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Intersection

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East Regional Chair, Anna Gitelman

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Quality of Life (QoL) and Humane Workspaces- A Study on LEED-Certified and Conventional Office Buildings

Mariam Wifi, Fanshawe College

Abstract

The improvement of human Quality of Life (QoL) is an ultimate goal to the sustainable development. This places human central in the sustainable development, and in turn it is expected to have a similar focus in sustainable practices, such as green buildings. A human-centered design approach that involves user needs and considerations in all steps of the design process is an integral part of the design solutions in the interior design field. While people spend most of their time indoors, it is found that the Indoor Environmental Quality (IEQ) can shape occupant's QoL experience (Vischer & Wifi, 2016). However, the information known about occupants's experience in green buildings lags far beyond the focus given to energy and water efficiency. Though, Leadership in Energy and Environmental Design (LEED) is the most popular Green Buildings Rating System (GBRS). Yet, literature review indicates several occupants’ complaints associated with the IEQ in LEED certified office buildings (Abbaszadeh, et al., 2006). This presentation is part of a longitudinal mixed-methods study that investigates occupants' QoL experience with the IEQ in LEED-certified and conventional office buildings in Canada to better understand how sustainable buildings under the LEED accreditation support human-centered design. QoL is defined in the study as occupants's perceived health, comfort, and productivity. The objective of this

part from the study is to define the concept of a humane workplace that meets and supports occupants' needs and activities, comprehensively from occupants' point of view. To better understand this concept, listening to the people's own words through interviews, is believed to be the most suitable way for constructing a humane work environment based on real, lived experience. Three office buildings were studied and ten interviews in total were conducted; four participants from a conventional, three from a LEED-Gold, and three from a LEED-Platinum office building. The average duration of interviews was one hour. Occupants were asked whether they consider their work environments humane or not, and what does humane mean to them, their expectations about a green work environment, and what are the most important element(s) to them that need to be provided in any work environment. Interviews were recorded after the permission of participants and transcribed. The narrations were analyzed using themes and codes, bar charts were used to describe the frequency of repetition of each theme. Results found eleven themes of a humane work environment that their influences were grouped to form five categories of comfort: Physical, Functional, Psychological, Social, and Cultural Comfort that define a humane work environment from occupant’s perspectives. The hierarchy of the themes' frequencies have suggested that the more the work environment respects social and cultural requirements, the more humane it is. Findings also suggest that regardless of the certification level of buildings, the lack of some IEQ factors that contribute to a humane work environment may compromise occupants' QoL at work. This study contributes to the advancement of criteria used to assess sustainable/green buildings under different GBRS, and guide policy makers to make decisions that put human aspects in mind.

References

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Vischer, J. C., & Wifi, M. (2016). The effect of workplace design on quality of life at work. In Handbook of environmental psychology and quality of life research (pp. 387-400). Springer, Cham.

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Uzzell, D., & Moser, G. (2006). Environment and quality of life. Revue Europeenne de Psychologie Appliquee/European Review of Applied Psychology, 56(1), 1-4.

Challenging the Jurisdictional Classification of Interior Design

Helen Evans Warren, Mount Royal University

Abstract

The Culture of Design (Julier, 2013) the author suggests, look at the professional status of designers to ask how they legitimate their role in a competitive marketplace (p. 16). Legitimization of the professional status of interior design, resides in jurisdictional boundaries and definitions imposed by governmental documents that regulate professions. There are significant challenges to the perception of interior design, starting with education and employment classifications, that need to be addressed at national and international levels. We need to take an active, political role to ensure that our profession is properly recognized by examining current definitions to determine their fairness and legitimacy. We need to eliminate complacency and replace it with actions to move the profession forward, ensuring that jurisdictional definitions accurately reflect the profession. The Professionalization of Everyone? (Wilensky, 1964) identified challenges and key features that define what constitutes a profession (p. 138 & 144). Wilensky noted that. Any occupation wishing to exercise professional authority must find a technical basis for it, assert an exclusive jurisdiction, link both skill and jurisdiction to standards of training, and convince the public that its services are uniquely trustworthy (p. 138). In interior design, this is evident in the creation of a specialized education, the development of professional associations that require examination for registration or

