the single dependent variable. Independent variables involved four categories of interior environmental factors (flooring, furniture, assistive devices, and lighting) and seven areas (resident rooms and bathrooms, public toilet rooms, public shower/tub rooms, lobbies/entrances, lounge/social/dining areas, corridors, and elevator interiors/elevator lobbies). The environmental variables analyzed include the following. • Flooring o Floor materials o Pattern contrast o Floor reflectance o Threshold height o Flooring transitions o Hard-surface flooring texture o Carpet height o Carpet texture o Value contrast between floors and walls • Furniture o Bed height (floor to top of mattress) o Bed location o Bed clearance (on either side of bed) o
Chair style o Arm height o Chair seat height o Chair kick space o Value contrast between chairs and the floor o Chair type o Chair stability o Resident corridor seating o Reception desk at entrance o Assistive Devices o Bedrails o Handrails o Handrail placement o Toilet room grab bars placement o Toilet seat height o Shower grab bars placement o Shower seat: not provided o Tub height o Lighting o Permanent wall-mounted night lights en route to bathrooms o Permanent wall-mounted night lights near resident beds o Permanent wall-mounted night lights in bathrooms o Light switch location (near bed) o Light switch location (latch side of door) o Lighting levels o Lighting levels o Lighting levels o Natural lighting (skylights) o Natural lighting (windows in room)

Analysis targeted the number of resident falls during 2012. Facilities 10 years old or older (n = 7) had a 1.5 times higher fall rate compared to newer facilities (n = 6). Newer facilities featured private resident rooms compared to older facilities that had shared rooms. Analysis of the data may suggest that private rooms are associated with fewer falls than shared rooms. Fall data also suggested that falls were significantly more likely to occur in certain areas. Of the 1,228 falls, 52% occurred in resident rooms, and 25% of falls happened in the lounge/social/dining areas. A high incidence of falls in resident rooms could be due to nighttime urinary incontinence as residents rush to use the toilet without the help of staff (Chiarelli, Mackenzie, & Osmotherly, 2009). Other substantive data patterns also were observed.

REFERENCES (APA)


http://familymed.uthscsa.edu/geriatrics/reading%20resources/virtual_library/PGY2_%20Articles/Falls05.pdf

APPENDIX 1

Percentage of Fall Locations

<table>
<thead>
<tr>
<th>Location</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resident Rooms</td>
<td>642</td>
<td>52.3%</td>
</tr>
<tr>
<td>Lounge/Social/Dining Areas</td>
<td>301</td>
<td>24.5%</td>
</tr>
<tr>
<td>Public Toilet Rooms</td>
<td>112</td>
<td>9.1%</td>
</tr>
<tr>
<td>Corridors</td>
<td>112</td>
<td>9.1%</td>
</tr>
<tr>
<td>Public Shower/Tub Rooms</td>
<td>37</td>
<td>3.0%</td>
</tr>
<tr>
<td>Lobbies/Entrances</td>
<td>11</td>
<td>0.9%</td>
</tr>
<tr>
<td>Resident Bathrooms</td>
<td>10</td>
<td>0.8%</td>
</tr>
<tr>
<td>Elevator Interiors/Elevator Lobbies</td>
<td>3</td>
<td>0.2%</td>
</tr>
</tbody>
</table>

APPENDIX 2

Summary of the Lowest Fall Rates of Attributes

<table>
<thead>
<tr>
<th>Design Feature</th>
<th>Lowest Fall Rate</th>
<th>Fall Ratio Difference</th>
<th>Room</th>
</tr>
</thead>
<tbody>
<tr>
<td>Floor type</td>
<td>Ceramic mosaic tile</td>
<td>X</td>
<td>Public toilet rooms</td>
</tr>
<tr>
<td>Floor type</td>
<td>VCT</td>
<td>X</td>
<td>Lounge/social/dining areas</td>
</tr>
<tr>
<td>Floor type</td>
<td>Carpet</td>
<td>X</td>
<td>Corridors</td>
</tr>
<tr>
<td>Floor reflectance</td>
<td>No glare</td>
<td>X</td>
<td>Resident rooms</td>
</tr>
<tr>
<td>Floor reflectance</td>
<td>No glare</td>
<td>X</td>
<td>Lounge/social/dining areas</td>
</tr>
<tr>
<td>Floor reflectance</td>
<td>No glare</td>
<td>X</td>
<td>Corridors</td>
</tr>
<tr>
<td>Hard-surface flooring textures</td>
<td>Nonslip floor</td>
<td>X</td>
<td>Public toilet rooms</td>
</tr>
<tr>
<td>Hard-surface flooring textures</td>
<td>Nonslip floor</td>
<td>X</td>
<td>Lounge/social/dining areas</td>
</tr>
<tr>
<td>Value contrast between floors and walls</td>
<td>Low contrast</td>
<td>X</td>
<td>Corridors</td>
</tr>
<tr>
<td>Bed location</td>
<td>Direct visibility from the hall</td>
<td>X</td>
<td>Resident rooms</td>
</tr>
<tr>
<td>Chair arm height</td>
<td>&lt;7” high</td>
<td>X</td>
<td>Lounge/social/dining areas</td>
</tr>
<tr>
<td>Chair arm height</td>
<td>&lt;7” high</td>
<td>X</td>
<td>Lobbies/entrances</td>
</tr>
<tr>
<td>Chair seat height</td>
<td>&lt;7” high</td>
<td>X</td>
<td>Lounge/social/dining areas</td>
</tr>
<tr>
<td>Chair seat height</td>
<td>&lt;7” high</td>
<td>X</td>
<td>Lobbies/entrances</td>
</tr>
<tr>
<td>Value Contrasts between chairs and the floor</td>
<td>Strong contrast</td>
<td>X</td>
<td>Lounge/social/dining areas</td>
</tr>
<tr>
<td>Value Contrasts between chairs and the floor</td>
<td>No contrast</td>
<td>X</td>
<td>Lobbies/entrances</td>
</tr>
<tr>
<td>Chair stability</td>
<td>Stable</td>
<td>X</td>
<td>Lounge/social/dining areas</td>
</tr>
<tr>
<td>Chair stability</td>
<td>Stable</td>
<td>X</td>
<td>Lobbies/entrances</td>
</tr>
<tr>
<td>Attribute</td>
<td>Description</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-----------------------------------</td>
<td>----------------------------------------------------------------------------------------------------------------------------------------------</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Fall rates were three times lower when glare was not present on the floor compared to glare that was present on the floor in the corridor.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Fall rates were six times lower when the chair arm height was less than 7&quot; in height compared to 7&quot; or greater in the lobbies/entrances.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Fall rates were six times lower when the toilet seat height was less than 17&quot; in height compared to 17&quot; or greater in the public shower/tub rooms</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Fall rates were five times lower when the shower seat depth was less than 15&quot; deep compared to 15&quot; deep or greater or not provided in the public shower/tub rooms.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Fall rates were five times lower when the lighting level was less than 100 FC compared to 100 FC or greater in the lobbies/entrances.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Toward Quality Affordable Housing for Elders: A Platform for Life Satisfaction, Comfort, and Aging-in-place

Jung-hye Shin
University of Wisconsin-Madison

ABSTRACT

This study examined daily activity patterns of Korean ethnic minority elders who reside in affordable housing complexes in the Chicago Metropolitan area, focusing on how the physical design of their residential environments support or inhibit their cultural lifestyles and overall comfort. The theoretical framework of environmental satisfaction and human comfort and its four adaptive behaviors (Shin 2015; cf. Morris and Winter 1978; Jorn and Shin 2013; Bronfenbrenner 1999) are employed to organize and interpret heterogeneous sets of data. This study is a part of a larger study that examined 138 Korean immigrant elders in affordable housing in the Greater Chicago area (Shin 2014). The original study employed: (1) in-depth qualitative interviews within each residential unit about their daily activities; (2) physical survey of units, which included quantitative evaluations, photo documentation, and the elders’ comments on each rooms; (3) survey of their activities throughout the city using Geographic Information System (GIS).

The field survey resulted in nearly 1,000 images that recorded the interior/exterior of the housing and around 250 hours of interview narratives. The three sets of data are synthesized to identify the design features that supported or restricted their daily activities. The areas where misfits occur between elder’s behavioral patterns and functionality of physical environment were first identified. Such misfits were identified whenever the elders showed one or more of four adaptive behaviors: physical adaptation, behavioral adaptation, normative adaptation, and withdrawal. The root causes of the adaptive behaviors were then translated into spatial terms:
building site and orientation, spatial organization, finishes and materials, and functional supportiveness of amenities. This finally lead to planning and design recommendations at three levels: Urban, community, and individual unit.

The urban level recommendations include careful choice of building sites in order to increase: (1) building’s proximity to amenities; (2) connectivity to urban infrastructure. Amenities include key ethno specific businesses such as bank, grocery store, adult day care, as well as non-ethno specific business such as fast food restaurants and urban parks for daily walking exercise. The urban infrastructure includes multiple public transportation systems such as subway, bus, and community organized shared ride system overlaid together to aid elders to get around within the city. The importance of connection to highways is also highlighted to help elders stay connected to their adult children, who regularly visit from suburban areas. The building level recommendations include careful building orientation, provision of diverse spaces for socialization and territorialization by individual ethnic groups, grouping of residential units for different ethnic groups while allowing social integration at the community level, provision of building entranceways that allows surveillance, social interaction, and comfortable waiting for transportation, and finally, provision of parking space for family visits. The unit level issues were largely connected to building orientations and overall building configurations (double-loaded vs. single-loaded corridor). Careful building orientation and opportunities for cross ventilation could address critical issues of odor/temperature/light control at the unit level. Finishes and materials that are easy to maintain, and amenities that are functionally supportive are also suggested. Such provision should be accompanied by flexible management policies, which take account sensitive issues of aging, poverty, and ethnic/racial conflicts.

The findings from the field indicate that multi-level collaboration among policy makers, urban planners, architects, and interior designers is key to creating environments where elders can successfully age-in-place.

REFERENCES (Chicago)


The Influence of Organizational Culture and Power on Status: How it is Manifested in the Open Office

Lori Anthony & Benyamin Schwarz
University of Missouri

ABSTRACT

Just as there is little, if any, mention of the physical work environment in the psychology and management literatures, there is little reference to power theory in the design literature. The interplay between power, the physical workplace, and organizational culture, presents a unique lens for redefining status at work. Organizational hierarchies are morphing from vertical to horizontal and as such, transforming cultures are shifting the focus from individualistic centrality to team performance and recognition. Status demarcation is blurred as employees struggle to define self-efficacy and establish identity within the organization. The purpose of this qualitative multi-case study was to understand the manifestation of employees’ perceptions of power and culture on status as evidenced in the allocation and assignment of office workspaces.

As early as 1532, theorists such as Machiavelli, Marx, Weber, Foucault, Dahl, and Lukes postulated on power from various perspectives. Most germane for this research were the theories put forth from Weber, Foucault, and Lukes. Power, according to Weber (1968), suggests that an individual in a social relationship can maintain free will despite the opposition of others whereas Foucault, as reported by Heynen and Wright (2012), “explained how expert knowledge affects the social workings of power, and thus how certain architectural configurations can play a role in disciplining people’s minds and bodies.” (p. 42). Further, Steven Lukes’s fundamental premise in defining power is that “A exercises power over B when A affects B in a manner contrary to B’s interest” (2005, p.37). This definition is grounded in his idea that power is weighted heavily on values and is not always observable. The physical work environment is used as a medium by corporations to communicate intrinsic values (directly and
indirectly influenced by the role of power) through design (Schein, 2004). Choices related to layout, spatial concepts, and organization reinforce a company’s culture and communicates employees’ roles within the corporate structure. The complexity and diversity of titles, positions, and roles combined with the temporary nature of organizational structures directly relate to the social symbolic properties (i.e. status) manifested in the physical work environment (Moleski & Lang in Wineman, 1986).

This multi-site case study assumed a constructivist stance, building rich theory from employees’ perceptions of where and how they work. The first site, a large manufacturing company employs approximately 10,000 workers and the second is a customer service provider employing 19,500 people. Guided by a grounded theory methodology, data collection was triangulated across 96 interviews, observations captured through photographs and memos, and document review of floor plans and websites. Francis Duffy’s organizational structure of hive, den, cell, and club assessed across autonomy and interaction was the conceptual framework for this research. Data was transcribed and coded based on similarities, resulting in emergent themes with categories across methods combined and filtered through the lens of status, culture, and power. The emerging themes of a changing organizational landscape, the quintessential workplace, hierarchy and status, the collaborative workspace, and power/space purport that spatial decisions are shrouded in latent power and perpetuated by organizational culture.

Many organizations, including those studied in this research, are aspiring to a more open, collaborative work environment. The resulting theoretical supposition generated from an analysis of the emergent themes across the constructs of autonomy and interaction illustrates that collaborative work cultures must instill high autonomy and interaction among employees and in so doing, must mitigate the notion of ‘power over’ as manifested by hierarchy and surveillance.

REFERENCES (APA)


Evaluating Living and Learning on Campus: Beyond Twin Beds and Communal Showers

Rebekah Radtke
University of Kentucky

ABSTRACT

Living Learning Programs are increasing in popularity in universities nationwide because they help to create learning environments outside of the classroom for students with similar career goals and interests. When there are spaces that support students academically in their residence halls, their classroom performance is improved (Palmer, Broido, & Campbell, 2008). Living Learning Programs also aid in a smooth transition from high school to college to adapt socially as well as academically (Brower & Inkelas, 2010). When students are able to form community around similar interests and majors, they are able to connect to their campus and feel secure and to thrive in their academic pursuits. But does the physical environment support and align with these goals? Are the interiors supportive of the higher ideals set forth with living and learning programs? Assessment of the investments made to the living-learning environment can help illustrate the impact on student success and retention.

By utilizing a post-occupancy evaluation process, interior design students completed a nine-month study to investigate and assess the investment in student living and learning spaces. A post-occupancy evaluation (POE) is a systematic assessment of an occupied building to better understand the effectiveness of certain design elements. The key purpose of this POE is to investigate, analyze, and report on the successes and weaknesses of the living learning residence hall design to inform future designs. The framework used the process of both qualitative and quantitative measures to gain rich insights into the living learning residence hall experience. Students conducted focus groups and created community involvement events to get resident feedback to capture qualitative data. Quantitative data was collected through surveys and observations. Surveys were administered to understand student preferences, sense of
community and furniture preference. Two rounds of weeklong observations provided data to understand occupancy, behaviors, affordances, noise, and temperature of spaces. Students were involved throughout the process: completing space assessments, behavioral observations, administering questionnaires, conducting focus groups, analyzing data, and making recommendations based on their experiences. Over the course of the summer, a team of four undergraduate researchers worked with their professor to analyze and synthesize the data collected and presented a final document with presentation to the university administration.

The post-occupancy evaluation revealed four key issues that impacted student success in the design: community, user suitability, amenities, and operations. This presentation will outline the successes of the implemented design and areas for improvement of the finished building. The findings of this study have been used to effectively redesign existing spaces and have impacted future living and learning spaces on campus. This study set a model for excellence in future university design projects by utilizing effective evidence-based design. By using evidence-based design, universities can be innovative leaders in research driven design models with a multidisciplinary collaborative team of administrators, staff, faculty, and most importantly, students.

REFERENCES (APA)


FOCUS GROUPS
SYNTHESIS OF FINDINGS
COMMUNITY INVOLVEMENT
METHODOLOGY FRAMEWORK

RESEARCH
OBSERVATION 1+2
SURVEYS
FOCUS GROUPS
COMMUNITY INVOLVEMENT
SYNTHESIS OF FINDINGS

LITERATURE REVIEWS
CASE STUDIES
PHOTOGRAPHY
OCCUPANCY
BEHAVIORAL STUDIES
NOISE + TEMPERATURE
AFFORDANCES
PREFERENCES
COMMUNITY
FURNITURE
STUDENT SUCCESS
RESIDENTS
RESIDENT ADVISORS
SENSE OF PLACE
USER PREFERENCES
FUTURE CONSIDERATIONS
During the week of observations, the student researchers documented how many students were located in each public space. These statistics informed how often the spaces were used throughout the week. The rooms were ranked on each floor based on most occupied to least occupied.
Both engineering students had a lot to say pertaining to the building quality of construction and finishing. The students have experienced water damage in their rooms, leaking sinks and windows. They have also noticed a wind tunnel forces an entrance door to Champion's Court I open during rain storms, causing the carpet to be soaked. Student 1 voiced frustration with the choices in finishes, noting that the countertops on the multi-purpose rooms will outlast the building itself, and the money spent on them could have been delegated for something else. Student 2 is annoyed by how thin the paint is in his room. Student 1 thinks many of the furniture pieces are made of uncomfortable materials that would be better suited for children who “spill everything”.

Student 2 calls his favorite spot in CCI “the green chair room”. The room is his favorite because of the comfortable chairs, and also in combination with the room’s location and windows which provide a view and natural lighting. Both students agree that the pod chairs are “a joke”, and are only used for brief moments waiting for an elevator. Student 1 wished that the residence hall had more sofas, made from comfortable materials, like the ones he has seen in Central. Student 1 likes having the counter-height surface that he can “do whatever” at in the common room of his residence, but he hates the seating around it. The chairs do not provide him with any back support, so he cannot use them for long. He says the seating at the counters in the multi-purpose rooms have a similar problem. They like their desks, but dislike the square tables in the common areas which tilt and wobble around. They both appreciate the variety of furniture around CCI.

Student 2 and Student 1 both spoke of the importance of technology in their area of study. They stated that WiFi and outlets needed to be throughout the residence hall and in working consistent at all times. Student 1 mentioned that not all outlets have been working. Student 2 thinks that the media tables are pretty cool and useful, but they do not always work. Both students also note that there are not enough laundry machines and that they do not clean their clothing well.

Student 1 perceives some issues with the way the residence hall was designed and how it has affected community among its students. Student 1 does not like having doors closing off study rooms. Seeing people already in a room prevents him from entering. He also does not like that the door to the residents rooms lock automatically behind him. He wishes he and his roommates could keep their room doors open so that other students could visit more easily. Student 1 thinks another problem with interaction in the building is that many students do not feel compelled to leave their room with so many things provided to them there. He notes that he still sees people come out of their rooms that he has never seen before.