licensing, and through profession-based research. When The State of the Interior Design Profession (Martin, 2010) was published twelve issues were identified as integral to the future development of the profession of interior design. Many of these issues e.g. design thinking, evidence-based design, globalization, diversity and educational challenges continue to be addressed in education and practice. However, there are ongoing issues and challenges that effect the legitimacy of interior design as profession e.g. ethics and legality, regulation of practice, perceived identity and the value of interior design. Professional interior designers understand their areas of practice, however, as discussed by Caan, Weaver, Linster and Whited (Martin, 2010) (p. 439 & 459) there are challenges to this perceived identity. These challenges are associated with the issues identified in The State of the Interior Design Profession they are the regulation of practice, educational qualification, public identity, and equity in professional practice. The historic progression of interior design has been documented and discussed in great detail by many authors (Seddon, 2000) (Anderson, 2007) (Lees-Maffei, 2008) (Martin, 2010). With the increase in related occupation areas e.g. interior decorators, design and renovation television programs that claim authority over the title interior design, we need to challenge the current classification of interior design to ensure the jurisdictional legitimacy of professional interior design practice.

References

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Seddon, J. (2000). Mentioned but denied significance: Women designers and the professionalisation of design in Britain C. 1920 - 1951. Gender and History, Volume 12, No. 2 (p. 426-447)

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Investigating Environmental Stressors During Shopping Experience in Grocery Store Design for Indiviuals with Anxiety

Mariam Wifi, Fanshawe College
Reta Coghill, Fanshawe College

Abstract

Anxiety disorder is the most common mental health concern affecting individuals world-wide (Canadian Mental Health Association, 2021). In 2017, an estimated 304 million people (4% of the world's population) reported having an anxiety disorder (Dattani, Ritchie, Rose, 2021). The Canadian government recognizes anxiety as a disability and acknowledges that it can affect an individual's quality of life as the intense, excessive, and persistent worry and fear about everyday situations can become debilitating (The National Benefit Authority, n.d). The World Health Organization defines quality of life as "an individual's perception of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards and concerns' (WHO, n.d). Defining quality of life is important to note as the built environment can be influenced by societies, culture, and value of space and design. The built-environment has become more inclusive over the years regarding physical disabilities but has only recently begun to explore the built-environment and the connection to occupants' mental wellbeing. With anxiety disorders representing a great percentage of the population and on the rise (due to COVID-19) designing the built-environment to support mental health problems is imperative. Essential tasks such as

grocery shopping can become a daunting experience that may lead an individual with anxiety to avoid all together. Avoiding such routinely tasks by ordering groceries online or having another individual pick them up can become detrimental as when feared situations are avoided, the fears are strengthened (Canadian Mental Health Association, 2008). Avoidance can lead to a sense of loss control in one's life, negatively affecting autonomy and ultimately quality of life (Steckermeier, 2021). This research study investigates how environmental stimuli within grocery store design can support and encourage individuals with anxiety to participate and complete the essential task of grocery shopping with ease and autonomy to improve their quality of life. Data was collected from 30 participants using an online survey that consisted of 10 questions examining environmental stimuli in the ambient, space design, and social variables within a grocery store setting (see appendix A). The research survey was compiled and analyzed automatically through Jotform's online platform, which provides research analysis features. The data was reviewed and organized into themes based on research findings. Results suggest that ambient variables such as lighting, music, biophilic design; design variables such as layout planning; and social variables such as crowding and personal space are integral and significant to reducing anxiety related to the shopping experience. This research contributes to a better understanding of the shopping experience of individuals with anxiety disorder; to provide them with the necessary environmental support as they may be more susceptible to decreased quality of life when completing or managing daily or essential tasks become avoided due to anxiety.

References

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Retrieved November 2021, from https://ourworldindata.org/mental-health

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Organization. World Health Organization. Retrieved June 2022, from

https://www.who.int/tools/whoqol

Welcome

Thank you for your time to participate in this survey. This survey is structured to gain insight into what environmental/design factors within the grocery store causes individuals to feel stress and anxiety to find solutions that can be implemented within the design to reduce anxiety during the shopping experience.

If you agree and are willing to participate in this research survey, please proceed and complete the survey. By completing the survey it will represent that you have given consent to participate.

Survey:

This survey is compiled of 10 questions relating to the grocery store experience and design. Some questions will require a written explanation for your answers. If your answers to the first two questions are "no" please do not continue with the survey.

1. Are you an individual who experiences anxiety? *

○ Yes
○ No

2. Does going grocery shopping make you feel anxious? *

○ Yes
○ No

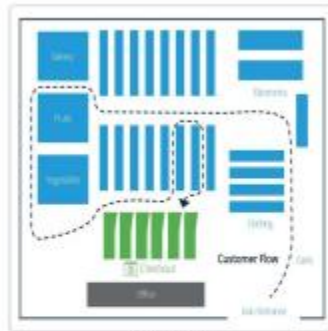3. Do you worry about how you will get to and/or parking before you leave for the grocery store? *

○ Yes
○ No

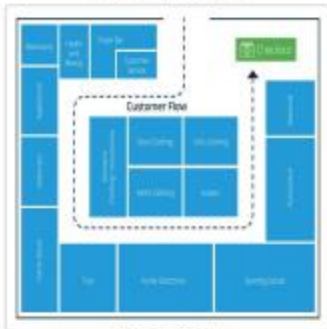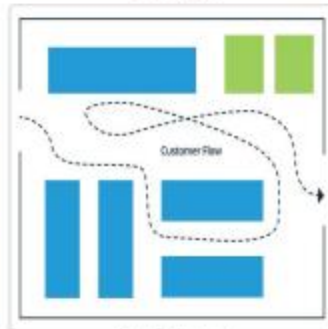4. Which of the following store layouts would you feel most comfortable shopping

Forced Path Layout

Grid Layout

LOOP LAYOUT

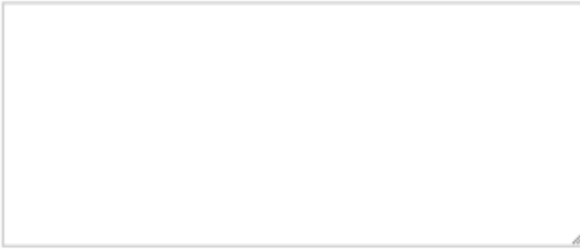Straight Layout
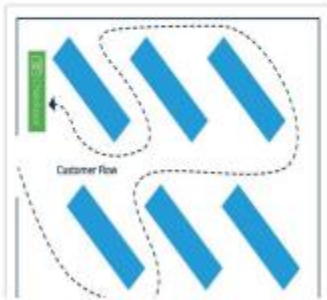
Please explain your choice above here, i.e what is it about the layout you chose that makes you feel comfortable to navigate through *

Characters left: 2000

5. How does each of the following grocery store scenarios affect your anxiety level?

(click to choose one answer)

a) High shelving providing no view to the rest of the store: *

- ⚪ Decreases
- ⚪ Somewhat Decreases
- ⚪ No Effect
- ⚪ Somewhat Increases
- ⚪ Increases

b) Low shelving providing views to the rest of the store: *

- ⚪ Decreases
- ⚪ Somewhat Decreases
- ⚪ No Effect
- ⚪ Somewhat Increases
- ⚪ Increases

c) Using a checkout system where an employee scans your items: *

○ Decreases
○ Somewhat Decreases
○ No Effect
○ Somewhat Increases
○ Increases

d) Using a self-checkout system: *

○ Decreases
○ Somewhat Decreases
○ No Effect
○ Somewhat Increases
○ Increases

e) Having visual access to exits and entrances: *

○ Decreases
○ Somewhat Decreases
○ No Effect
○ Somewhat Increases
○ Increases

6. Which path-finding tools would make you feel more comfortable navigating through the grocery store? (Select all that apply then, justify your answer(s) with a written response) *

Icons & Symbols

Icons & Words

Colour Floor Maps

Colour floor maps & colour coded areas

Please explain your choice(s) above here, i.e why do you find the selected path-finding tools comfortable to use? *

Characters left: 2000

7. Do elements of nature bring you a sense of relaxation? If yes, please select all that apply below. If no please explain why *

◯ Yes

◯ No

*

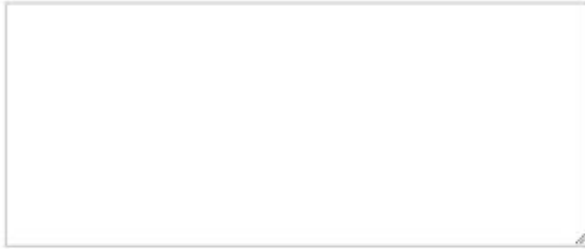☐ Natural colour palettes (colours you would find in nature i.e., blues, greens, beiges,browns etc)