Student 2 brainstormed ways that the hall could feel more inclusive; he suggested that larger, more open hallways with student rooms at the end and study rooms in the center could be a better solution. He also thinks the footprint of the building in general hindered the hall from the beginning. He thinks a circular or square shaped building would have been better for interaction. Student 1 thinks that the residence hall is a great location for people who love an urban environment. He loves the proximity to downtown with the busy streets and activity that goes on outside. Student 2 does not prefer this side of campus. He spends most of his study time in “the Library” (William T. Young) located on central campus, and most of his social time with his fraternity. Student 2 will be moving to Haggin Hall next semester. Student 1 plans on moving off campus with some friends.
What is your favorite place to study?

- Study Room: 16.8%
- Classrooms: 16.6%
- In Room: 16.6%
- In Bed: 16.6%
- Roof: 16.6%

What do you like most about CCI?

- Privacy: 50%
- People: 50%
- Location: 16.8%
- Bathrooms: 16.6%
- Beds: 16.6%
- Wifi: 16.6%
- Roof: 16.6%
- Green Chairs: 16.6%
- Separate TV & Study Rooms: 16.6%

What is one thing you would change?

- Elevators: 16.6%
- Mail: 16.6%
- Printer: 16.6%
- People: 16.6%
- Paint Job: 16.6%
- 8th Floor Study Rooms: 16.6%
- Amnt of Furniture in Lobbies: 16.6%
- Laundry and Kitchen: 16.6%
- Study Rooms: 16.6%
- 8th Floor: 16.6%

Does CCI feel like home?

- Yes: 50%
- No: 50%
Narratives for Empowerment: Skilled Nursing Residents Convey Stories of Their Lived Experiences in the Built Environment of Retirement Communities

Mary Katherine Crouch & Jill Pable
University of Central Oklahoma

ABSTRACT

Introduction
One of the challenges facing retirement communities is respecting residents’ rights of autonomy, choice, and control while still following the many required laws and regulations (Frank, 2002). Administrators in skilled nursing facilities often strive to create environments which support these essential components associated with empowerment. However, the physical attributes of skilled nursing facilities may prevent residents from fully experiencing empowerment (Frank, 2002). This presentation will discuss the results of a study that explored the built environment’s influence on perceived empowerment by skilled nursing residents. The resulting data may be used to inform the future design of skilled nursing facilities so they may better support empowerment in older adults.

Review of Literature
Literature suggests that a sense of control, choice, and autonomy are factors that can determine if an elderly resident is satisfied with their living conditions in a skilled nursing facility. Such satisfaction may facilitate empowerment and overall well-being (Barnes, 2006; Kane et al., 2003) (Figure 1). Given the value of stories in revealing hopes, dreams and perceptions, some researchers suggest that narrative inquiry is a valuable technique for gathering data in studies of the elderly. Researchers can gain a better grasp of the needs of any individual by accessing his or her personal accounts of the aging experience (Harrigan & Raiser, 1998).
Methodology
The study’s primary research question was: What role does empowering elements in the built environment play in supporting quality of life for skilled nursing residents? The methodology consisted of interviews with thirteen residents and twenty hours of site observations across two skilled nursing facilities. The Person-Environment (P-E) Fit Theory by Kahana et al. shaped the study’s approach (2003). This theory evaluates the interaction of personal preferences and environmental characteristics along four physical domains (Physical Amenities/Aesthetics, Resource Amenities, Safety, and Stimulation/Peacefulness,) and two social domains (Homogeneity/Heterogeneity, and Interaction/Solitude) (Figure 2). As the name suggests, the goal is to have a positive “fit” between the preferences of the residents and the environmental characteristics of the skilled nursing facility to support resident satisfaction and psychological well-being (Kahana et al., 2003).

Results
The researcher discovered emerging themes for empowerment that combined both the physical findings as supported by the P-E Fit domains and additional psychosocial findings that included personal relationships, sense of belonging, sense of identity, and knowledge of community culture (Figure 3). The emerging themes lead to the development of the following ten guidelines that may inform future designs of skilled nursing facilities: 1. Resident room equals home 2. Centralized place to access resources 3. Freedom to access community spaces 4. Centralized social gathering spaces 5. Places for retreat 6. Connection to nature 7. Off-campus adventures 8. Places to explore personal interests (Figure 4) 9. Sense of belonging 10. Safety

Conclusion
By using narrative inquiry and observations to better understand the preferences of elderly residents for the built environment of skilled nursing facilities, the researcher was able to develop guidelines that will benefit facility administrators, staff, and other design professionals who seek to empower and improve quality of life for older adults.

REFERENCES (APA)


Figure 1. Diagram showing the connections between quality of life and empowerment.
Figure 2. Diagram of P-E Fit Theory domains and the outcome variables (Kahana et al., 2003).
Figure 3. Diagram of the P-E Fit theory revised by the researcher as a proposed empowerment framework for skilled nursing residents. Additions are highlighted.
Figure 4. A resident’s special art area in the corner of the dayroom that exemplifies the empowerment guideline, places to explore personal interests. When discussing her art area during the interview, the resident poignantly expressed, “Painting to me is as important to my mental and physical health as those pills you give me”.
Post Occupancy Evaluation: A Day Program Center for Adults with Developmental Disabilities

Nam-Kyu Park & Kijeong Jeon
University of Florida

ABSTRACT

According to the Center for Disease Control and Prevention (2015), about one in six people in the U.S. have one or more developmental disabilities, such as autism spectrum disorder, mental retardation, cerebral palsy, epilepsy, and intellectual disabilities. Autism spectrum disorder is the fastest-growing developmental disability (CDC, 2015). Autism Spectrum Disorder (ASD) is known as complex developmental disabilities and is characterized by impairment in communication skills, deficit in social interactions, and repetitive patterns of behaviors (NIMH, 2015). People with ASD also have different perceptual sensory processing, thus they are highly sensitive to the environment (Iarocci & McDonald, 2006).

Considering special environmental factors in order to accommodate specific sensory needs for adults with ASD and other developmental disabilities, a day program center was designed in the northwest. Furthermore, the center was designed by adapting an evidence-based design approach. About six months after the center opened in January 2015, the POE study was conducted to investigate the impact of the purposefully designed sensory environment on the behaviors of adults with ASD and other developmental disabilities. Data for this study were collected over a period of seven weeks using mixed methods. Methods included architectural documentations; clients’ profile assessments; direct observations of the clients’ behaviors; and in-depth interviews with clients’ care providers. Data collected by these various methods were analyzed to establish potential correlations between architectural and sensory features and ensuing clients’ behaviors.
Findings from this study show overall, clients’ care providers spoke favorably of the new space as a day program for adults with ASD and other developmental disabilities. They said it was aesthetically pleasing, functional, and comfortable, and were very satisfied with the quality of lighting and acoustics. While the care providers were not satisfied with the overall size of the center, the free flow type of the space layout was working very well for clients with the challenging behaviors. The activity room with neutral paint colors and carpeted floor was one of the favorite spaces of the clients with the most difficult behaviors. Based on the results of this study, design recommendations for both clients with developmental disabilities and their care providers will be discussed and the detailed evidence-based design approach to this project will be presented.

REFERENCES (APA)


Community Engagement: Learning from the Design Studio, Fostering Paths Toward Meaningful Collaboration

Rene King, Petra Probstner & Tim Cozzens
Columbia College Chicago

ABSTRACT

The phrase community engagement has become imbedded in higher education; it appears in strategic plans, course titles and descriptions, and broad learning outcomes for 21st century curriculum. The challenge we have faced is how to incorporate community engagement opportunities into the design curriculum that produce meaningful learning outcomes for students, and the communities that we partner with. How do we shape experiences for our students that foster social and environmental activism in emerging design professionals? This presentation will highlight a series of projects faculty have developed that explore various scales and levels of involvement; from a one day design charrette, to semester long projects that explore various social and environmental issues.

Blessed Unrest, by Paul Hawken, has served as an introductory primer for students on the wide array of possibilities for social change. Hawken writes about the importance of narrative in society and the ways that narratives are able to change with time, and enable communities to dream and guide new possibilities. (Hawken, 26). Our hope is that these early conversations will empower our students to think about the narratives that exist in their lives and to identify areas that they will one day impact through design.

The first project will highlight the program’s annual design charrette, which has been built into the curriculum and is required of all students enrolled in a design studio. This quick one day challenge provides students with the opportunity to engage with a local non-profit, and to work...
in teams to propose solutions to the identified problem or need. The next project will highlight a semester long studio project and the varied student outcomes. The final project will look at how the program designed new curriculum to provide a more permanent place for civic engagement within the student experience.

REFERENCES (MLA)

STUDENT FEEDBACK

“My favorite part of the design charrette is working with a real client and thinking about their needs and potential budget.”

“The Design Charrette gave me an opportunity to apply my knowledge in a different design field type than previous projects.”
CLIENT FEEDBACK

“The wonderful ideas the students had use for the space, their vision and creativity. The possibility of transforming the space would asset to the agency and the community.”

“The vision of the students to utilize the area as a functional space for our staff and participants.”
Shelter: The Interior as Site for Disaster Relief

Deborah Schneiderman, Renee Kim & Nam Songsombat
Pratt Institute

ABSTRACT

Problem
From the devastation caused by radically shifting weather patterns students have learned that the interiors of urban mega structures are often utilized as shelter sites, making disaster relief a critical interior issue. To address this issue, senior Interior Design students were assigned the design of interior disaster relief shelters. Supporting and sustaining human well-being is critical to survival and is an ethos central to the discipline of interior design, extreme or otherwise (Davies 2016). Additionally, according to CIDA criteria, exposure to contemporary issues affecting interior design and to a variety organizational structures is essential (CIDA, 2014).

Teaching Methodology
The brief for this senior interior design studio was written with a binary intention. Firstly, to broaden program typologies available to Interior Designers and secondly, to integrate critical theoretical readings into the design studio in direct alignment with the design and making of projects of increasing scale. The coursework was specifically developed to introduce the relevant program typology of interior disaster relief shelter. Methodologically the studio embraced the pedagogical stance that critical interior design theory and the act of making and testing design solutions simultaneously is an essential interior design practice. The coursework was developed as a series of three primary design investigations that increased in scale, starting from the body, each investigation focused around the close reading of a series of critical essays from Lois Weinthal’s theory anthology Toward a New Interior (2011). The project was assigned in three major parts, A, B and C, each with their own set of aligned readings. Students were to build and test their designs for parts A and B at full scale. For project part A students were to design a wearable element that satisfies a basic need in a disaster relief shelter. They were asked to
consider how Interior Design is largely about creating and modifying enclosure for the body and how they think about enclosure at an intimate scale (Readings: Evans “No Man’s Land”; Lupton, “Skin: New Design Organics”; Kraft, “Cutting Patterns”). For part B students were assigned to design a place to sit. They were asked to consider how a seat can become place-making, how people sit, and can a seat contribute to survival? They were asked to consider transportability and materiality (readings: Blauvelt, “Strangely Familiar: Design and Everyday Life”; Smith, “The Rules of Her Game: A-Z at Work and Play”). For part C students were to design an Interior Shelter and Site Plan. Drawing upon their previous designs for a wearable and a place to sit, students were asked to consider. How can you accommodate individuals and families? What are the shelter’s “green” features? Are there security and/or maintenance issues? In space planning the shelter how will you consider human behavior? What is necessary, and what might enhance life at the shelter? (Readings: Colomina, “Interior”; Betsky “Furnishing the Primitive Hut”).

Outcomes
Students produced a series of full scale testable prototypes in addition to designs at scale that were critically interconnected to a series of theoretical readings while investigating a necessary and extreme program typology. Student work evidenced the material learned from assigned readings, which offered insight into the understanding of related disciplines (particularly fashion), broadening the students understanding of potential overlaps within the design disciplines. In addition, students were introduced to theoretical thinking about place-making that furthered their design investigations. Most notable in their course evaluations were the recurring comments that the course had broadened their appreciation for possible programs and practices relevant to interior design.

REFERENCES (APA)

In the area of a natural disaster, a wide variety of groups are funneled into a rushing nature where environmental and daily routines collapse. Our senses shift, our body having a reaction to the chaos. With a group of people I began to design a head construct that could regulate foreign sensory to protect the occupants. As they try to find their own private space.

**WEARABLE ACCESSORY**

**BLOCKS SOUND**

**BLOCKS FULL VISION**

**BLOCKS PERIPHERAL VISION**

**INACTIVE**

My body construct adapts to the human sensors to help bring back the feeling of the private space that is taken away in these situations. Typically in disaster zones shelters massive amounts of people are funneled into a mega structure and are forced to coexist with hundreds of other people with opposite work spaces, and general.
• Wearable Accessory

By considering the wearable shelter as an extension of a human body, I used the length of specific parts of the human body when I decided the lengths of the shelter. In this way, people feel more secured and comfortable in the shelter.

• Place to sit

I measured the lengths of the human body so that a person can fit into the seat. The seat is in a simple form and made out of fabric so that it is very light. It is foldable so you can carry it around easily. It also has two storage spaces. In this way, you can store vinyl blanket and mat, which you can use when you sleep.
WEARABLE SHELTER

A PLACE TO SIT
The most common stress reactions include feelings of anxiety prompted by shock, grief, fear, and helplessness. This vest explores diaphragmatic breathing, practiced in yoga and other exercises for stress relief. To name a few, you would place a hand on your chest and the other on your belly. Then, try to breathe through your belly only. Make sure only the bottom half of your torso is moving. The vest acts as a "second rib cage" in that it restricts movement in the chest region and also inflates in certain areas to relieve pressure points when lying down. The intention is that deep, smooth, fuller breaths will bring a calmer state of mind.
ABSTRACT
CIDA Standard 7 requires interior design (ID) programs to show evidence of students understanding the value and role of public and community service within ID. Typically, this standard is achieved via a service-learning experience within the curriculum. It is widely acknowledged that service-learning in higher education is decidedly beneficial not only to the student participants but the faculty, university at large, and community partners (Eyler & Gyles, 1999; Sigmon, 1994). Zollinger et al (2009) has suggested a framework for integrating and establishing successful service-learning experiences. While this framework is helpful as a guide for establishing whether a project qualifies as a service-learning experience, it does not provide a standard of practice for implementation. This presentation expresses the need for a standard of practice for service-learning in ID, proposes that such a standard may already exist in SEED Methodology, and explores the use of the method through a case study.

The SEED (Social, Economic, Environmental Design) Network has grown out of a movement in architecture toward a profession of public interest design (PID). The Network consists of individual members dedicated to the expansion of design for the public good, sharing case studies and best practices to create a community of knowledge. The SEED Methodology develops the mission and foundational principles into nine action-oriented steps: • Step 1: Engaging Community Participation • Step 2: Identifying Critical Issues • Step 3: Defining Goals • Step 4: Research and Data Collection • Step 5: Setting Benchmarks • Step 6: Defining Performance Measurement • Step 7: Developing a Timeline • Step 8: Documenting and Reporting Results • Step 9: Evaluation and Reflection (Abendroth & Bell, 2015) This presentation will describe a case study in which the author used the SEED Methodology to
guide students in a project to design a 32,000 SF assistance center for a local nonprofit. Steps 1-3 of the SEED Methodology were completed by the professor and the nonprofit prior to the beginning of the course. First, students were introduced to SEED methodology and case studies in PID. Research and Data Collection took place through a community charrette that included future assistance center tenants, staff, local community leaders, and all 120 of the university’s ID students and faculty. The students led focus groups with participants regarding areas within the center. In the afternoon the students led teams of their ID student peers to create schematic design ideas for each of these areas. This was presented back to the community at the end of the day for clarity and feedback. Next, the students worked through Steps 5-9, finalized their schematic design, compiled their work into a presentation booklet for the nonprofit to use for fundraising and promotion, and gave a design presentation to the nonprofit’s Board of Directors.

The project was highly successful. The students learned a great deal about working with a client and engaging a larger community. Of particular importance was reflection from the students about the project opening their eyes to ways in which ID can directly influence, engage, and change a community. Feedback from the community supports the utilization of the SEED Methodology as a standard of practice. Many remarked on the students’ professionalism, ability to listen, and seeing the students as true partners in their work and vision. The impact to the community can be seen further in the reaction of the client. The Board of Directors was so impressed with the students’ work that their design has moved forward into production with a local architect. In addition, several of the students were asked to join a Design Committee for the nonprofit so that their voices continue to be an integral part of the building design.

REFERENCES (APA)


Flyer that was distributed to interior design students prior to participation in the charrette day.
Excerpts from the final production booklet showing quotes from community participants and images from the charrette.
Examples of schematic ideas developed at the community charrette day.
Students at the charrette.
Excerpt from final production booklet showing final design of one area of the assistance center.

Reflection quotes from student participants in course:

“Overall, I think what I realized more than anything (...) is that there seems to be a limited idea of what design is and has the potential to be, and I think that as students it is necessary to start dismantling these preconceived notions in order to design a more beautiful future.”

“We have the ability to impact whole communities with design. I think that is really exciting. This impacts me as a student because now I have the desire to learn about this type of design and to work on developing my skills in this area. Since now is the time we are learning and taking in new information and thinking about how we want to work in the design field I think it’s great that we get to start learning and thinking about this now instead of when we are already working.”
Changing Public Perception of Heroin Recovery

Kimberly Burke & Kurt Grannan
University of Cincinnati

ABSTRACT

Introduction
As interior design programs struggle to balance credit hours with the demands of industry, required curriculum, and accreditation, how can schools provide meaningful learning opportunities for students to use design skills to serve the common good. Students can participate in mission trips and service projects but the scope of the experience is limited and most do not allow students to fully utilize their design skills. Our university is geographically located near the epicenter of the heroin epidemic and most of the students and faculty are removed from the effects. We saw this as an opportunity to educate our students and show them the power of their gifts as young designers. This presentation follows an interdisciplinary studio (interior design and graphic design) whose goal was to change public perception of heroin recovery.

Mission
Through social activism and artistic practice our goal was to help change public perception of heroin recovery, engender compassion and support for those addicts strong enough to attempt recovery, continue breaking down the “them, not us” mentality and eliminate the notion that addicts are a disposal part of society. We set out to create a brand that relates to a safe place that makes it easier to manage the transformation process: including prevention of active use, relapse, engaging those in treatment and working collaboratively through recovery.

Interior Design
Working with an organization that runs rehabilitation centers and members of the Heroin Impact Response Team, Interior Design students researched and created a vision for the
Service Learning • Scholarship of Teaching & Learning • Presentation

redesign of the WW Doctors Building into a recovery center. The students created collateral material showing a vision for the facility that could be used for fund raising efforts.

Executional Considerations
While this is a serious topic, communications need to feel uplifting & inspiring. Most people do not understand recovery or how it differs from other forms of treatment. There is a stigma that paints addicts as a disposal part of society requiring an educational component to most consumer-facing materials to alter misperceptions.

Immersive Experiences
Throughout the semester students and faculty were immersed in the cause; • Attending meetings of the Heroine Impact Response Team (HIRT) and the local chapter of People Advocating Recovery (PAR). • Meeting with the community leaders, politicians, administrators and caregivers of all levers. • Interviewing recovered addicts and their families • Touring different types of recovery centers including detox, long term care centers, women and children shelters and a methadone clinic • Talking with clients, staff members, and care givers at different recovery facilities.

Conclusion
Throughout the semester the students and faculty developed a true understanding of the challenges of addiction and its web of destruction that plagues addicts and their communities. Not only did attitudes about heroin change but a pay it forward mentality developed as students shared their experiences with family, friends, and colleagues. The interdisciplinary nature of the studio encouraged interaction between disciplines and a better understanding of collaborative field work. Student effort and interest increased significantly throughout the semester as they understood the potential impact of their work. As a class, the students developed material for the recovery efforts and designed a recovery center to meet the specific needs of the local community. Their work was shared with community leaders and plans for a new recovery center have just been announced. The students felt that this was the most meaningful learning experience of their educational career and the university is seeking future opportunities for similar interdisciplinary immersive courses.

REFERENCES (APA)


Background:
Heroin is responsible for 51% of all drug-related deaths. Heroin is a deadly drug that can result in physical dependence within a short period of time. Due to the dangers of the drug, it is important to seek treatment when dependence starts to develop.

The creation of heroin comes from opium poppies. The flowers are used to create several opiate prescription medications. The flowers are grown in several countries, but heroin is primarily produced in Afghanistan and Mexico. Unfortunately, the compounds that reduce pain are also addictive. All opiate drugs require the supervision of a medical doctor.

Heroin is commonly taken as a recreational substance due to the impact on the body. The chemicals cause feelings of pleasure. Abusing the substance depends on the individual, but using a needle to inject a liquid form of the drug is common. Other individuals might smoke the drug or take it as a pill. Using a powdered form to snort the substance or creating a suppository might occur in some cases. The amount of time before the drug reaches the bloodstream depends on the method of taking the substance. Heroin is extremely inexpensive — $5 can get you high, $10 can kill you. It is also easy to find in ANY neighborhood. It’s often sold in busy shopping centers and gas station parking lots and common teen hangouts. Most dealers will give it to you for free on your first time so they can get you hooked.

Regardless of the method used, the risk of an overdose is similar. The number of deaths from heroin has increased from around 2,550 to more than 3,000 individuals from 2006 to 2008. The trend shows an increasing problem.

A Home for Anthony

Denise McAllister Wilder & Zoohee Choi
Purdue Polytechnic School of Construction Management

ABSTRACT
Since 2005, a Midwest nonprofit has been building homes for families who would otherwise be unable to care for their disabled child. Dedicated to keeping a growing child at home rather than in an institution, the foundation provides a quality environment for disabled children who are trapped both physically and financially due to serious injuries or disabilities. Five years after the Long family moved into their new custom home designed and built by the organization, the design team conducted a post-occupancy evaluation (POE). Questions included: how the home impacted the lives of the individual family members, whether the original design intent was adequately realized and specifics on how this fully equipped home is contributing to the quality of life of the family. Information gathered will be used to formulate plans for subsequent homes.

Collaborative and transdisciplinary input from the child’s health care team, his parents, as well as his siblings and grandparents created the base upon which the home was designed and subsequently built. Their teamwork served as the key to the success of the home’s design. Now five years later, discussion about the observations made during the POE effort will help attendees better understand the impact and success of specific attributes of the custom built home. As a severely disabled child grows, the caregiving tasks become increasingly difficult. Activities like transferring the child from the wheelchair to the bath and conducting basic floor exercises become harder to manage. By equipping the home with the necessary adaptations, the child is able to stay with their family. The POE strives to determine how well the original design objectives were met as well as which needs identified in the original analysis were successfully conquered, while also uncovering needs that were unanticipated prior to design and construction. Additionally, the POE strives to answer the question of which features played the
most significant role in supporting the quality of life and therefore answers which need to be a priority for inclusion in subsequent builds.

While the focus of this particular project was supporting a child to allow him to grow up in his own home with his parents and siblings, the same accommodations could be utilized in the effort to allow an adult who suffered from a debilitating injury or illness to also live independently. Incorporating medical equipment such as the ceiling lift system that moves a disabled person from bed to shower or toilet can work equally well in a home for a person of any age suffering from a disability or injury. Aging in place is an increasingly sought after goal for individuals as well as in important fiscal societal goal. Interior designers serve as important members of the teams currently working on programs and solutions to insure safe and healthy environments. Looking closely at the original programing documents while analyzing how issues both resolved and unresolved were identified and prioritized in the original design solution helps prepare designers in future programming efforts. Finally, as a collaborative project conducted as a philanthropic effort for a local IIDA chapter, questions regarding the managing of the original project are reflected upon to assist in the management structure of future projects for the foundation.

REFERENCES (APA)


Designing for Protected Populations, a Service Learning Experience for Interior Design Students

Mia Kile, Amanda Yamaguchi & Cecelia Brown
University of Oklahoma

ABSTRACT

Problem
On average, incarcerated youth are reading at a fourth grade level and more than one third of incarcerated youth are illiterate (Brunner, 1993). Literature has the ability to change the way one thinks about or acts. According to Kuiken, et al. (2004) readers who make connections between narrative and their own experiences are more likely to report changes in beliefs and shifts in self-perception. This is important when considering rehabilitation of the incarcerated youth. Background This presentation unveils the outcomes from of a service learning design charrette. The project involved the School of Library and Information Studies (SLIS), a nonprofit Environmental Design Group (EDG), and Interior Design (ID) students. The project served as a means to encourage reading for the youth housed at the Juvenile Justice Center (JJC). Students enrolled in the SLIS graduate program volunteered to help organize and develop the existing reading collection. Once visiting the space, the students realized the environment was not supportive of the intended activities of a library.

Project Description
Through a connection with EDG the SLIS brought the project to the ID program. Students enrolled in the program were presented this design challenge in the form of a design charrette. In the kickoff meeting, the students were presented with the design prospectus, research information such as, designing for special populations, and demographics for the JJC. Students working in teams of four over a period of two weeks, presented their design solutions to a panel consisting of members from SLIS and EDG. The final presentations were provided to the staff at JJC for approval. Methods Through the experiential learning framework this service learning
experience provided, the interior design students researched and applied design considerations for special populations such as building codes, color theory, materials specifications, feasibility and budgets. Teaming empowered the students to explore various design considerations within a short time, divide work based on own area of expertise thus producing a polished final project.

Outcomes
The experience opened the eyes of the students. While most think of interior design as glamorous, few consider design for the not so glamorous. Interior designers have the unique opportunity to make a positive change in someone’s life through the thoughtful design of the spaces they inhabit. Ultimately, the projects provided the JJC with realistic opportunities to improve the library space. Since the presentation, a local donor financed some of the design considerations. Additional donated funds have supported increase of the library collection to better suit the reading level and interest of the residents of the JJC. Student volunteers from SLIS have organized and set up the space per the interior design student recommendations. While this is still a work in progress, according to the teachers at the JJC, the residents, “never turn down a chance to go to the library.” Future Implications Because of the positive outcome, we foresee future collaborative efforts between ID, SLIS, EDG, and JJC. We hope to encourage the incarcerated youth to become more engaged in reading after they are released to promote positive life choices. Building partnerships with the local public libraries to foster this connection will be the next step.

REFERENCES (APA)

ID 2543- Design and Human Factors  
Professor: Mia Kile, ASID, IIDA, IDEC

Oklahoma Juvenile Justice Center Library

For this design charrette, students will be assigned to a team. Each team will work collaboratively to complete the project. Information about the project can be found at: http://ijclibrary.wordpress.com  
Teams will have one week to complete the project. Final presentations are on Monday, April 7, 2014 starting at 2:00pm in room 345 of Gould Hall. Teams will be able to set up for the presentation starting at 1:00pm- 1:45pm. All digital project submittals shall be uploaded to the WordPress website and e-mailed to mkile@ou.edu

Outline:

1. Monday, March 31, 2014
   a. 1:00-2:30 project kick-off in room 395. Virtual presentation with Tulsa Campus
   b. 2:30-2:40 Assign Teams
   c. 2:40-3:00 Break
   d. 3:00-4:30 Brain Storming- Work in Teams in Studio B80
      1. By the end of class each team will have decided how the project will be divided (who is responsible for what). Make sure you each follow through with your portion of the project as this will be part of your individual grade.
      2. Post and e-mail this information

2. Wednesday, April 2
   a. Due: Concept Statement- Address the problem using your research
   b. Concept sketches due 2:30pm
   c. Break 2:30- 2:50pm
   d. 2:50-3:00 Pin-up Concept sketches for review
   e. 3:00-4:30 Review concept sketches- preliminary designs

3. Monday, April 7
   a. 1:00- Due: Final submission uploaded to the WordPress site and e-mailed to mkile@ou.edu
   b. 1:00-1:45: Set up for final presentation in GH 345
   c. 2:00- 4:00pm: Final Presentations
   d. 4:00- 4:30 take down projects- Deliver to room GH291.

Rules:

1. A design charrette is a team effort. Each member of the team is expected to contribute to the outcome of the project. Based on the information provided the first day, each student will be evaluated on their contribution as determined in the initial session. Note that active participation is expected.
2. Deliverables:
   a. Rendered Plans- Furniture and RCP
   b. Rendered Elevations
   c. Sections/ Details
   d. Rendered Perspective(s)
   e. Materials/Finish Board(s) – Include concept statement and problem identification and justification based on evidence based design
3. Team Presentation: Each team will have 20 minutes to present with 10 minutes for question and answer. Dress appropriately- business casual, no shorts, t-shirts, sandals, etc.

Assignment is due before the beginning of class on April 7 and is worth 100pts.
MISSION STATEMENT

To1-1-levy youths, living lield in a juvenile development center (or any like the rest of the world. It can be safe, pleasant and can deter these youths of many of the jay experiences from the outside world.

Our goal in designing this multipurpose space is to transport these youths to a place of sanctuary, abstract space where they can feel a sense of freedom and hope, as well as a place to rest, relax, and discover themselves creatively, socially, and intellectually. We strive to provide this, while also ensuring proper safety and security.

CONCEPT STATEMENT

The idea behind this space is to incorporate natural elements in a way that inspires youths to grow, as well as creatively, socially and intellectually. Using the natural shapes, forms and colors, we will create the type of environment that we designed. We decided to use hexagons as our primary shape for its meaning of strength and stability. Hexagons can be seen in a series of places in the natural world.
Concept Statement: To provide a natural relaxing environment. To create a learning environment to act as a retreat from possible day to day stress. One of the top priorities for the space will be mental and physical safety and security of everyone accessing the library, while creating an obtainable design.
Community-Based Interior Design Matters: Co-Educating the Next Generation of Designers With the Community

Travis Hicks
University of North Carolina at Greensboro

ABSTRACT

“If the professionals of the future are learning how to manipulate people and extract short-term gain at the expense of others, are they then reinforcing the widespread perception among communities that the ‘Ivory Tower’ is by definition distant and irrelevant to their needs?” (Angotti et al, 2011)

Pedagogical Problem
How can design education equip students to excel as interior design professionals while stressing deeper commitments to community and civic engagement that value communities’ expertise and equality?

Introduction
Boyer’s Scholarship of Engagement (1996) builds upon his earlier Scholarship Reconsidered (1990) and grounds the academy theoretically in community engagement around critical public issues, arguing that the university needs to regain its relevance to the public by renewing its commitment to service and engagement. Saltmarsh and Hartley (2011) expand on Boyer’s theories of engagement by differentiating between civic engagement and a higher level “democratic” civic engagement, concluding that democratic engagement focuses on process and purpose and is characterized by reciprocity, co-creation of knowledge, and collaboration among other characteristics. Following this approach of democratic civic engagement the author challenged upper level interior architecture students to identify community-based, social, and
civic-oriented issues and then act on these issues through their studio projects. In a fourth year capstone studio, students identified issues including local food deserts, homelessness, low income housing, and preservation. Community partners included Habitat for Humanity, a local homeless shelter, and a neighborhood association, among others. Solutions included tiny houses, an interior fit-up of a church converted into a homeless shelter, an orphanage in Haiti, and a local community garden greenhouse.

Execution
The design studio became a space for co-teaching and co-learning, where community partners were invited to share their knowledge throughout the semester. Students claimed co-ownership over the time, space, and projects, and a sense of purpose emerged from their work. While there was no promise of built solutions, the author challenged students to pursue projects with the potential of being installed or built. One student, for example, identified a site in Haiti while on a mission trip during the semester. She took everyone from her mission team with her to document and analyze the site, and she returned more informed about her work but also inspired to imagine this project’s being completed and constructed in Haiti. Another student worked with a local non-profit to redesign classrooms in a local church in which the non-profit plans to implement this student’s scheme for a family homeless shelter. Yet another small group of students worked with Habitat for Humanity on a series of house renovations in a historic neighborhood. Working with Habitat staff and builders, the students generated construction documents for two houses that have been renovated using the students’ designs.

Outcomes
The author will present student work from multiple years of this capstone studio, which filled the curricular demand for a comprehensive and independent project. The author will evaluate this work against the framework for interior design service-learning by Zollinger et al (2009), including the successes as well as challenges, which included students’ time management issues, the author’s managing a variety of projects and partners, and time limitations resulting from a single semester-long project. Successes ranged from strengthening connections between the university and the community to stirring students to tap into their own passions and find connections to practice, both traditional and newer models. For example, one student who collaborated with Habitat for Humanity began a paid internship with Habitat following graduation.
REFERENCES (APA)


co-design capstone studio
...design for - and with - the community

IAR 412 marks the culmination of your design studio experiences therefore, I will expect you to draw upon your wealth of experience to develop a comprehensive, capstone project. In previous studios you have been asked to design at different scales, ranging from small objects to large-scaled buildings, and you have generated designs for different building types. In the past you have been handed a program, site, or other constraints. While you will still have constraints this semester, you will have more freedom to explore your own design agendas as you demonstrate your comprehensive conceptual and technical skills.

The hallmark of this studio will be one of community-engaged design. Distinct from community service projects, community engagement refers to the process of working with not only the “experts” in the design community but also the “users” or “locals,” those who will benefit directly from your work. A past and current practice in community engagement seeks to identify community partners in need of design solutions and to work with those community partners to arrive at these solutions. Other terms to describe similar approaches to design include Public Interest Design, Participatory Design, Socially-Responsible Design, Co-Design, and Values-Based Practice.

Balancing individual assignments with group assignments, IAR 412 is a studio-based course that centers around two and three-dimensional explorations of form and space. You will be asked to look to a broad range of built precedents and visual precedents to hone your skills of analysis, interpretation, and generation of ideas. Built precedents will be drawn from contemporary examples, and visual precedents will be drawn from a wide range of visual media including books, magazines, websites, and videos. The studio format will center around group discussions and pin-ups; however, personal desk crits will also be available periodically in order to provide you more personal feedback and discussion.

A capstone experience is intended to be a final project to challenge you to synthesize your ideas, technical skills, personal agendas, etc., and this studio will provide this opportunity. You are going to be challenged to connect your work to a community issue that you identify through initial research this semester or from past experience. For example, issues could include homelessness, low income housing, public transportation, historic preservation, walkable communities, public art, and many other issues. If you have trouble finding issues that are relevant to you, then I will provide a handful of community-based projects that can be addressed through your work this semester. These projects include a public mural in the Glenwood neighborhood, a tiny house community in Stokes County, a bus shelter on campus, the renovation of houses in Glenwood, an urban garden installation in Winston-Salem, and various projects for Habitat for Humanity.
This section of IAR412 will provide a place for you to analyze, program, conceptualize, and design. Through active participation in this studio, you will be able to:

- apply a variety of design principles and concepts.
- analyze existing built environments.
- collaborate with community partners to arrive at design solutions.
- integrate digital technology in the visualization and development of designs.
- integrate furniture and life safety systems around other construction systems, as applicable.
- generate design schemes at multiple scales, responding to codes, guidelines, and regulations.
- communicate design concepts using a variety of professional-calibre media and techniques.

Ideas and information will be exchanged through desk crits, class discussions, slide presentations, pin-ups, and formal reviews throughout the semester. You are encouraged to generate regular and ongoing documentation and assessment of your work as part of the design process. Utilizing techniques of your choosing, you will record both images of artifacts and analysis of your work throughout the semester. You should include initial sketches and thoughts as well as deeper investigation and scrutiny through presentation models, drawings, sketches, and other representations. I encourage you to take ownership of your design process and to develop techniques that will convey your process to people inside and outside.

During this time I will meet with each student individually, at your desk, to discuss your work. In order to get the most from desk-crits, you should be prepared to discuss and share your progress at the beginning of class. You are responsible for calling my attention to your personal concerns about your progress.

An important component of studio culture is lively discourse. We will regularly meet as a group to discuss historical and contemporary issues pertinent to work within studio. Everyone is encouraged to engage in these discussions and contribute material in support of their own interests.