☐ Natural materials (i.e., wood, stone, etc)

☐ Live plants

☐ Water Features

☐ Natural Lighting

ONLY If you selected no, please explain why

Characters left: 2000

8. Which artificial lighting do you prefer? (select your choice then, explain why) *

Warm White

Neutral White

Cool White

Explain your choice *

Characters left: 2000

9. Which music would you prefer to be playing while grocery shopping? You can click on the links underneath options to hear examples of given music types *

- [ ] No Music
- [ ] I bring my own music
- [ ] Classical
- [ ] Meditation with nature sounds
- [ ] Soft pop
- [ ] Binaural beats music

Classical

The Best of Classical Music 🎻 Mozart, Beethoven, Bach, Cho...

▶

Characters left: 2000

9. Which music would you prefer to be playing while grocery shopping? You can click on the links underneath options to hear examples of given music types *

- [ ] No Music
- [ ] I bring my own music
- [ ] Classical
- [ ] Meditation with nature sounds
- [ ] Soft pop
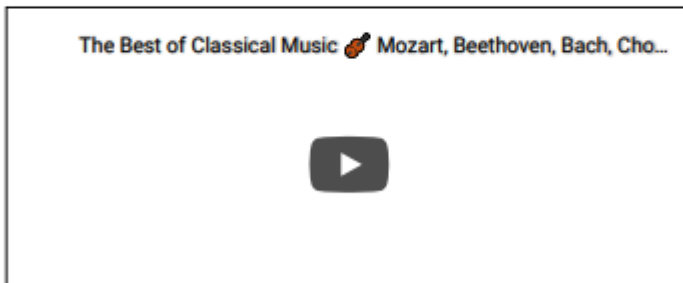- [ ] Binaural beats music

Classical

The Best of Classical Music 🎻 Mozart, Beethoven, Bach, Cho...

Meditation with nature sounds

3 Hour Zen Meditation Music: Nature Sounds, Relaxing Music, ...

▶️

Soft pop

Acoustic Soft Songs 2021 | Best Soft Hits | New Soft Pop Music

▶️

Binaural beats

Happiness Frequency: Serotonin, Dopamine, Endorphin Releas...

▶️

10. Are there any other aspects or elements of the grocery shopping experience/ design that heighten your stress and anxiety that have not been discussed through the previous questions? If so, please explain. If no, leave text box empty *

Characters left: 3000

Submit

Virtual Constructs: Conceptualizing Interiors Through VR Simulations

Lisa Phillips, Thomas Jefferson University

Abstract

Francis D.K. Ching defines a concept as mental idea or image capable of generating and guiding the development of a design. These visually descriptive organizing principles, are created during the first stages of a project, and are created by philosophical, functional, artistic, mood related or stylistic notions, providing cohesion and identity to a scheme. Although the process varies from designer to designer some favored methods of conceptual exploration include sketching, physical models and 3d computer modeling programs. Virtual reality environments, however, have had little formal testing in this application. As such, a study was conducted to determine whether virtual settings can be utilized effectively to develop concepts in an interior design studio. Would the product of these studies be as effective as other methods in generating a final design? Would VR have any advantages or disadvantages compared to the conventional ideation process? In the fall of 2021, fourteen interior design juniors tested Tilt Brush, a 3d virtual reality painting program during the concept development stage of their five-week project to design a tranquility pod. This 400-sf assignment, focused on stress relief for a user group of the student's choice. Individuals created the 3D outline of the building shell within Tilt Brush as a starting point and then painted freely, considering design goals based on their user group. In the case of firemen for

example, their daily routine was chaotic, so the concept was based on an organizational grid. Another student with nurses as a user group decided to introduce layered zones into her concept to generate a gradual de-stressing process. Students recorded their work through a series of still images and videos. Although some adjustments do naturally occur between the concept phase and the final design regardless of the method, ideally the concept directly inspires the end product. When using VR, it was found that the ideations created in the concepts were visible in the final designs as much or slightly more than when traditional methods were utilized. When asked about advantages of using the painting application for concept the class cited that they enjoyed being able to be inside the concept and view it from many different anglesand that it allows you to combine sketching and 3d modeling techniques. Overall, it was observed that students felt free to explore multiple options within Tilt Brush, with the ability to quickly delete ideas that were not viable. Because the software is loose, it didn’t lock students into strict geometries, but instead allowed them the chance to abstractly explore. Despite some minor hardware issues and cybersickness that needed to be worked through, the results were overwhelmingly positive, indicating that there is significant potential to utilize VR in design conceptualization. This presentation would cover the theory, methodology and potential expansion of this experiment. A demonstration of the Tilt Brush application would be an integral component of the lecture and VR headsets would be available for selected audience members to interact with.