We will regularly meet as a studio to discuss all of the work in the studio. Students are expected to explain the current status of their work and engage in discussion about the work. Students are expected to be active participants in class discussions and to hone their skills of analysis, criticism, and oral and visual communication at all times.

You are expected to make formal presentations to faculty and students as well as to visiting guests on the campus. These formal presentations become the foundation upon which you will develop skills critical to your success in the realm of professional practice; additionally, they provide you with the opportunity to present your ideas to others who can help you advance your work in any number of ways.

“the intense final effort made by architectural students to complete their solutions to a given architectural problem in an allotted time or the period in which such an effort is made” - www.merriam-webster.com

A hallmark of my approach to design development, charrettes will be used periodically throughout the semester to push the development of your work. Come prepared for charrettes with drawing and model-making tools, your ideas, and an open mind.
assignment 2.0 • schematic design

point of departure
You are to take the proposal developed in the first month of the semester and develop this proposal into a more specific design proposal for the particular avenue you have chosen to pursue. Depending on the nature of your design focus, your work will vary from person to person. The common denominator in your work, however, will be the schematic design level expected from this work and the potential impact your designs will have on others, namely your community partners or communities that will benefit from the work.

Given the independent nature of this studio, your time management skills and self-motivation are critical. While there is great freedom in the work generated this semester, you will need to maintain your focus and maintain a collaborative spirit with those who share your focus or particular project. There will be many opportunities to present your work to groups, both inside and outside the studio.

objective
Your efforts over the next month should be focused on generating design documents, mock-ups, and prototypes that will contribute to your project’s development. The objective is to take your project proposal from the conceptual stage to a more defined schematic design solution or solutions. In order to illustrate this development you will need conventional design drawings, like plans, elevations, sections, perspectives, as well as information about materials, furniture and equipment (if applicable), budget, and schedule. You should approach this phase of the project as though your project will be built, regardless of the final outcome of your efforts this semester.

deliverables
You are to print your work in an 11x17 format (and save in a PDF format), to be pinned up (or projected) for the final review. In addition, you are to generate scale models, mock-ups, and prototypes of your work. The following materials are required in order to complete this assignment:

- sketches
- multiple study models, mock-ups, prototypes
- renderings, digital or hand-generated
- scaled drawings, digital
- material samples for finished products
- cost estimate and construction schedule

note
If you are inclined to use a different process to arrive at your guiding ideas than the one implied by this list, then let’s talk one-on-one about this list. I invite proposals of alternate, yet equivalent, lists for my review.

deadline
This assignment is due 07 March at 1:00pm, when there will be a formal review of the above-mentioned deliverables during studio. Additionally, you are to turn in a CD/DVD of your work on 17 March.
assignment 3.0 • execution

point of departure
You are to take the design that you developed during Unit 2 and extend your work to a high level of resolution. For some, this resolution will involve a full-scale construction of a particular piece or portion of your design. For others this resolution will involve a thorough set of documents, models, renderings, etc., of a design to be implemented in a future project or to be used for fundraising for said project. You are responsible for addressing your particular work plan with me to arrive at a final list of deliverables.

Given the independent nature of this studio, your time management skills and self-motivation are critical. While there is great freedom in the work generated this semester, you will need to maintain your focus and maintain a collaborative spirit with those who share your project or interests. Studio culture will be critical during this phase of your work, as I encourage you to resist the temptation to tune out and work completely off-site. Be present in studio during class time, and continue to work in outside of normal class times so that you can contribute to the studio discussions and collaborate with your peers.

objective
The objective of this phase is to take your ideas and schematic designs from earlier this semester and achieve a finished state of execution. You should focus on either construction of your project, if small enough, or construction documents for your project, if larger or more complex. Construction documents shall include drawings such as plans, elevations, sections, details, etc., and shall also include specifications. As the culmination of your studio experiences in , you should take pride in your work and make this project portfolio-worthy.

deliverables
You are to print your work in an 11x17 format (and save in a PDF format), to be pinned up (or project-ed) for the final review. In addition, you are to generate final models, prototypes, or finished pieces of your work. The following materials are required in order to complete this assignment:

• detailed construction drawings, digital
• material, furniture, and product specifications
• renderings, digital or hand-generated
• material samples for finished products

note
If you are inclined to use a different process to arrive at your guiding ideas than the one implied by this list, then let’s talk one-on-one about this list. I invite proposals of alternate, yet equivalent, lists for my review.

deadline
This assignment is due no later than April 28 at 1:00pm. Additionally, you are to turn in a CD/DVD of your work on April 30.
come one, come all
iar412 co-design studio

community-based student projects

prof. • final review
tuesday, april 29 • 1:00-4:00pm • room 401
Global Design and Resiliency: Collaborative Approaches Towards Innovative Solutions

RoseMary Botti-Salitsky
Mount Ida College

ABSTRACT

Problem
In recent years many natural and human generated disasters have forced the design profession to rethink how we approach design and start to incorporate planning for resiliency early in the design process. ASID issued an Industry Statement on Resilience, signed by a coalition of America’s design and construction leaders, defining resiliency as “the ability to prepare and plan for, absorb, recover from, and more successfully adapt to adverse events” (ASID, 2015). This requires a new integrated method of planning for resiliency as part of the students’ thinking, being proactive instead of reactive. This may sound idealistic but it is an imperative paradigm shift as we educate the next generation of designers, to be mindful and have the skills to participate in global initiatives. Rodin (2012) outlines five main characteristics to be resilient. To be aware, adaptive, diverse, integrated, and self-regulating (p.13).

Strategy
In Spring 2015, a multidisciplinary pilot course was offered to undergraduate and graduate students in the School of Business and the School of Design. The course intent was to enable students to develop proficiency in the methods to document and interpret the cultural, historical and resiliency of communities. The course incorporated a one week travel component to Prague and Berlin that included a service learning civil engagement component, fulfilled by collaborating with another institution in Prague. Often, when thinking of service learning the first thing that comes to mind is some sort of volunteering; however this approach was an academic-based experiential education to address a social issue of community, see Appendix A (Carnegie Foundation, 2011). The collaboration was an intense studio charrette experience
that explored a local park with ongoing homeless occupants and developed solutions to allow them to continue occupying the site. Resiliency and integrating the occupant’s needs were part of the challenge. This discussion of human resilience was also accompanied by a tour and lecture of a squatter community in Berlin; as well as Teepee Land, an alternative (homeless) community along the Spree River.

Analysis
Although the emphasis of this course was based on resilience in the built environment, a great deal of discussions and research was committed to the importance of resilience in all facets of a community. Many students made reference in their Reflection Papers (Appendix C), as to how they can begin to interpret resiliency in their given major and implement strategies. A key factor in Gensler’s 2015 Design Forecast is “wellness and resilience are getting widespread attention, not least because of the global threats posed by epidemics and climate change” (pg.1). Appendix B are examples of infographics created by the students, addressing various research focus areas. The R!SE Initiative is an ambitious United Nations initiative to a daunting global challenge. “It is a new way of collaborating, on a global scale, to unlock the potential for public and private sector actors who are ready and willing to make a step forward and take leadership on disaster risk reduction” (UNISDR, 2015). The overall goal of generating collaboration across private and public business sectors to identify and create effective disaster risk management strategies by the year 2020. Rodin president of The Rockefeller Foundation states, “We need to stop lurching from crisis to crisis and by focusing on resiliency we can unleash new opportunities that we have not yet imagined” (2014). This course was just one small step to expose students to collaborating in a multidisciplinary global environment. Business, Architecture and Interior Design students have skills that can contribute and impact resistant strategies in both the US and internationally. The true test will be inclusive operating models that incorporate facets of the society and built environment to problem solve, create and implement resilient strategies.

REFERENCES (APA)


UNISDR. (2014). R!SE, Disaster Risk-Sensitive Investments. The United Nations Office for Disaster Risk Reduction
Appendix A: Service learning model and onsite photos

Collaborative service learning workshop with international students from Archip. Teams of students worked together to generate designs for a public outdoor waiting area. Students discussed the following issues: homeless, safe & multiuse solutions and communal space. This was the first time ALL students used the software Adobe.

Service learning intrinsically ties action to education and follows a pedagogical cycle that incorporates social analysis, preparation, action informed by community perspective, reflection, and demonstration of knowledge acquired. It highlights the interconnectedness of individuals and communities.
Admiring the beautiful view of Prague from the top of the Dancing House.

Research Topic: My research topic examined resilience in businesses and nation-states, specifically considering cyber warfare and the negative effects it has on shareholders and stakeholders. Some of the effects discussed include the impact of lost financial assets, stolen private information and tarnished images. With many businesses and countries striving to continue to expand technologically, resilience against cyber warfare is a crucial topic and a major issue to be dealt with and pursued. Both Prague and Berlin have been subject to many difficulties in their past and are currently still trying to rebuild physically, emotionally, and financially. Businesses can be directly related to this kind of reconstruction, and resilience is the key to remaining on this path to restoration.

Infographic: The infographic that is related to my research includes methods and tactics that businesses and countries can utilize in order to remain resilient against cyber-attacks. It specifically notes who cyber criminals are, where their strengths lie, some of the methods that they use, and the impacts that they have on those who are involved. It indicates that institutions must have frameworks that can maintain the security of its infrastructure, and also steps that can be taken in order to develop as a resilient institution.

Appendix B: Evidence of outcomes from Research papers and Infographics were required assignments

The decadent beauty of the buildings in Prague and the tumultuous history of Berlin certainly struck me- but I think what affected me even more was the resiliency of the people, their society, and their culture. The architecture was one piece of that larger puzzle. Prague “survived the war”, but still carries remnants of Communist occupation. Our group definitely stuck out as American because of our boisterous nature- very unlike the Czechs. Berlin’s structures did not fare as well as Prague’s: they quite literally bear scars of the war, and the people carry the weight of their history. They go to long lengths to remember their dark past so as never to repeat it.

But there is a cheerfulness and camaraderie to Berlin also. We didn’t get to spend much time there, but we learned as much as we could in three days! Berlin is also very progressive. Because they essentially had a blank slate after much of the city was destroyed in WWII, they have taken the opportunity to rebuild using the most brilliant minds and cutting-edge technology. One such site is Potsdamer Platz, which we were able to visit on a guided tour. The plaza is unique in that it has an incredible water system designed by award-winning Italian architect Renzo Piano. This was very pertinent to my research topic, which focuses on how we can think resiliently about our water supply. In addition to providing green-blue space in an urban area, the rainwater collection system provides grey water and cooling to the surrounding buildings. By using rainwater in toilets, over 5 million gallons of drinking water are saved per year. By using the water system for cooling, electricity costs are cut by 50% each year. By seeing what Berlin had done on a city-wide level to conserve water, I began to wonder what I could do on an individual level and how I could communicate that to fellow students. I created an infographic as part of the service-learning component of the course:

[Image of infographic]
Appendix C: Student outcomes from Reflection Papers

Academic Enhancement:

The travel portion of this course greatly impacted my interest in the topics that we discussed in class, as well as the overall experience and knowledge that I attained throughout the semester. As stated previously, although we read about some of these topics and landmarks in history books, nothing can compare to seeing them in real life. Adding the travel portion within the class helped me to become invested in the topics that were discussed and also allowed me to gain an experience that directly related to my studies.

Civic Engagement:

Having the opportunity to learn from the experiences of others allows people to understand and identify public issues and concerns that are facing not just one's own community, but the communities of others nationally and internationally. By providing blog postings and an infographic, our class is better able to educate people about current issues, events and topics that are imperative and significant to know about. I think what makes this portion of the course even more meaningful is that each and every person was passionate about the topics that they chose, and were more than eager to share the breadth of knowledge that they learned with the people in their own community and those of others. The sharing of knowledge is what keeps us all connected no matter where we are, and it was amazing to contribute to others in this way.
Appendix D: ASID Research- Industry Trends

Taken from: Interior Design 2015/2016 Outlook and State of the Industry

TREND ADOPTION CURVE: RESULTS FROM THINK TANK & ASID SURVEY

RESILIENCY
Resiliency is a new trend that has not advanced to the point where associated terms resonate well with all designers. Residential designers in particular found a need for more information on Support for Daily Stress in relation to Resiliency. Commercial designers placed Support for Daily Stress near the top of the curve for Resiliency, while the same trend was placed at the bottom of the curve in the context of Health and Well-being, suggesting that the adoption of trends may be relative to the context in which they are interpreted. Commercial designers working on larger projects and viewing design from a broader perspective identified the sub-trends as finding their way towards healthy integration.

SUB-TRENDS COLOR KEY

- Residential Designers (ASID Survey)
- Commercial Designers (Think Tank)
- Additional Trends Identified by Think Tank
- New models emerge
- Responsible changes to address trends
- Stable and Adaptable Buildings
- Designing for Social Responsibility
- Holistic Design Thinking
- Healthy integration
- Support for Daily Stress
- Broad yet uneven quality adoption
- Adaption and new growth
- More information needed
- Trends and shifts identified
- Not applicable
- Stable and Adaptable Buildings
- Supporting Daily Stress
- Holistic Design Thinking
Advancing Environmental Literacy in the Green School Building

Laura Cole
University of Missouri

ABSTRACT

David Orr posits that “academic architecture is a kind of crystallized pedagogy and...buildings have their own hidden curriculum that teaches as effectively as any course taught in them.” Through his provocative writings on the pedagogy of architecture, Orr offers a call-to-action for green building scholars and practitioners to investigate the educational potential of the built environment. With a focus on the experiences of youth and interior spaces, this study contributes to this larger question of how green buildings teach us about themselves and the greater prospects for environmental stewardship. In particular, this work focuses on Teaching Green Buildings (TGBs), or buildings specially designed to engage building occupants in green building themes. These buildings aspire to high levels of environmental performance and invite occupants to learn about – if not participate in – the day-to-day operations of the green building. This type of engagement typically occurs in the building interior as signage, interactive kiosks, building material displays, and so on. Such features ideally lead to a more informed, or green building literate, occupant.

This presentation will feature results from an ongoing longitudinal study in which the researcher followed middle school students from a conventional school building into a new construction TGB. The study focuses on four major features of environmental literacy: knowledge, affective dispositions, behaviors, and educational context, comparing the study school to its own baseline and to another local, non-green school. The research design employed a mixture of methods including survey research (n=124) and a student photography project (n=33) in which students photographed their own campus and shared their perspectives in writing and interviews.
Survey results show increases in knowledge, behaviors, and positive assessments of the educational context. Interestingly, affective dispositions toward the environment did not change over the study period, and were comparable to those of students in a nearby non-green school. Review of student photography offers an additional window to student experiences, uncovering aspects of the school environment that emerge as important for youth. If a green school can be said to have a “hidden curriculum,” the work here seeks to make the outcomes of that curriculum increasingly tangible. Given the 5-year study period, special attention will be given to the shifts that occurred from year one to three in the new school building to illuminate outcomes that are amplified or diminished once the novelty of new construction fades. The data collected to date reveal the unique challenges and strengths of using the interior environment – alongside school policies, operations, and cultural practices – to catalyze a value shift toward green building practices.

REFERENCES (APA)


The Value of Sustainable Credentials: Practitioners’ Perceptions for Sustainable Design Knowledge

Amanda Gale, Stephanie Sickler & Charles Ford
University of North Carolina at Greensboro

ABSTRACT

There is a clear demand for those practicing interior design, regardless of the design specialization, to be knowledgeable of sustainable design strategies. Sustainable design is continuing to grow as an industry with the expectation of achieving $132 billion in the commercial market and $115 billion in the residential market in 2016 (McGraw Hill, 2012). Sustainable design content is addressed in the Council for Interior Design Accreditation (CIDA) standards, the National Council for Interior Design Qualification (NCIDQ) examination, and the Interior Design Profession’s Body of Knowledge (CIDA, 2014; Guerin & Martin, 2010). However, there is a lack of information regarding practitioners’ expectations of sustainable education of emerging professionals and those seeking internships. Therefore, the purpose of this exploratory study was 1) to determine what interior design practitioners’ value in regard to the sustainable education of emerging professionals and student interns and 2) to ascertain characteristics that affect the perceived level of worth of sustainability knowledge.

Previous studies conducted include the importance of sustainable design to the profession (Sorrento, 2012), what practitioners deem as important influencers to sustainability (DesignIntelligence, 2015) and the interior designer’s role within the integrated design approach (Theodorson, 2014). According to DesignIntelligence (2015) the Leadership in Energy and Environmental Design (LEED) Accredited Professional (AP) is considered the most important sustainability credential for practitioners. Furthermore, design for health and sustainability education were reported as the two most influential factors affecting sustainable design in the industry. As the profession continues to evolve, interior designers will be expected...
to have extensive, yet diverse knowledge, in order to participate on interdisciplinary sustainable projects (Theodorson, 2014).

The cross-sectional survey utilized a purposive sample of interior designers who belonged to a southern chapter of the American Society of Interior Designers (ASID). The questionnaire was disseminated through the professional organization to members in August 2015. The 20-item instrument included the following factors: practitioner characteristics, firm characteristics, sustainability preparedness, and familiarity of sustainable achievements. Key findings indicate that practitioners value a well-rounded knowledge of sustainability, however, having obtained the LEED AP is not considered important. When looking at the differences between what practitioners value in regard to interns versus emerging professionals, 78% of respondents consider it either important or highly important for emerging professionals as oppose to 73% for interns. Practitioners also assign higher value to obtaining the LEED Green Associate for emerging professionals than interns at 30% versus 19%.

These findings are an encouraging look into the value placed on sustainable design knowledge, especially as they represent viewpoints from practitioners in an area not generally regarded for its emphasis on sustainable design. This research supports the need for sustainable content to be covered in the curriculum. For educators, this means at a minimum upper levels students need to have a well-rounded understanding of sustainable design. Providing students with knowledge on practitioners’ expectations can reinforce the importance of sustainability credentialing. These findings may lead to establishing precedence to expand the CIDA standards to include greater specificity to sustainable content. It is hoped that this study will help to update sustainable design curriculum models and serve as a foundation for continued research in the field.

REFERENCES (APA)


Content as Pedagogy: Recharging Learning for a Sustainable Future

Marsha Cuddeback
Louisiana State University

ABSTRACT

Problem
As educators we are responsible for preparing interior design graduates to address the challenges of the 21st century, many of which depend on a commitment to environmental, social and economical sustainability. To ensure our students are prepared we must continue to rethink how and what we teach. At the global scale, the State of the Future identifies 15 transnational global challenges to improving “social, technical, and environmental viability for human development (Glenn and Florescu 2015).” Challenges include Sustainable Development and Climate Change, Energy, and Global Ethics, among others. The process and products of interior design have formative potential to respond to these challenges. In addition, the CIDA Future Vision Report advocates for positioning emerging interior design professionals to “be part of the positive change (CIDA 2015).” The report identifies 5 over-arching central themes. Implementing sustainable practices supporting positive change are thematically implicit and repeatedly explicit in each theme’s call to designers and practitioners. Integrating sustainability in course offerings is gaining traction, evidenced by the growing number of available classes, minors, and degree programs. However, the practices of our discipline are still responsible for conspicuous CO2 emissions, electricity consumption, and use of potable water and raw materials (USGBC 2015). This combined with recent reports citing accelerated climate change suggests we need to do more.

Method
In 2014 the author developed a new course to create learning opportunities for students that nurture life-long environmental stewardship and encourage new habits of thinking that change
the way they see themselves and understand the discipline as a means to affect positive change. Learning outcomes were designed to ensure application of best-practice sustainable principles, but also develop a design ethic that permeates the way they live, think, design and make. This paper offers an example of rethinking how and what we teach by illustrating a method for choreographing expanded course content with significant learning experiences (Fink 2013). This method recharges learning in and out of the classroom, casts a wide content net, and inspires students to push themselves in new and unknown directions. In this context, students begin to personalize broader issues of sustainability and how it applies to their discipline. This begins at the outset as students explore the history of their relationship with nature, to its conclusion, when they seek to understand their capacity for transformational leadership. This personal dimension serves to rebuild connections to the natural environment, encourage a stronger commitment to course content, and a greater investment in learning activities. The course features five integrated themes, foregrounded by the natural environment. Each theme integrates carefully designed learning activities toward full incorporation of foundational, traditional, contemplative, and high impact learning. Learning activities respond to Fink’s Taxonomy of Significant Learning, featuring 6 non-hierarchical, different kinds of learning (Fink 2013). Through these activities, students are able to develop a deep understanding of the course material and the ability to apply theories and concepts.

Outcomes
Ongoing formative and summative assessment indicates that students are meeting or exceeding learning outcomes. Students remain focused and engaged in course content and activities throughout the semester, grow to understand the value of collaborative skills, are able to acknowledge and respond to peer and self evaluation, become advocates for sustainability among their peers, agree that the course changes the way they approach design thinking and problems, and are more likely to integrate issues of sustainability in their senior Thesis project’s personal design philosophy statement, research, and design.

REFERENCES (Chicago)


COURSE THEMES AND PRINCIPLE ELEMENTS

NATURAL SYSTEMS AND DESIGN
Nature | reconnecting with the system that gave us birth
Ecological Concepts and Thinking | understanding how nature works
Nature’s Bounty | recognizing the value of nature

ENVIRONMENTAL STEWARDSHIP AND RESPONSIBILITY
The Environmental Movement | an evolving journey
Environmental Ethics and Design | advancing environmental integrity
Environmental Activism | practicing advocacy in everyday life
Environment Thinking in Design | expanding our professional responsibilities

DESIGN THEORIES INSPIRED BY NATURE
Biophilic Design | acknowledging our connection with nature
Biomimicry | studying nature’s models to solve problems
Regenerative and Resilient Design | restoring systems and adapting to change

THE INTERIOR ENVIRONMENT PRINCIPLE ELEMENTS
The Interior Environment | framing the heart of sustainable design
Sun | changing the way we view the world
Air | protecting the air we breathe
Earth | closing material loops from start to finish
Acoustics | investing in sound solutions for comfort and health
Interior Footprints | aligning our expectations with a balanced environment

ACCOUNTABILITY AND CHANGE
Green Building Assessment Systems | moving toward sustainable outcomes
Green Materials, Product Standards and Tools | making choices for a healthy future
The Whole Is More Than The Sum Of Its Parts | applying systems thinking to design
The Power of One | exercising transformative leadership in contemporary practice
Course pedagogy is learner-centered, focusing on what the student is learning, how the student is learning, and the conditions under which the student learns, where the instructor serves as facilitator.

LEARNING ACTIVITIES

INDIVIDUAL ASSIGNMENTS
Application, Integration, Human Dimension, Caring, Learning How to Learn
Your Place in Nature
Autobiography of Your Relationship to the Earth
Finding Nature Inside
Finding Material Solutions
Illustrative Case Study, Semester Research Project

FORMAL AND INFORMAL PRESENTATIONS AND DISCUSSION
Foundational Knowledge, Integration, Human Dimension, and Learning How To Learn

COLLABORATIVE ASSIGNMENTS: WEEKLY TEAM CHALLENGES AND FILM SERIES
Foundational Knowledge, Application, Integration, Human Dimension, Caring, Learning How to Learn
Your Place in Nature
Thinking in Systems
Finding Balance
Point of View
Take A Stand!
Your Relationship to Earth
The Absence and Presence of Nature
Ask Nature
Learning in a Collaborative Environment
A Luminous Environment
Everyone Has A Right to Breath Clean Air
Beauty May Only Be Skin Deep
Workplace in the Future (Classroom)
Do Assessment Systems Yield Optimum Results?
Is It Green Enough?
A Vision For The Future

REFLECTION: THEMATIC Rethink AND WRITTEN REFLECTIONS
Application, Integration, Human Dimension, Caring

COURSE, PEER, AND SELF EVALUATION: MULTIPLE OPPORTUNITIES, FEEDBACK AND REFLECTION
Application, Human Dimension, Learning How to Learn
INDIVIDUAL ASSIGNMENT EXAMPLE: YOUR RELATIONSHIP WITH NATURE

Paradise of Peace

This image captures a serene scene where nature coexists harmoniously. The lush greenery and vibrant colors evoke a sense of tranquility and calmness. The use of natural light enhances the overall mood, creating a peaceful atmosphere.

Terraced Rice Fields

This stunning photograph showcases the beauty of terraced rice fields, a testament to human ingenuity and nature's elegance. The intricate patterns of the fields, combined with the warm hues of the sunlight, create a mesmerizing visual experience.

INDIVIDUAL ASSIGNMENT EXAMPLE: FINDING NATURE INSIDE

INDOOR SCENES

KEEP A ROOM

EXPOSE

INDOING IN NIGHT

Matching Through the Marsh

The photograph captures the serene beauty of a marshy landscape, with the light reflecting off the water and creating a tranquil atmosphere. The use of soft colors and gentle lighting enhances the overall sense of peace and tranquility.
Cultivating Place: Design Thinking and Practice
Rooted in a Campus Community Garden

Helen Turner & Krista Jacobsen
University of Kentucky

ABSTRACT

The Shawneetown Community Garden began as an initiative to provide graduate residents and their families, many of whom were international and gardened in their home countries but lacked the opportunity on campus, with a space to garden. The original garden consisted of 20 plots, but grew to over 70 in just five years. Although heavily utilized, the absence of organized design, a crumbling infrastructure, and isolation kept the community garden from realizing its full potential. It was a functional ‘space,’ but lacked identity as ‘place’ for both residents and the broader campus community. However, its identity as a place was critical to its sustainability and transferability as a model because the success of a community garden is not solely reliant on a plentiful growing season; it is also measured by how it is activated and utilized by people. Catalyzing a transition from space to place required aspects of both interior design and horticulture based on a common language associated with design, building, planting and flourishing. These principles are exemplified in community garden relationships described as “an embodied form of sustainability whereby participants, through individual engagement and re-creations of place are able to reconnect to the food system and engage with the urban landscape in new, productive, and more sustainable ways” (Turner 2011, 510).

Exploring a synergy between interior design and agriculture, faculty followed the research and framework developed by Bethany Turner (2011) to mentor students in a variety of courses from each department as well as student organizations. Encouraging participants to consider how community gardens embody sustainability from various perspectives, participants were encouraged to conceptualize both the creation of a garden with an enhanced role in evoking a sense of place and the role of community gardens as embodiments of sustainability. Critical
components of evidence-based research, design thinking, project-based learning, service learning and campus engagement aided in transforming the existing community garden into a destination with a sense of place. Schematic designs were created by a third year interior design studio, sustainable agriculture courses and student organizations participated in service projects, branding installations were designed and installed by an interiors materials class, benching was constructed by an interior systems class, and a second year interior design studio envisioned sustainable building strategies for activating a connection between the garden and the graduate and family housing buildings. This participatory redesign hinged on collaboration by engaging students, residents, and other stakeholders in designing and implementing enhanced community spaces to better serve the gardeners.

Physical and ecological sustainability were promoted through growing and consuming local foods. Cultural sustainability was enhanced by the ability of residents to grow and share culturally appropriate foods. Social sustainability was encouraged by design elements that motivate interaction amongst residents as well as the broader campus community. Through this, all parties involved gained an appreciation for diverse disciplines and interests along with an enhanced sense of ecoliteracy, which can be applied to their own lifestyles. The process and outcomes are intended to serve as a replicable model in the planning, design, and implementation of community gardens benefitting a diverse campus or community. As the project closes, an increasingly utilized garden is inspiring conversations about the value of campus community gardens in fostering connections to the land, food, and people.

REFERENCES (APA)


Firth, Chris, Damian Maye, and David Pearson. 2011. Developing “Community” in Community Gardens. Local Environment 16, no. 6 (July): 555-568.


Garden Revitalization Plan

phase 1:
- lay walking paths
- delineate garden plots, allowing gardeners to begin work

phase 2:
- constructed elements
  - water tank hubs (growing walls, shade, work area, storage)
  - seating
  - demonstration garden
  - children's demonstration garden
  - children's areas for playing on, under, and around
  - rock bed for culver drainage

86 (10'-0" x 10'-0") plots

existing garden
(with new garden boundary overlay)

demonstration garden

children's play area

re-used picnic tables

children's demonstration garden

culver rock bed

seating

children's play area

water tank hub

seating
09.15.15: materials class gathers branding inspiration
Toward a Framework for Integrating LEED Credentialing into an Interior Design Curriculum

Stephanie Sickler, Amanda Gale & Charles Ford
University of Alabama

ABSTRACT

Problem
Recent trends in industry and accreditation standards in education have illuminated the increasing importance of a rich understanding of sustainable design practices among practitioners, educators, and students alike. Formally and informally IDEC, Council for Interior Design Accreditation (CIDA), and the Council for Interior Design Qualifications (CIDQ) have all begun to reflect a heightened importance for sustainability education through their organizations (Stieg, 2006). The 2014 professional standards of the Council for Interior Design Accreditation CIDA addressed specific sustainable outcomes for student and program expectations in standards 2a, 2d, and 14a (CIDA, 2014). The proposed modifications to the new CIDA standards have an increased focus on integrated design and sustainability. It is clear that nationally practitioners view sustainable design and integrated design as valuable to the practice of interior design as these are areas that are consistently ranked as two of the top ten biggest concerns of the industry (DesignIntelligence, 2014). Furthermore, DesignIntelligence ranks collegiate programs based on education of sustainable design practice and principles. The ranking is a result of a survey of national firms. According to a survey of deans more emphasis on sustainable design is one of the top contributors to changes in the curriculum within the last five years (DesignIntelligence, 2014).

It is evident, therefore, that sustainability is of ever-increasing importance to our profession. However, there is no set, official, discriminator against which to test the efficacy of sustainability education and awareness in interior design programs. The most comprehensive tool for assessing one's knowledge of both general and comprehensive sustainable design
practice is the Leadership in Energy and Environmental design (LEED) Green Associate Exam. This framework posits that by integrating the preparation for, and requiring the completion of, the LEED Green Associate Exam into the curriculum, interior design programs can appropriately prepare students for the emerging demands of the profession. The LEED Green Associate Exam credentials will not only serve as a worthy discriminator for learning, but will also enhance students’ resumes and will become a stepping stone to further sustainable education beyond their formal classroom training. Currently, this is also the only credential that does not require prior experience, which makes it accessible to students. Yet the challenge remains of how to integrate this material into an already bulging set of interior design curriculum parameters.

Strategy
To address this need, a course was developed, which delivered in-depth content on sustainable design, while acting simultaneously as a preparatory course for the LEED Green Associate Exam. At the conclusion of the semester, students sat for this exam, earning the credential of LEED Green Associate. This model was tested over five years and proved to be a success each iteration with increased enrollment and over 100 students earning the credential with 91% pass rate for the LEED Green Associate exam.

Outcomes
Many programs are faced with integrating sustainability content in a variety of courses throughout the curriculum and may not fit this semester-long model. Therefore, a framework has been created to address the needs of a variety of programs. The attached table depicts a proposed framework for integrating LEED credentialing into a variety of interior design curriculums. It is expected that by following this framework, programs can produce a number of graduates who are prepared to begin work on sustainably designed spaces, and who may continue to further their design education and LEED credentialing immediately upon matriculation into practice.

REFERENCES (APA)

### Framework for Integrating LEED Credentialing into an Interior Design Curriculum

<table>
<thead>
<tr>
<th></th>
<th>Model A</th>
<th>Model B</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Type</strong></td>
<td>Stand-alone course</td>
<td>Integrated as segment of another course</td>
</tr>
<tr>
<td><strong>Duration</strong></td>
<td>14-16 weeks</td>
<td>6-8 week segment</td>
</tr>
<tr>
<td><strong>Student type</strong></td>
<td>Any level, however juniors or seniors would be better prepared for the rigor</td>
<td>Junior or Senior</td>
</tr>
<tr>
<td><strong>Student major</strong></td>
<td>ID or related</td>
<td>ID students only</td>
</tr>
<tr>
<td><strong>Suggested Course Content</strong></td>
<td>Sustainable design using LEED as a model</td>
<td>LEED credentialing material + Professional Practices, or Construction Methods, or other related area</td>
</tr>
<tr>
<td><strong>Exam requirements</strong></td>
<td>Students take LEED Green Associate Exam upon completion of course</td>
<td>Students take LEED Green Associate Exam upon completion of courses</td>
</tr>
<tr>
<td><strong>Curriculum requirements beyond course</strong></td>
<td>None required before this course, however, it is expected that students would use knowledge gained in this course to fulfill project requirements beyond this course.</td>
<td>Ancillary and supportive sustainability education offered throughout curriculum in small quantities (such as IAQ and LCA in a material course), leading to upper level course which delivers specific information for Exam. I.E., sustainability education is linked like a thread throughout the curriculum, but culminates in this course as it prepares students for the Exam.</td>
</tr>
</tbody>
</table>
Sustainable Design and LEED Accreditation

SPRING 2015, 3 CREDITS
LECTURE: TR 12:30-1:45
OFFICE HOURS: T 2:00-3:00 PM / W 1:00-2:00 PM

Course Description
Sustainable certification standards and professional accreditation requirements related to sustainability.

Course Objectives
Upon successful completion of the course, the student will be able:
- To demonstrate a working knowledge of sustainable design as it relates to the built environment.
- To identify and critique aspects of various sustainable rating systems.
- To demonstrate a comprehensive understanding of LEED and the LEED process including sustainable sites, water efficiency, energy and atmosphere, materials and resources, indoor environmental quality, and innovation in design.
- To practice and prepare for the Leadership in Energy and Environmental Design (LEED) Green Associates examination.
- To gain an understanding of eco-certification programs.

Evaluation
Quizzes: 125 points (25%)
Exercises: 75 points (15%)
LEED Green Associates Exam: 75 points (15%)
Service Learning Project: 25 points (5%)
Final Exam: 75 points (15%)
Presentation: 75 points (15%)
Participation & Attendance: 50 points (10%)
TOTAL: 500 points (100%)

Grading
A = 100 – 90%
B = 89 – 80%
C = 79 – 70%
D = 69 – 60%
F = < 60%

Course Content: Requirements will be introduced and fully explained in class:
Quizzes: There will be nine (9) quizzes worth roughly 13 points. Quizzes will cover material from required course readings.

Exercises: There will be five (5) exercises throughout the semester taken online at the students' convenience. These will consist of pass/fail prep exams taken through . Students must achieve a minimum of 50% on the overall score. Each exercise will be worth 15 points. A printed copy of the results will be required for documentation (see schedule for due dates – no exceptions). Exercises will cover material from lectures, handouts, and required readings.

Final Exam: There will be a final exam covering lecture material, student presentations, guest speakers, readings, discussions, handouts, fieldtrips, and guest speakers.

Presentation: Group presentation of an assigned topic.
Sustainable Design and LEED Accreditation

LEED Green Associate Exam (pass/fail): Students will be required to signup with GBCI and register for the LEED Green Associate exam with Prometric. Documentation verifying the registered examination date and location must be supplied by the final exam date. Go to usgbc.org/leed/credentials for fees and registration.

Service Learning Project: Hands-on group project where students can apply principles of sustainable design.

Participation: The following factors will be taken into consideration: actively engaged during class time, participation on field visits, being prepared for class, contributing to class discussions, participating in group study exercises, and following course requirements.

Required Course Texts

Additional readings:

Supplemental Course Texts

Course Requirements
- The student will follow all rules and regulations for student behavior related to class performance stated on the University Policies website.
- is the official medium for communication with students. It is the student’s responsibility to check their e-mail regularly and in a timely fashion concerning issues with class.
- Laptop computers are not to be open during lecture, not even to take notes.
- Cell phones are to be put away. If you are texting or talking on the phone during class you will be asked to leave (resulting in an unexcused absence).