References

Ching Francis D K. and Steven P. Juroszek, Design Drawing (Hoboken, NJ: Wiley, 2019), 320.

Roberto J. Rengel, Shaping Interior Space (New York, NY: Fairchild Books, 2020), 264-265.
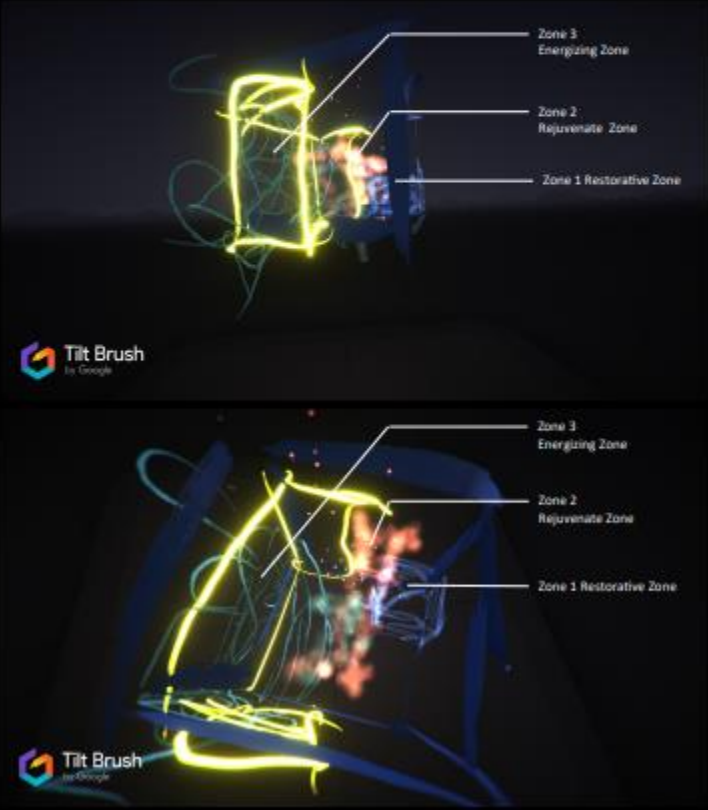
This VR concept was executed in the final design without much variation. Each type of activity defined the spaces. They grew in size, both in plan and elevation and changed in both mood and materials.

FLOOR PLAN

SECTION

Student Example #2

User Group for Tranquility Pod: firefighters

Concept: The user group faces much inconsistency and chaos in their job. The intention of this tranquility pod is to produce predictability through the imposition of a grid and a clean, uncomplicated floor plan to organize the activity zones.
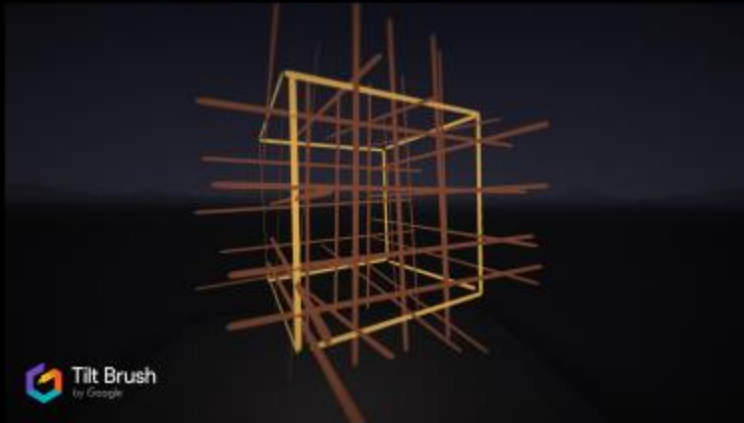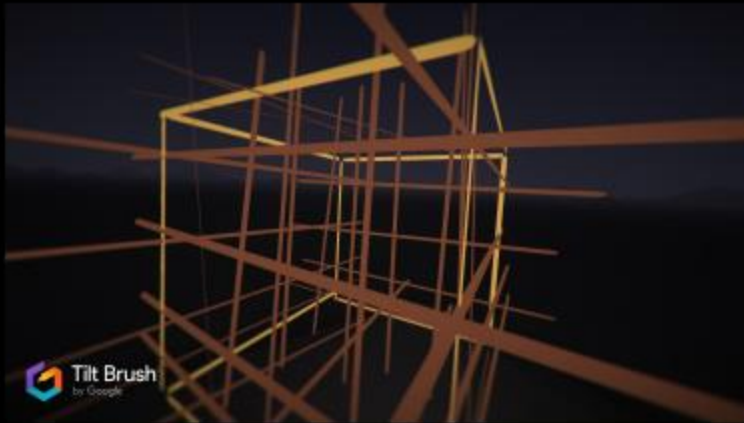
This VR concept was executed in the final design without much variation. Even the ceiling and elevation were impacted by the grid.