Attendance:
- Attendance is mandatory throughout the term. A university approved absence excuse is required for an absence to be excused.
- Properly authorized excuses from the University Health Clinic are valid only for the date of the excuse. If the medical staff believes the student needs more than one day to recover it will be specified on the excuse. If the student has seen an off-campus physician, a written note indicating the specific days the student is unable to attend class is expected, in addition to a note stating the time and date of the doctor’s visit.
- The student is expected to provide the instructor with the properly authorized excuse within a week of the students return to class. Late excuses will not be accepted.
- If the student is tardy or absent from a class or has received permission to leave early, it is his/her responsibility to obtain the material that was covered from another student.
**Sustainable Design and LEED Accreditation**

**Course Schedule** (all dates are tentative and subject to change with prior notice)

<table>
<thead>
<tr>
<th>Course Outline</th>
<th>Readings</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.15 Course outline, overview of Canvas</td>
<td></td>
</tr>
<tr>
<td>1.20 Green Building Basics</td>
<td>Ch. 1</td>
</tr>
<tr>
<td>Introduce Presentation</td>
<td></td>
</tr>
<tr>
<td>Due: Syllabus quiz</td>
<td></td>
</tr>
<tr>
<td>1.22 Rating Systems: Green Globes &amp; Living Building Challenge</td>
<td></td>
</tr>
<tr>
<td>Quiz #1 (Green building basics)</td>
<td></td>
</tr>
<tr>
<td>1.27 LEED Rating System</td>
<td>Ch. 2</td>
</tr>
<tr>
<td>1.29 Location and Transportation</td>
<td>Ch. 3</td>
</tr>
<tr>
<td>Quiz #2 (LEED Rating System)</td>
<td></td>
</tr>
<tr>
<td>2.3 Sustainable Sites</td>
<td>Ch. 4</td>
</tr>
<tr>
<td>Quiz #3 (FS)</td>
<td></td>
</tr>
<tr>
<td>2.5 Sustainable Sites</td>
<td>Ch. 5</td>
</tr>
<tr>
<td>Quiz #4 (SS)</td>
<td></td>
</tr>
<tr>
<td>2.10 Water Efficiency</td>
<td>Ch. 6</td>
</tr>
<tr>
<td>2.12 Energy &amp; Atmosphere</td>
<td></td>
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<tr>
<td>Quiz #5 (WE)</td>
<td></td>
</tr>
<tr>
<td>2.17 Energy Star Rating System</td>
<td>Reeder</td>
</tr>
<tr>
<td>2.19 Guest Speaker: Steve Kinsey (Merrick / Energy Ace)</td>
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</tr>
<tr>
<td>Quiz #6 (EA)</td>
<td></td>
</tr>
<tr>
<td>2.24 Materials &amp; Resources</td>
<td>Ch. 7</td>
</tr>
<tr>
<td>2.26 Product Certification Programs</td>
<td>Ch. 12</td>
</tr>
<tr>
<td>LEED Green Associate Exam</td>
<td></td>
</tr>
<tr>
<td>Quiz #7 (HE)</td>
<td></td>
</tr>
<tr>
<td>3.3 Indoor Environmental Quality</td>
<td>Ch. 8</td>
</tr>
<tr>
<td>3.5 Student Presentations</td>
<td></td>
</tr>
<tr>
<td>Quiz #8 (IEQ)</td>
<td></td>
</tr>
<tr>
<td>3.10 Innovation in Design, Regional Priorities, Synergies</td>
<td>Ch. 9 - 10</td>
</tr>
<tr>
<td>3.12 Review / Study Strategies</td>
<td></td>
</tr>
<tr>
<td>Quiz #9 (ID)</td>
<td></td>
</tr>
<tr>
<td>3.17 Student presentations</td>
<td></td>
</tr>
<tr>
<td>3.19 Discuss exam + reading</td>
<td></td>
</tr>
<tr>
<td>Due: Exercise #1</td>
<td></td>
</tr>
<tr>
<td>3.31 Student Presentations</td>
<td></td>
</tr>
<tr>
<td>Due: Exercise #2</td>
<td></td>
</tr>
<tr>
<td>4.2 Guest Speaker: EarthCraft certification</td>
<td></td>
</tr>
<tr>
<td>4.7 Guest Speaker: Green Building Education Services</td>
<td></td>
</tr>
<tr>
<td>Due: Exercise #3</td>
<td></td>
</tr>
</tbody>
</table>

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**Sustainable Design and LEED Accreditation**

| 4.9 Discuss exam + guest speaker | |
| 4.14 In-class discussion: To certify or not to certify | |
| Discuss exam | |
| Due: Exercise #4 | |
| 4.16 LEED certified building site visit - Gorrie | |
| 4.21 In-class discussion: Comparison of rating systems | |
| Due: Exercise #5 | |
| 4.23 LEED certified building site visit - CASC | |
| 4.28 Course wrap-up and discussion | |
| 4.30 Exam Review | |
| 5.4 Final Exam (12:00 - 2:30 pm) | |
| Bring laptops for in-class exam | |

---

I have read and understand the syllabus and class requirements for [Blank]

____________________________ (Print full name)

[Sign] ____________________ (date)
HEALTHCARE

LEED CREDIT CATEGORIES

- Sustainable Sites (10 possible points)
- Water Efficiency (9 possible points)
- Energy & Atmosphere (26 possible points)
- Materials + Resources (16 possible points)
- Indoor Environmental Quality (18 possible points)
- Innovation in Design (4 possible points)
- Regional Priority (4 possible points)

LEED CREDIT PREREQUISITE

- CRD 1.1 - Connection to Natural World - Place of Respite
- CRD 1.2 - Connection to Natural World - Direct Access to Exterior for Patients

WATER EFFICIENCY

- CRD 2 - Water Efficiency (10 possible points)

INDOOR ENVIRONMENTAL QUALITY

- CRD 3 - Indoor Environmental Quality (10 possible points)
- CRD 8.1 and 8.2 - Daylighting and Views

SUSTAINABLE SITES

- CRD 9.1 - Site Development - Energy Efficiency
- CRD 9.2 - Site Development - Water Efficiency

MINIMUM PROGRAM REQUIREMENTS

- MPR 1: Must be a complete, permanent building or space. For LEED Core & Shell, the LEED project scope must include a building core and space within the LEED project boundary.
- MPR 2: Must comply with minimum floor area requirements. For LEED projects, a minimum of 25% of the total floor area must be included in the scope of work.
- MPR 3: Must comply with minimum building site to site area ratio.

BENCHMARK TENANT RESOURCES

- Green Tenant Spaces
- Healthy professional places to work
- Less costly to operate and maintain
- Reduced environmental footprint

"75% of construction waste and packaging debris recycled"

"Partnership with key suppliers to use low emitting materials and increased ventilation"

"Exceeds the 35% maximum reduction in LEED energy & atmosphere credit 1.1"

"HI+CO LEADERSHIP IN DESIGN"
Snuggies at Work: Case Study Examples of Thermal [Dis]comfort, Behaviors, and Environmental Satisfaction in the Workplace

Julia Day
Kansas State University

ABSTRACT

Relevance / Problem / Context
High performance buildings are intended to optimize energy use, health, and comfort to occupants. However, in many high performance buildings, occupants frequently complain about thermal conditions. At times, stringent energy efficiency goals and the design strategies employed (such as natural ventilation or daylighting) may unintentionally eclipse occupants’ thermal comfort. Thermal comfort is defined as a person’s cognitive state that expresses satisfaction or contentment with their surrounding thermal environment (ASHRAE 55). Thermal comfort is extremely complicated because there is a wide range in people’s perception of comfort due to various indicators including air temperature, radiant temperature, air velocity, humidity, amount of clothing insulation, and metabolic heat (Holopainen et. al, 2014). Other factors may also include personal preferences, gender, body composition, or location within a given building (ASHRAE 55). Cultural expectations and standards for thermal conditions may also play a role in thermal comfort. It is important that interior designers understand (1) thermal comfort, (2) what they can do about it, and (3) how occupants interact with the building to maintain thermal comfort.

Previous studies have found that occupants may be more willing to tolerate wider temperature ranges in naturally ventilated buildings when they are given the option of control (i.e. opening windows themselves) (Humphreys, 2005). If occupants accept a wider range of temperature as “comfortable,” then less cooling and heating will be required, therefore reducing energy use.
However, it is important to understand that when occupants are given control over their thermal environments through operable windows, while this control may help maintain their personal comfort for some, it may disrupt others’ thermal comfort, and may actually negatively impact the energy use in a building if windows are opened (or left open) when outdoor temperatures are too high or too low to support energy use goals (Ackerly et.al., 2012). Oftentimes, high performance buildings are fitted with active control or signaling systems that notify when conditions are appropriate for opening windows (i.e. air quality, temperature or humidity). In these cases, it is crucial that occupants are appropriately educated on these systems to maintain thermal comfort. Thermal comfort in buildings is a complex issue because people simply have different preferences, and furthermore, their behaviors can impact others’ comfort and energy use. For example, someone may bring in a space heater because they are cold at work. This may seem insignificant to most, however, in a high performance building with finely tuned HVAC setpoints and aggressive energy reduction goals, these simple behaviors can be detrimental.

Method / Findings
This study employed a meta-analysis approach, which identified and synthesized thermal comfort survey and interview results from multiple case studies and post occupancy evaluations (POE). Data were aggregated and coded to better understand thermal comfort preferences and trends, occupant behaviors in relation to thermal comfort, and best practices in design for thermal comfort. Findings of this study demonstrated the importance of thermal comfort in the workplace, especially with regard to productivity and environmental satisfaction. Advancement of design knowledge Thermal comfort is an issue that arises repeatedly in a wide array of multi-disciplinary research and literature. Many believe that thermal comfort is a problem best left to the engineers. However, there are moves that we, as designers, can make in interior environments to alleviate issues of thermal comfort that range from shading, spatial layout, psychological factors, and programming for variation in thermal environments. There is an opportunity for interior designers to better understand how to design for optimal thermal environments.

REFERENCES (APA)


The Fablab: Experiences and Strategies for Developing, Maintaining, and Teaching in a Digital Fabrication Lab

Marlo Ransdell
Florida State University

ABSTRACT

The integration of digital fabrication equipment into education contributes to learning and creative inquiry by providing students with authentic explorations of designed 3D objects (Johnson, Adams, Cummins, Estrada, Freeman, & Ludgate, 2013). Digital fabrication involves creating an object from a digital file through the use of additive and/or subtractive manufacturing processes (Pryor, 2014; Lipson & Kurman, 2013). Additive process machines (3D printers) extrude material that builds layers from the bottom up to create a finished 3D printed object. Subtractive process machines (laser and CNC machines) utilize flat sheet goods to cut 2D patterns that are assembled into 3D objects. Both additive and subtractive machines provide distinctly different approaches to designing, planning, and constructing objects for learning. Digital fabrication use in higher education has been previously confined to specialized fields such as: architecture, industrial design, jewelry design, and civil engineering (Pryor, 2014).

However, an exploratory report on the future of higher education technology projects significant increased use of digital fabrication tools over the next 4 years in “art, design, manufacturing and the sciences to create 3D models that illustrate complex concepts or illuminate novel ideas, designs, and even chemical and organic molecules” (Johnson, et.al, 2013, p.5). Widespread adoption of 3D printing and the like is fueled by the significant price reductions that make equipment easily available (Pryor, 2014; Eisenberg, 2013; Johnson, et.al., 2013; Lipson & Kurman, 2013). Further, the integration of equipment is not only seen at the college and high school level, but is currently being implemented in primary school education.
for young children (Eisenberg, 2013). As the availability and integration of this equipment increases for current and future students, so do expectations of use and access to digital fabrication within learning environments.

This presentation outlines the following strategies for educators on common issues and considerations (over five years) of developing, maintaining, and teaching in a digital fabrication lab. Strategies for developing a digital fabrication lab or adopting equipment range from 1) selecting appropriate equipment and software, 2) assessing infrastructure demands, 3) planning a start-up and operation budget, 4) overseeing equipment set-up, to 5) understanding equipment opportunities and limitations. Further, guidelines for maintaining the lab and equipment focus on 1) keeping the lab and equipment in safe and reliable working order, 2) providing supervision and training on equipment, 3) understanding equipment maintenance needs, and 4) planning a material and parts budget. The strategies presented for teaching with the assistance of digital fabrication equipment include 1) selecting equipment based on pedagogy needs, 2) assessing student understanding of basic fabrication prior to digital fabrication interactions, 3) providing training on equipment and software use, and 4) inspiring innovative and meaningful learning experiences. Finally, this presentation will include instructor and student experiences paired with examples of digitally fabricated work.

The digital fabrication lab serves academia in a teaching and learning capacity, beyond that of a standard production facility. This designation places specific demands on the development and maintenance of the lab and equipment. This presentation provides an overview of issues and considerations along with strategies for the development, maintenance, and teaching goals in a digital fabrication lab for education.

REFERENCES (APA)


Examples of digital fabrication equipment:
Examples of mistakes and successes with 3d printer and CNC:
Examples of the differences of laser and CNC cutting:
Examples of student work on laser:
Examples of student work on CNC machines:
Lynda.com Empowering Tomorrow’s Digital Design Classroom: A Pilot Study Investigating Lynda.com Online Tutorials in Interior and Apparel Design Courses

Sarah Zenti & Laura McAndrews
University of Georgia

ABSTRACT

Problem
According to the U.S. Department of Education (2009), online learning environments are one of the fastest growing trends in educational uses of technology. Part of this growth includes the emergence of online tutorials or self-study activities designed to teach specific learning outcomes (“Design Principles”, n.d.). According to Brown & Duguid (1996), online tutorials can create an environment where individuals learn from each other and discover shared problems. Additionally, they help to establish baseline knowledge and allow students to study course content on their own time. However, research regarding the implementation and use of online tutorials as a complimentary tool to traditional classroom teaching methods is deficient with regards to design curricula. This study examined how a blended learning methodology integrates lynda.com tutorials with traditional teaching methods in interior and apparel design courses that teach Autodesk Revit, Adobe Photoshop and Illustrator to upper-level undergraduate students.

Methods
This pilot study had three objectives: to assess students’ preferred learning styles in a technology driven design course; to help students with different skill sets and technical knowledge establish a baseline comprehension and proficiency with the programs being taught; and to measure the
effects of using lynda.com on students’ confidence and attitudes towards the online tutorial format and a respective computer-aided design program. In order to measure the objectives, students were given a pre and post survey. The survey questions were set-up using a 5-point Likert scale and invited students to answer statements such as, “I am skilled at using Lynda.com” and “I prefer learning new concepts from on-line resources.”

Analysis of Outcomes
As part of this study lynda.com tutorials for Autodesk Revit, Adobe Photoshop and Illustrator were integrated into three classes: an advanced interior design CAD course, an advanced apparel design course and a core interior design studio at a Southeastern university. The three classes consisted of 11 sophomores, 6 junior and 24 senior female participants. This study had three phases: a pre survey to assess students’ pre-existing knowledge of the technologies being used; daily course activities where students were assigned relevant lynda.com tutorials pertaining to in-class content which was reinforced through in-class demonstrations and assigned projects; and a post survey. The data were analyzed in both quantitative and qualitative methods. First, data were analyzed using repeated measure ANOVA, which determined that students’ confidence and attitudes towards using Lynda.com, Autodesk Revit, Adobe Photoshop and Illustrator were statistically significant. Secondly, instructor observations were analyzed. For example, instructors recurrently recorded instances when students referenced assigned lynda.com tutorials when problems arose while completing assignments or projects. Conclusions and implications for the classroom are dynamic. Students were given tools, the online tutorials, to reference and independently problem-solve. Additionally, instructors’ focus was less on program operations and more on developing students’ design elements for their respective end projects. As this was a pilot study with limited number of students, further research recommends inclusion of more students and instructors at various educational institutions.

REFERENCES (APA)

Appendix - 1

The following is an excerpt of course set-up and daily assignments for the Interior Design Advanced CAD class. Students were provided similar course assignments for each class meeting. The instructor of the CAD class provided the course materials used in this example.

### Autodesk Revit

<table>
<thead>
<tr>
<th>Date</th>
<th>Assignment including lynda.com Tutorial</th>
<th>Class overview and objectives</th>
</tr>
</thead>
<tbody>
<tr>
<td>For Thursday, 8/20</td>
<td>• Read chapter 1 – Getting started with Autodesk Revit 2015 in required course textbook</td>
<td>• In class on Thursday we will be working in Revit and reviewing the user interface and identifying basic menus, commands and property features.</td>
</tr>
<tr>
<td></td>
<td>• In the lynda.com course Revit Architecture 2015 Essential Training watch:</td>
<td>• At the completion of the lesson you should be able to identify and summarize main components and tools needed to begin building basic Revit model.</td>
</tr>
<tr>
<td></td>
<td>- Chapter 1 – Core Concepts – all section tutorials (total viewing time – 14min 43sec.)</td>
<td>•</td>
</tr>
<tr>
<td></td>
<td>• Introducing building information modeling (BIM)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Working in one model with many views</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Understanding Revit element hierarchy</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Chapter 2 – Getting Comfortable with the Revit Environment – specific tutorials (total viewing time – 55min 33sec.)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• The Recent File Screen and the application menu</td>
<td></td>
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<tr>
<td></td>
<td>• Using the Ribbon and the Quick Access Toolbar (QAT)</td>
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<tr>
<td></td>
<td>• Understanding context ribbons</td>
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<tr>
<td></td>
<td>• Using the Properties palette</td>
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<tr>
<td></td>
<td>• Using the Project Browser</td>
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<tr>
<td></td>
<td>• Navigating views (Zoom, Pan, and Rotate)</td>
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</tr>
<tr>
<td></td>
<td>• Selection and modifying basics</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Accessing Revit options</td>
<td></td>
</tr>
</tbody>
</table>

Examples of the final Revit models completed in the class.

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Appendix – 1.2
The following is an excerpt of course set-up and daily assignments for the **Core Interior Design Studio**. Students were provided similar course assignments for each class meeting. The instructor of the CAD class provided the course materials used in this example.