Plan

Comfortable seating for relaxing with soft seat

Table surface for journaling with large windows for animal watching

Waterfall wall for sounds of moving water

Ice bath for recovering that feels cool on sore muscles

Boxing area as well as room for stretching and yoga

View in Relaxation Area

View in Active Area

Global Mutlidisciplinary Design Studio with USA and Argentina

Hojung Kim, University of Tennessee, Knoxville

Abstract

The Advanced multidisciplinary design studio was a collaboration between the university in the United States and in Argentina. Tim Brown from IDEO emphasized the importance of team collaboration. The increasing complexity of products, services, and experiences has replaced the myth of the lone creative genius with the reality of the enthusiastic interdisciplinary collaborator. The best design thinkers simply work alongside other discipline; many of them have significant experience in more than one. The co-pilot program proposed students elaborate projects in two specific sites: Fulton District, Chicago (USA) and Mercado Victoria, Blanca (Argentina). The studio aimed to explore, question, and redefine design from the vantage of cultural, material, and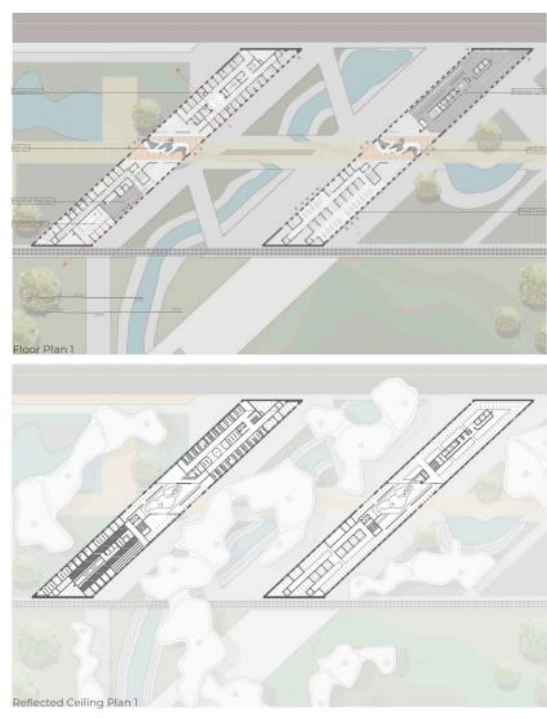 energy sustainability. There were four main objectives to reach throughout the studio: The first goal was to recognize the collaborative team efforts from two different universities in the Northern and Southern Hemispheres. Teamwork strategies encouraged students to work together despite their language, cultural, and educational background differences. The challenge was to communicate and form an idea through constructive discussions and execute the statements in architectural language. Solely relying on online platforms such as Zoom, Mural, and Microsoft Teams became the primary communication tool to overcome language barriers and create an open dialogue between the team members.The second objective for the studio was to

approach the distinctive contextual site as an urban intervention. Data-driven research of the site's physical, environmental, social, economic, and cultural analysis framed program proposals. Existing urban conditions from warehouses to the industrial artifacts from historical sites were renovated as an adoptive reusable program.The third goal for the studio was to discover and create a design proposal that initiated from the macro-level of urban conditions to the micro-scale of the interiority of space. The challenge was to recognize the set of contextual issues from both Chicago and Bahia Blanca and apply the discovery as a design tool for creative alternatives. After the midterm, the urban plan was scaled down to architectural and interior spaces to reflect environmental and social development. The final agenda was to understand the effect of materials and construction on the synthesis of architectural form and space. Students were to develop an appreciation in design for ethics of sustainability in the choice of materials, regional site conditions, renewable materials, embodied energy, climate appropriateness, and aesthetics. At the end of the semester, the studio responded to a wide variety of geographical locations to develop a thesis project sensitive to the regional programs and site contexts. Appropriate critical interpretation of the materials, space, and construction techniques of the chosen region was an essential aspect of the design investigation and evaluation of the project. Analysis of alternative and iterative design strategies as well as the demonstration of independent thinking and self-initiative in team collaborations were strongly applied between the two different universities.