<table>
<thead>
<tr>
<th>Date</th>
<th>Assignment including lynda.com Tutorial</th>
<th>Course Assignment including lynda.com Tutorial</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Adobe Photoshop</strong></td>
<td></td>
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</tr>
<tr>
<td>For Thursday, 9/08</td>
<td>In the lynda.com course <em>Photoshop CC Essential Training</em> watch:</td>
<td>In class on Thursday we will be working in Photoshop and reviewing the user interface and identifying program menus and tools, basic manipulation and arrangement of images and other elements.</td>
</tr>
<tr>
<td></td>
<td>- In class on Thursday we will be working in Photoshop and reviewing the user interface and identifying program menus and tools, basic manipulation and arrangement of images and other elements.</td>
<td>At the completion of the lesson you should be able to identify and summarize main components and tools needed to begin composing a project board(s).</td>
</tr>
<tr>
<td></td>
<td>- In the lynda.com course <em>Photoshop CC Essential Training</em> watch:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Chapter 1 – Photoshop Interface Essentials – specific tutorials (total viewing time – 12min 41sec.)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Opening files into Photoshop</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Switching and saving workspaces</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Switching tools using the keyboard</td>
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</tr>
<tr>
<td></td>
<td>- Chapter 3 – Digital Image Essentials – all section tutorials (total viewing time – 25min 16sec.)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Chapter 6 – Working with Layers – all section tutorials (total viewing time – 31min 39sec.)</td>
<td></td>
</tr>
</tbody>
</table>

Examples of the student’s first digital design boards completed with the use of Adobe Photoshop.

![Examples of the student’s first digital design boards completed with the use of Adobe Photoshop.](image-url)
The instructor of the **Apparel Design Course** provided the course materials used in this example.

<table>
<thead>
<tr>
<th>Date</th>
<th>Assigned Lynda.com Tutorial</th>
<th>In-Class Learning Concepts</th>
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<tbody>
<tr>
<td><strong>Adobe Photoshop</strong></td>
<td></td>
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<tr>
<td>For Tuesday, 9/1</td>
<td>• Cropping &amp; Straightening Images</td>
<td>• Transforming and Distorting</td>
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<td></td>
<td>• Working in Layers</td>
<td>• Layer Masks</td>
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<tr>
<td>For Thursday, 9/3</td>
<td>• Type Essentials</td>
<td>• Essential Filters</td>
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<td>• Painting Essentials</td>
<td>• Artistic Filters</td>
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<tr>
<td>For Monday 9/7 Project Due</td>
<td>To create a mood/inspiration board and render textile designs for 3 fashion sketches utilizing the learned operations in Adobe Photoshop</td>
<td></td>
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</tbody>
</table>
The instructor of the *Apparel Design Course* provided the course materials used in this example.

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<tr>
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<tr>
<td>For Tuesday, 9/22</td>
<td>• Working with Layers</td>
<td>• Pen Tool</td>
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<td></td>
<td>• Transforming Objects</td>
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<tr>
<td>For Thursday, 9/24</td>
<td>• Working with Fills and Strokes</td>
<td>• Designing garments in the flat</td>
</tr>
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<td>• Working with Color</td>
<td>• Thinking in Garment Flat Pattern</td>
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<tr>
<td>For Monday 9/28 Project Due</td>
<td>To draw 5 flat sketches in Illustrator from your Collection you designed for the fashion illustration project utilizing the tools and operations learned.</td>
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#Interiordesignstudents #Bestschoolever: Using the Internet to Recruit Students

Dana Moody, Jill Weitz, Jessica Etheredge, Catherine Kendall & Tonya Miller
University of Tennessee at Chattanooga

ABSTRACT

The Internet has emerged as the single most important tool in college recruiting (Pegoraro & Stick, 2006). Prospective undergraduates find traditional college marketing tools, including college viewbooks, letters, postcards, phone calls, and videos, old and outdated (Pegoraro & Stick, 2006). As concerns for enrollment and retention heighten, universities cannot afford to alienate prospective students by not taking this trend seriously (Erickson, Trerise, Lee, VanLooy, Knowlton, & Bruyere, 2013). Websites and social media are tools that institutions must now use to effectively recruit students. Prospective students are exploring social media to learn the culture of specific universities (Greenwood, 2012). In addition, today’s students often decide which university to attend based on their interaction with university websites (Pratt, Alfonso, & Rogers, 2014). Interior design programs and other highly visual, creative majors must be particularly sensitive to this new paradigm. A study by Crumpton & Moody (2013) confirmed that many interior design students are choosing where to go to school based on their interaction with the interior design program’s web pages.

The purpose of this study was to explore ways to effectively recruit potential interior design students through website design and social media. This study received 148 responses from incoming 1st-year interior design students at 14 universities across the United States regarding website design. Each student reviewed 4 randomly generated interior design websites from a list of 10 participating programs that volunteered to be part of the study. Each website was rated on ease of navigation, web page layouts, images, student culture, and diversity, as well as an overall
rating for the website. Students were also asked if each website would make a potential interior design student want to attend the reviewed program. Of those students surveyed, 68% felt that a university’s website design is either very or extremely important when deciding which school to attend. They believe websites should be a priority for universities when marketing their Interior Design programs to prospective students. Responses also revealed that the design of each website reflected the professionalism of the program and abilities of the programs’ faculty members. Survey participants cited their desire for more photos, more examples of student work, less generic imagery, more color and fewer lists. Students indicated that the websites would make a potential interior design student want to attend the participating universities 68% of the time. In an effort to take this study a step further, the researchers also interviewed advertising professionals for insight on how to reach potential college students through social networking sites.

It was determined that Instagram was the most popular social media site for potential college students, therefore an Instagram account was created to test the possibilities of outreach. Images with strategically chosen hashtags were posted to reach a larger population of potential students. This effort led to a quick international following from, not only potential students, but designers and design manufacturers. An official hashtag was created to direct current students in posting images to the site, giving the follower insight into the real life of an interior design student. Far reaching implications directly linked to recruiting are still to be determined, but a survey of 37 entering freshman revealed that those who followed the Instagram account as a potential student were influenced by its content when deciding where to study Interior Design. In conclusion, this study revealed perceptions of 10 interior design program websites and explored social media’s outreach. The findings of this study form a guide for all interior design programs as they create recruiting strategies.

REFERENCES (APA)


Furniture Designing within the Virtuality-Reality Continuum

Tilanka Chandrasekera
Oklahoma State University

ABSTRACT

Physical prototypes in design have been traditionally used to provide a representation of final design outcomes and to improve as well as obtain feedback on the design. However, Studies on physical prototyping or model making in design have shown to increase fixation (Christensen, and Schunn, 2007). Designers tend to fixate on the design during the time that they spend on making the physical prototype. Using virtual modeling techniques together with digital prototyping (3D printing) can be considered as an approach to alleviate any fixation effects caused through physical prototyping.

While identifying digital prototyping as a valid method in problem solving this study explores the connection students make when translating a design idea through virtual, augmented and digital prototyping. Milgram and Kishino (1994) introduced the Reality-Virtuality continuum to explain the concept of the media spectrum that spans across physical space to Virtual Reality (VR). While VR is considered to be a computer simulated 3D environment, AR is an overlay of that virtual imagery over the physical space. This study looks at how VR, AR and digital prototyping can be used in interior design, as design development and design representational tools. In a previous study, two sections of an early interior design studio were recruited to observe their subjective perception of using digital prototyping (Chandrasekera and Yoon, 2015/ this study was presented at IDEC-2015). In that study students were provided with a simple interior design problem and as a part of that design problem they were asked to design a piece of furniture that corresponded to their overall design concept. Students used digital prototyping, and their subjective perceptions on technology use were recorded. In the current study one section of an early design studio (n=17) were provided with the same design problem,
and used the sketchup software to model the 3D virtual models of the furniture piece. The students were then instructed to 3D print the model as well as create an Augmented Reality (AR) model of their furniture piece.

The objective of this exercise was for the students to use virtual modelling techniques for design development, AR model for showing accurate proportions and material usage in the actual physical setting and digital prototyping to provide a tangible outcome of the design process, which showed intricate details and mechanics of the structure. The students used the 3D printed model as well as the AR model in their design review, where two design reviewers were invited. After the review, the students answered a questionnaire based on the Technology Acceptance Model (TAM) regarding their use of digital prototyping and AR. The two design reviewers were also provided a questionnaire to explore the effect of using AR models and digital prototyping in design reviews.

As an exploratory exercise the results were analyzed and the results reiterated the results from our previous study (Chandrasekera and Yoon, 2015) that student’s rate Perceived Usefulness (PU), Perceived Ease of Use (PEU) as well as Intention to Use in the future (IU), high for digital prototyping in interior design. The results also suggest that AR models provide an advantage for design representation and were rated high for PU, PEU and IU. Future directions in this study are seen in duplicating the study with more subjects. The results of the study are expected to contribute to design education in understanding the implication of using different mediums to express design intentions, and to better understand how different mediums provide means of alleviating fixation in the creative design process. The study also provides a case study of using alternate representational techniques in the context of design reviews. With the advent of new technology it is important to identify how the profession can adopt them to be used effectively and efficiently.

REFERENCES (APA)


Fig 1: 3D printed Models

Fig 2: AR model as seen through a 3rd party mobile application called Augment
Using an Unmanned Aerial Vehicle (UAV/drone) to Improve Student Engagement with Building Construction, Systems, and Codes

Nathan Bicak
Radford University

ABSTRACT

Summary
To help interior design students better understand and become engaged with building construction, codes and systems, an instructor employs the use of an Unmanned Aerial Vehicle (UAV/drone) in a Building Codes, Systems and Construction course.

Context
Recently, UAVs have become part of public discourse due to their military applications, but they have also been used in the civilian sector since the 1990s. For example, they are used for agriculture, infrastructure monitoring, and geological surveying.(1) While in the building industry, UAVs are used predominantly for project flyovers and site documentation. One of the more progressive projects utilizing UAVs in design is occurring at ETH Zurich’s Institute for Dynamic Systems and Control, where roboticists are exploring the possibility of using drones as autonomous structure builders.(2) This presentation will propose that UAVs also have a place in design education as a means of investigating interior and exterior spaces from outside the occupied zone. Specifically, a UAV offers a means to understand complex construction systems and building codes with which an interior designer is concerned. As this technology rapidly advances and becomes more accessible, the use of drones will likely be commonplace in the professional design world.

Problem
The aforementioned topics of construction, systems and codes are often difficult to teach because they are perceived as uninteresting and tedious, for both students and faculty. In searching for a way to make these seemingly mundane topics relatable and memorable, a professor decided to implement a UAV to excite students (and professors) about these topics and to explore the capabilities of an emerging technology.

Methods of Investigation
Throughout a semester, students in a third year Building Codes, Systems and Construction course flew a UAV at building projects and over construction sites (Appendix A). This interactive exercise improved students understanding of the materials covered in the classroom via traditional methods, such as lecture, reading, homework and testing. In teams, students created videos with the flight footage that showcased particular elements of construction (Appendix B); the teams were directed to identify specific aspects of construction or code compliance. The class looked at curtain walls, steel framing systems, roof elements, fire suppression system layouts, and building systems layouts.

Outcomes
Using a UAV to augment topics like building systems, construction and codes offers a way for students to virtually get hands-on with buildings and spaces. This exercise also gives students experience with a dynamic technology that is increasingly being utilized in professional design practice. Piloting a UAV around a building or on a construction site allows students to experience a project from impossible vantages and angles. For instance, while hovering 50 feet in the air and five feet off a building façade, students were able to better view, and thus better understand the purpose of an expansion joint on a large building. Similarly, when students can view a ramp from 30 feet in the air, they can fully realize how much horizontal space a code-compliant ramp requires. These types of observations, and engaging learning environment, prompt active questions and discussion about other, previously hidden aspects of construction and code compliance. Lastly, as the topic of UAVs often spurs a dynamic debate, this presentation, which focuses on their potential for design students, will incite stimulating discussion amongst design educators.

REFERENCES (Chicago)

Appendix A - Students flying a UAV
Appendix B - Still images of UAV flight footage
A Case Study Examining the CCT of Fluorescent Lighting on Student On-task Behavior in an Elementary School Classroom

Alana Pulay & Marilyn Read
Oklahoma State University

ABSTRACT

The objective of this study was to examine if correlated color temperature (CCT) of fluorescent lighting in an elementary school classroom influenced student on-task behavior. Fluorescent lamps are the most common type of light fixture installed in public school classrooms yet architectural codes do not specify a CCT level. Higher CCT levels of lighting have been shown to increase alertness and improve productivity in the workplace (DeKort & Veitch, 2014). Students that spend more time in on-task behaviors are engaged with the academic material and expected to have higher levels of cognitive development (Fisher, Godwin, & Seltman, 2014). Thus, the study utilized on-task behavior, which is defined as doing the task given by the teacher, as a measure that would predict productivity and academic success in children.

A conceptual theoretical framework on interior lighting and human behavior was developed and tested to investigate student on-task behavior. Using the process-based theory development procedure and the theory synthesis process, a new conceptual theoretical framework was created by organizing, categorizing, and linking concepts from the existing interior lighting frameworks (Boyce, 2004; DeKort & Veitch, 2014; Kretchermer, Schmidt, & Griefahn, 2012). The conceptual theoretical framework was tested in a pilot study using the process-based theory development procedure. The study examined student on-task behavior under fluorescent lighting with a lower CCT as compared to fluorescent lighting with a higher CCT in an elementary school classroom. Results indicated that the theoretical framework needed refinement and expansion to include and explain relationships between other interior
environment variables present within a classroom that possibly contribute to student on-task behavior. The theory synthesis development strategy was implemented to create a refined theoretical framework that included other interior variables within a school facility. The refined theoretical framework was tested in a case study that investigated student on-task behavior under 3000K CCT as compared to 4100K CCT of fluorescent lighting in a public school second grade classroom. Twenty-seven students, between the ages of seven and eight years old, participated in the study. Student on-task behavior scores were collected for five months by non-participant observations. On-task behavior scores were recorded using a time interval data collection procedure documented on a numerical scale as “1” is on-task and “3” as off-task. On-task behavior scores were averaged and used in combination with ethnographic data collection techniques to document student physical movement throughout the room and on-task behavior under each lighting condition. Correlations, paired-samples t-tests, multiple linear regression, and qualitative analyses were utilized to analyze the data for this study.

The results indicate that students displayed more on-task behavior under fluorescent lighting with a CCT of 4100K than fluorescent lighting with a CCT of 3000K. Further analysis resulted in correlations between student on-task behavior independently, and in combination with other interior environment variables present within the classroom environment such as size of furniture, noise level, and teacher behavior management techniques. In conclusion, this study provides suggestive evidence that the CCT of the interior lighting is among the variables that contribute to the interior classroom environment and student on-task behavior. The interior environment variables create the school facility quality. A high quality school facility is linked to high levels of student academic success (Uline, Wolsey, Tschannen-Moran, & Lin, 2010). Since the interior lighting is only one interior environment variable, additional research on how lighting interacts with other variables will help uncover connections between the school environment and positive student academic outcomes.

REFERENCES (APA)


Student Life Buildings as Third Places: Spatiality and the Formation of Meanings

Yelena McLane & Nadya Kozinets
Florida State University

ABSTRACT

Student life buildings at colleges and universities are designed to support students in achieving academic goals and enhancing campus experiences by creating environments that facilitate engagement and social interaction, provide a sense of community and belonging, and ultimately imbue personal and social meanings. In built environments, meaning formation is closely associated with the concept of 'place,' and its location, physical, cultural, and aesthetic qualities, which, in turn, determine users' degree of individual or social involvement (Manzo & Devine-Wright, 2014). In this study, the researchers apply place attachment theory, and more specifically, the 'third place' concept, to investigate student life buildings on two university campuses as locations where many students come to meet, relax, eat, study, or socialize. The aim is to investigate whether these buildings could be viewed as third-place environments, and how spatial morphologies, defined by permeability and visibility, facilitate or inhibit user perceptions of these environments as third places.

The theoretical framework for this study was informed by David Seamon's phenomenology of 'place attachment,' under which people and their physical experiences in space form a synergetic relationship (Seamon, 2014). Seamon argued that in built environments bodily experiences and routines originate with and are influenced by spatial qualities, which play a major role in “interpersonal” and “communal” communication and engagement, and subsequently facilitate the formation of meanings and attachment. Seamon described ‘places’ as dynamic generators of interactions between individual users and between users and environments, and further identified factors that contribute to sustaining or eroding place attachments.
In this study, the researchers utilize the theories and techniques of space syntax analysis to identify how these characteristics manifest themselves in two sites identified for research. Permeability and visibility are key factors that define spatial configurations and function (Hillier, 2007) and create conditions for visual awareness, integration, and interpersonal encounters. This study blends the quantitative approaches of space syntax with qualitative, ethnographic data: the individual voices of student users whose impressions of buildings’ configurations and functions, and personal accounts of interaction and engagement, within these environments combine to put flesh onto the bones of rote spatial analysis.

The results of this study indicate that students do view student life buildings as third place environments. The contributing factors include spatial and functional characteristics, such as visual openness within spaces and connectivity between spaces, ease of navigation, connectivity of spaces within buildings (permeability), higher user density, multi-functional spaces and furnishings, accommodation of individuals and small groups; design characteristics, including aesthetics and sophistication; and social and programmatic characteristics, including cultural offerings, student services, authorized eating and drinking, and the presence of coffee houses, bookstores, and other retail outlets.

The purpose of this study was to inform and contribute to the current discourse on student life buildings on university campuses. The findings provide analysis of spatial structures and first-hand insights into how students use and perceive these buildings. University facilities administrators, planners and designers can use this information as they develop spaces that successfully encourage students to gather for eating, resting, studying, socializing, meeting new people, and simply “hanging out.” Each these activities leads to the formation of close, place-based emotional bonds, and adds to individually and socially meaningful experiences on university campuses.

REFERENCES (APA)


Diagramming Spatial Intimacy: Mapping the Annunciation of Fra Angelico and Sandro Botticelli

Christopher Manzo
Kansas State University IAPD

ABSTRACT

In ‘Home – A Short History of an Idea’ Rybczynski (Rybczynski, 1986) chronicles the history of ‘comfort’ as an evolving cultural idea (concept) embodied via its ongoing and changing manifestation in domestic architecture. He further notes that as ideas regarding ‘comfort’ evolved in the early sixteenth century, so did the actual ‘home’ in northern Europe. Using a comparative spatial analysis of early Renaissance Annunciation paintings, the author will explore how pictorial depictions of intimate interior space are foundational to a broader cultural understanding of architectural interiors.