References

[1] Brown, T. (2008). Design thinking. Harvard Business Review, 86(6), 3

Indoor Nature Path
Wildlife Center

Primary Healthcare
Center Clinic

Clinic Office Space

Indoor Nature Path
Wildlife Center

Hydrotherapy
Center

Physical Therapy
Clinic

Section Perspective A

Section Perspective B

Floor Plan 1

Reflected Ceiling Plan 1

RESEARCH

Affordable Housing
Locations of affordable housing in the Near West Side of Chicago

★ Affordable Housing Unit(s)   Fulton Market District Boundary

Events   Use   Demand

Community
Areas below the poverty line

Segregation
Impoverished neighborhoods + Food scarcity + Transportation

RESEARCH

A Garden City

Land Use in
Fulton Market

FULTON RIVER DISTRICT

WEST LOOP   FULTON MARKET

GREEKTOWN

Transportation
Neighborhoods + L routes

Segregation
L routes + waterways + Food deserts

04
Iterations

- Level connectivity
- Public space connectivity
- Ramp to Riverfront
- Varying inclines
- Column structure
- Organic form
- Structure disrupting grid
- Various Circulation paths
- Focal Point
- Multi-directionality
- Water / green features

04
Form Development

Highest

Lowest

05
Plan

LARGE SCALE PLAN

05
Overhead Condition

Christo and Jeanne Claude

Textile and Bio-climatic Facades

Frontside View 381

Specifications:

Thermal and visual protection

Blocks 78% of solar heat

Light Bio-climatic Design

100% Recyclable

Withstands: rime, heat, rain, snow, wind, UV

Fire and impact resistant

Acoustic performance

LARGE SCALE PLAN + OVERHEAD

05
Umbrella Irrigation

An irrigation system that recycles rain water and snow in water greenery

05
3D Axon

8. Buildings
7. Overhead Structure
6. Interversion
5. Elevated Trains
4. Train Station
3. Sidewalks
2. Streets
1. Chicago River

05
Exploded Axon

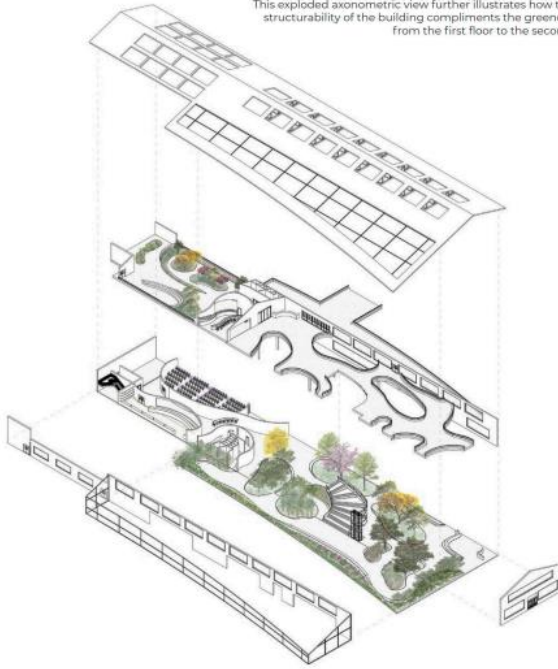Overall Structure

Structure Detail

05
Sections

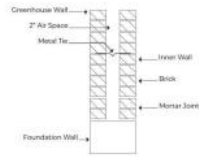Transverse Section 3

Transverse Section 2

EXPLODED AXON

Exploded Axon

This exploded axonometric view further illustrates how the structurability of the building compliments the greenery from the first floor to the second.