Much has been written historically about Architecture and the objectifying eye; or the building as object (Alberti, 1452), but until rather recently, little has been written regarding the building enveloping the drama of daily life or of the sensual qualities required to make a comfortable and intimate interior space (Pallasmaa, 2012). With the publication of Leon Battista Alberti’s Della pittura in 1436 (Alberti, 1436) there was a rapid change in spatial depictions of the Annunciation from those of a static and doctrinal representation of a theological dogma to that of a spatially complex, emotionally rich, and often uncomfortably intimate conversation between two women. While most contemporary painters employed the new perspective methods in a symbolic (Panofsky, 1922) or honorific manner (Witham, 2014), several early Renaissance artists went further, moving from a didactic illustration of a fixed concept (the doctrine of the Annunciation) to a nuanced exploration of human participation in and response to this biblical story by employing the new mathematic techniques to structure and represent spatial intimacy.
Using Rybczynski’s (Rybczynski, 1986) theoretical framework of ‘intimacy and privacy,’ the author will illustrate the evolving nature of a precursor to ‘comfort,’ that of the concept of ‘intimacy’, as evidenced in two Annunciation paintings of Fra Angelico and Sandro Botticelli. Building off of existing pictorial analysis (Scott, 2007), the author will perform a comparative spatial analysis, using both linear perspective (Scolari, 2012) and 3-dimensional CAD modeling studies (Hart, 1999) to examine the changes in spatial intimacy depicted in these evolved Annunciations. Lastly, the author will tie this evolving concept of intimacy back to the principal Humanist theme of the Renaissance – that of the centrality of lived human experience in our cultural understanding of our place within the cosmos.

REFERENCES (APA)


Alberti, L. B. (1452). De re aedificatoria.


Expanding Interiority: Two Case Studies

Peter Greenberg
Wentworth Institute of Technology

ABSTRACT

This paper explores two case studies of domestic courtyard houses to expand the sense of interiority into exterior realms. Both houses fuse interiors, architecture and landscape into a continuous flow of space that challenges the notion of the interior as being literally bound by a weather wall - so they are helpful in exploring what we mean when we use the term “interiority.” That term can be used to characterize the inherent qualities of being interior – but it is different than the term “interior” because “interiority” suggests a self-aware comprehension of qualities that specifically describe the distinctive nature of interior space. The relationship between these terms is similar to “material” and “materiality” – material is the substance from which things are made but “materiality” is when a designer marries design intentions with the expressive properties of a material. In like ways, a designer can explore the expressive and inherent properties of interior space, independent of whether that space is literally “inside.”

The theory being explored in this paper is how to understand the expansion of the sense of interiority beyond the perimeter boundary of the wall; the framework of the exploration is an examination of the literature and the illustration of the idea in two specific case study examples. The term “interiority” is commonly used in disciplines outside of design, such as psychology, philosophy and literature (Bachelard, Merleau-Ponty). In each of these fields, “interiority” refers to a retreat into self-awareness and reflection: for example, where people find a “place to hide their secrets” (Bachelard). Over the last two decades, scholarship in interior design has borrowed this understanding and expanded the discourse to explore what we mean by “interiority” past literal spatial boundaries. In her 2005 article, “Towards a Definition of Interiority,” Christine McCarthy writes: “unlike “interior,” “interiority” is grounded in
circumspection, rather than relative location” (McCarthy, 112). McCarthy expands the definition of “interiority” broadly, past “containment, confinement, enclosure” to include categories of control, boundary, a twin to exteriority, habitation, bodies, time, atmosphere. In the recent publication, “Unbounded: On the Interior and Interiority,” technological and cultural forces are seen to further break down the clean boundaries of where the “interior” is (Dou, Huppatz, Phuong). Other writers have explored the idea of thermodynamic flow of atmosphere and fluids or the thinness of facades to question the clear boundaries between inside and out while maintaining the inherent quality of interiority (Irigaray).

The two case study houses that will be considered project a strong sense of interiority into the landscape. The first, a house that Philip Johnson built for himself in 1942, is designed as a walled precinct that enclosed a private courtyard as well as enclosed interior rooms. A thin, continuous glass plane separates the inside from the outside. The floor plane of the interior volume is at the same level as the outside room ground and the vertical walls of the interior align with the inside of the courtyard precinct walls to express the continuity of inside and out. The presence of nature is inside the house and a sense of interiority pervades the exterior court.

We are outside but in a room – and that room is unified with the rooms that are protected from the weather. The second house was designed by Jose Luis Sert in 1958 and blends three patios into the rooms of the interior. Inside and outside rooms are transparently interconnected in both schemes.

The conclusions of this analysis help us to understand that “interiority” refers to a sense of boundary, control, protection, enclosure, intimacy, self-reflection, secrecy, and shelter without necessarily being inside. Using these conclusions, we can now expand our sense of interiority beyond the boxy constraints of walls.

REFERENCES (MLA)


CASE STUDY #1: Courtyard House, Cambridge MA, Philip Johnson, 1942.

A walled precinct encloses a private courtyard as well as interior rooms. A thin, continuous glass plane separates the inside from the outside. The presence of nature is inside the house and a sense of interiority pervades the exterior court. We are outside but we are protected; we are inside but we are exposed.
CASE STUDY #2: Courtyard House, Cambridge MA, Jose Luis Sert, 1958.

Interior and exterior rooms are linked through transparent walls. Exterior space is bound and secure and controlled; interior space is sunlit and domesticated. A sense of interiority pervades both and there is a strong sense of spatial continuity between interiors, architecture and landscape.
Emotional Intelligence and the Interior Design Student

Steven Webber
Florida State University

ABSTRACT

Introduction and Research Question
Salovey and Mayer define emotional intelligence as “a form of social intelligence that involves the ability to monitor one's own and others' feelings and emotions, to discriminate among them, and to use this information to guide one's thinking and action” (Salovey and Mayer, 1990). Emotional intelligence (EI) is a growing area of research in many fields and has been found to be useful in professions that are high in managerial work (Farh et al., 2012) which, one could argue, includes interior design project managers and firm leaders as they manage multiple people, disciplines, and projects, often simultaneously. This study sought to bring emotional intelligence into the interior design education conversation due to its high potential to inform the education of future design leaders and managers. As this research progressed, it became clear that the EI metadata could provide some context for how interior design students compare to general populations of university students. If design students’ scores were found to be higher than general university student populations, then causation could be the next question. To better understand interior design students in the context of EI, the following questions were addressed in the research: How do emotional intelligence scores of ID students in this study compare to other general populations of college students? Do EI scores of interior design students vary by expertise level (studio 1, 2, and 4 in this case)?

Methodology
For this study, the 33-item Emotional Intelligence Scale (EIS) self-report instrument created by Schutte et al. (1998) was used in this study. The EIS has been used in many studies and shown to be reliable (Austin, E. J. et al., 2004). This study was conducted within a competitive entry
interior design department at a public university in the U.S. Scores were tabulated, analyzed for internal consistency and then compared to an analysis of 13 studies of college students’ scores in the U.S., U.K., Canada, and Australia (Schutte et al., 2009). The students in these studies were mostly undergraduates and varied by discipline. These countries were chosen as English is the dominant language in these countries and western cultural similarities would be present, providing a measure of control. Next, the interior design student scores were analyzed based on expertise level (studio 1, 2, and 4; sophomore – senior levels and first professional graduates) to find any potential differences.

Findings
The interior design students who participated in this study (n=82; SD=11.89) had a mean EIS score of 131.59 out of a possible 165 points in contrast to the mean score of the prior referenced 13 studies is 123.88 (n=2,623; SD=13.36). The difference between the mean scores was found to be significant (t(2703)=5.17, p less than .01) and have a large effect size of .61. The EIS scores of the student participants in studios 1, 2, and 4 were 130.55 (n=33; SD=11.78), 130.55 (n=33; SD=11.79), and 135.88 (n=16; SD=10.96) respectively. The difference between these mean scores was found to not be statistically significant (F2, 79=1.31, p greater than .05). These initial results open up an intriguing new area of discussion. More research is needed to determine if these findings can be replicated elsewhere, but should that happen a search for reasons why is a natural next step. For example, does interior design naturally attract persons with higher EI due to a desire to help others through design? This presentation will query attendees on this and related important findings to generate possible research questions for future studies and assist the search for new research partnerships.

REFERENCES (APA)


Emotional Intelligence and the Interior Design Student

Appendix A: Mean EIS Score of I.D. Students and 13 Other Studies of University Students

![Mean EIS score chart]

**Mean EIS score of I.D. Students and 13 Other Studies of University Students**

This chart shows the mean EIS score of Interior Design Students (131.59) tested by the author in 2014, and shows the mean EIS score of 13 separate studies of university students (123.88) in the U.S., U.K., Canada and Australia conducted by many different researchers and referenced by Schutte et. al. (2009). The difference between these means was found to be significant ($t_{13,209}=5.17$, $p<.01$) with a large effect size ($ES=.61$). These results could indicate a higher emotional intelligence concentration within interior design students compared to other university students in general.
Mean EIS score of I.D. Students by Studio Level
This chart shows the mean EIS score of Interior Design Students by studio level (Studio 1: 130.55, n=33, SD=11.78; Studio 2: 130.55, n=33, SD=11.79; Studio 4: 135.88, n=16, SD=10.96). Using an ANOVA, the difference between these means was not found to be statistically significant (F_{3,79}=1.31, p>.05). These results could indicate that EIS score does not change significantly from sophomore through senior years in a program that has competitive entry policy. Results could differ with larger student participation and/or in interior design programs that do not have a competitive entry policy.
Personalia: The Meaning of Things at the Desks of Routine Office Workers

Lynn Chalmers
University of Manitoba

ABSTRACT

The significance of the personal objects that we accumulate at our desks will be explored in this presentation. Photo elicitation research, comprising interviews and photographic studies of the workspaces of 11 women performing routine work in a financial services office, uncovers the ways the women use personalia at their desks to reappropriate the everyday spaces of the office. Personalia take the form of birthday and thank you cards, poems, coffee mugs and office supplies, tchotchkes, photographs and travel momento. Most often they are described in terms of the event and person they celebrate. The findings demonstrate the complex personal and co-worker relationships that are evident in the seemingly insignificant personalia that women workers collect and curate at their desks.

Social networks with co-workers, past and present are honoured in the personalia at the desk; and tactics such as repurposing office supplies as gifts, along with numerous individual and heterogeneous behaviours demonstrate that routine work spaces are not neutral spaces but are open to the expressive practices which de Certeau calls operations. The close reading of the women’s desks established a loose order of zones of significance. Moving from the private zone for personally significant items located around the computer screen, through transition zones for less personal items and to a public zone that communicates with co-workers at the outer edge of the desk. Desk cleaning rituals provided closure and a termination point for the endlessly streaming on-line work environment. The ways that the women make space for themselves and push against the hegemony of the neoliberal organization are specific and instructive. They reflect women’s values and the identities crafted for public and private consumption.
The research closely examines the practices of women in the financial services industry through the filter of Lefebvre’s trialectic (1991) for the analysis of space, De Certeau’s ways of operating and tactics of the everyday (1998), and Franck’s interpretation of Women’s Ways of Knowing (1989). Much of the research that addresses the workplace looks at the imposition of behaviours and subjectivities through organizational space. The research approach employed here is purposefully looking to give voice to women’s agency in claiming and occupying space in desk jobs with little power and status.

REFERENCES (Chicago)


Co-designing: An ethnographic method for practice

Dana Vaux & Kathleen Ryan
University of Nebraska, Kearney

ABSTRACT

Relevance/Problem
As designers, it is easy to come in as the "expert" and provide a provocative design solution without considerations of end-user preferences. Conversely, the development of design solutions that are cautious and unassuming may not generate positive user response as clients re-envision their future. Using established theory addressing issues of community, a rural-community design studio serves as a laboratory for this case study to test ethnographic research tools that may promote social capital and place meaning through community co-design methods [1].

Context
Allowing influences from other fields of study to inform their process of inquiry can aid interior designer practitioners in the design process. While ethnography is an established method in design research, the way in which historians employ ethnographic techniques as "reading texts" is something new for designers [2; 3]. Designers can look to cultural forms of data as equivalent to an anthropologist's "texts" as a form of design ethnography in order to inform design inquiry. Proponents of design ethnography suggest that it "extends the cultural panorama" for designers, helping them to understand cultures beyond their own experience [4].

Method
This paper presents a sequence of community-based, co-design studio projects that serve as case studies for applying co-design methods as a form of design ethnography. The projects required novice designers to engage with rural communities in a co-design process, integrating social capital and place theory research into a design problem. Novice designers were introduced to
social capital and place theories along with the concept of "doing-with" [5]. The project process, deliverables, and parameters were identified by rural community members and developed in conjunction with collaborative interactions and information-gathering exercises between community participants and novice designers. The novice designers gathered information and synthesized their findings from engagements with community members then categorized and applied findings to design solutions. Finally, they evaluated the process in order to understand how their role as designers might support community visionaries.

Outcomes
Novice designers often focus on the "facts" of the program, forgetting or underestimating the needs of the end-user. The co-design process identified multiple issues with community stakeholders that initially inhibited design outcomes, but in a second stage of engagement resulted in higher levels of involvement from community end-users for enhanced design outcomes. The co-design process utilized as an ethnographic method increased novice designers' knowledge of end-user preferences and gave them a better understanding of the potential for design outcomes to meet those needs.

Advancement of Design Knowledge
Design inquiry needs qualitative methods of analysis that allow us to tell the story not written in empirical data so that it might influence design outcomes. Designers must look to methods from other fields of study to inform their process of inquiry and design solutions. Understanding the rural culture and aesthetic is critical in order for designers to work effectively with rural community members. Applying co-design methods as a form of design ethnography serves as a means to collect multiple layers of data that designers can then employ for design inquiry and design solutions.

REFERENCES (Chicago)


Rethinking Precedent Studies: Archetype-Based Dynamic Sense Images and a New Framework for a Formative Exploration

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ABSTRACT
When searching for design ideas before a concrete communicative idea is formed, designers and students go through a “pre-logical” (Root-Bernstein, 2002) stage of abstract thinking where aesthetic sensibility, intuition, and visual impression play an important role. In design education, such abstract thinking starts in various ways, including brainstorming and the early stage of ideation that comes after a precedent study. The problem of pictorial images gathered through precedent studies of other design examples is the static, frozen, and invariable attributes that reside in the photos, which could lead students to maintain a stereotypical imprint in their cognitive process. How can educators encourage designers and students to remove themselves from the static images of precedent studies and transform those frozen images into a dynamic “sense image” (Root-Bernstein, 2002) that could be more useful in the creative ideation process?

This study proposes a framework for a formative exploration that emphasizes the transformative quality embedded in archetypes. The study proposes using archetypes as dynamic “sense images” that work as generative abstracts, which do not appear as a single static image but a transformative one with supposedly unlimited variables. Based on Kubler’s (1962) morphological theory of signals and mutants, this study demonstrates the use of the Interactive Genetic Algorithm (IGA) in fabricating a computer-based virtual ideation space that fosters a new dimension in the creative cognitive ideation process using archetypes. The proposed framework of formative exploration includes the following process: First, a number of
precedent examples of contemporary design are grouped based on the shared common traits (Jennings, 2009). Second, each group can be defined as a new formative category of archetypes; each archetype is organized based on core principles that define the main characteristics of each archetype and variables that cause multiple transformations of archetypes. Third, these core principles and peripherals are mapped into the proposed computer-based virtual ideation system to create a pool of multiple archetypes as sources of sense images as generative abstractions. Fourth, the proposed system is programmed to visualize the transformative quality of each archetype. While keeping the main set of instructions that define each design archetype, diverse schematic images of each archetype can be produced through mechanisms inspired by biological evolution, such as selection, mutation, crossover, and coevolution.

The primary focus of this research is to encourage designers and students to see the transformative quality embedded in archetypes developed from precedent studies and foster creative formative exploration in the pre-logical stage of the ideation process. The implication underlying employing the genetic algorithm in this research is that it allows the malleable structure of archetypes derived from precedent studies to be visible and so that they become dynamic sources of ideation. The result of this research will reframe the way designers use precedent studies by allowing designers and students to observe the hidden opportunities related to each archetype. In addition, this research will redefine formative exploration and possibly facilitate the innovative ideation process.

REFERENCES (APA)


PECHA KUCHA
The Interior Design Educators Council (IDEC) invites educators to submit creative teaching ideas in a fast-paced visual format to be presented during IDEC Pecha Kucha night. Submissions are double-blind reviewed by a panel of distinguished interior design educators. The following presentations, accepted for IDEC 2016 Annual Conference, can be viewed at http://www.idec.org/i4a/pages/index.cfm?pageid=3931

Kuhlabuhreyshuhn (noun): Introducing collaboration into the design curriculum
Erin Schambureck – Texas Tech University

A Bubble Diagram Manifesto: Alternative Design Processes in the Age of Revit
Travis Hicks – University of North Carolina at Greensboro

‘Expect the Unexpected’ The Program, Typology & Process in Interior Design Senior Studio
Tina Patel – University of Minnesota

The PDX Carpet: An interdisciplinary microhistory of design and culture
Bryan Orthel – Kansas State University

Can I Play?: Using Lego® as a 3D Teaching Aid
Julie Irish and Kari Ihle – University of Minnesota

Why We Teach: Interior Design Matters
Emily Smith – Virginia Commonwealth University, Angie Boersma – Mills Construction [design+build], Dana Vaux – University of Nebraska – Kearney, Julia Day – Kansas State University, Jesse Peck – University of New Haven, Doug Seidler – Marymount University
Amanda Gale – University of North Carolina at Greensboro, Bryan Orthel – Kansas State University, Stephanie Sickler – University of Alabama, Susie Tibbitts – Utah State University, Katie Rothfield – Florida International University, Jeff Nordhues – University of Nebraska – Kearney, Rebekah Ison Radtke – University of Kentucky, Khoi Vo – Savannah College of Art and Design, Travis Hicks – University of North Carolina at Greensboro & Roberto Ventura – Virginia Commonwealth University