SECTION

Section

Greenhouse Wall

2" Air Space

Metal Tie

Inner Wall

Brick

Mortar Joint

Foundation Wall

Examining the Intersection of Making and Design Through Pedagogical Methodologies and Curriculum Opportunities

Jordana Psiloyenis, Wentworth Institute of Technology

Abstract

This abstract explores flexible and creative pedagogical methods to introduce and emphasize the craft of making within Interior Design pedagogy and curriculum opportunities. Through 3D digital visualization software, the skill and acknowledgement of the importance of the handmade has become less of a priority as curriculum and Interior Design Pedagogy moves towards Virtual Reality, digital space, and the immediacy of design: While scaled modeling maintains a place in architecture and interior design education, and while computers will continue to be employed for their simulating capabilities and exactitude, it is increasingly evident that the tangible, in-depth understanding of material properties, physical constraints, and phenomenological attributes that are central concerns to the design of the built environment are undernourished in our current educational practice. So how can creative pedagogy and curriculum reconfigurations be used to bring makers into Interior Design? As a direct response, physical model-making has been introduced to the curriculum as a means of analytical and creative design thinking through a series of projects. Typically, throughout Freshman year, abstract models are explored; however, as projects in interior design lend themselves to more real-time challenges, the craft of model making quickly

transitions to digital 3D visualizations. Because of this, there has been a push to integrate the craft of physical model making as part of the Sophomore year curriculum. The following are recent projects that have been integrated with that objective. Screen design: this project focuses on the creation of architectural screens that reflected a given global tribes people or cultural group. In teams of two, students not only had to research the importance of symbolism, geometry, and color, but implement it in a meaningful architectural screen design. As part of assignment requirements, the students were required to be trained through in-house asynchronous measures to learn about software and equipment. Deliverables included scale models, slide show presentation and posters that showed design solutions. Study models were encouraged as part of their learning experiences, emphasizing digital drawings and renderings as final imagery only. Anthropometric considerations were mandatory. Final Projects were critiqued by Interior and Industrial Design faculty. Because students were already trained in use of the laser cutter and 3D printers, the next assignment called for a physical model at the scale of the student's choice as a deliverable. This allowed for a continuum of model making expectations throughout the entire semester and a platform in which students could start incorporating model making as part of their design process. In conclusion, this cohort will be expected to produce physical models for all projects moving forward; not to create professional craftsmen or fabricators but to instill an understanding of the diverse and reciprocal relationships between materiality and architectural and interior design.

References

Sweet, Tonya . 2013. "Instilling an Awareness of Phenomenology through a Craft-Centered Design Pedagogy." The International Journal of Design Education 6 (2): 31-39. doi:10.18848/2325-128X/CGP/v06i02/57905.

- Screen attachments – can be designed and executed separately. Think about what this will look like – how the screen attaches to ceilings, walls, floors etc. What materials?
- Modular requirements and pattern repeats (if applicable)

FINAL PROJECT REQUIREMENTS

- Complete a comprehensive design that supports your concept. Think about your screen in its entirety including its materials.
- Scaled physical model of the entire divider.
  - Minimum (1) 1"=1'-0" scale model showing pattern, frame, and any other applicable components. Use an opening in a wall of 6'-0" in width by 10'-0" by height.
- 3D physical model of the fastener in full scale (extra credit – 5% of the project for additional points)

- Slide show presentation: digital file (one pdf); refer to examples in class
  - Title page
  - Introductory pages; research summary, concept, story telling.
  - Minimum (2) rendered 3D images with human scale figure.
  - Axon with dimensions, include some form of surrounding space with no materials
  - Elevations: black or white or with color; include all dimensions
    - (1) showing screen in 6'x10' opening
    - (1) showing screen repeating
  - Details: Create sections, details, elevations that can be used to manufacture the screen; Key details on associated drawings
    - (1) plan section, (1) vertical section: for example, 1'=3" (1) at top of screen, (1) at bottom of screen
    - 3D printed fasteners, or key components at full scale 1'-0" = 1'-0"
- Poster: Printed in 24"x36", reorganize the images and texts for the format given.

By 1/17/2022, please complete the online training for both the 3D printers and the laser cutters. There will be a session by the Lab Director wo will explain details in class 1/10.

MODULAR INTERIOR ROOM DIVIDER DESIGN (Module 1 – Group Project)

Teams of 2

Complete a comprehensive design of an interior room divider. This screen should be designed to divide a room with a variety of widths of openings and heights of ceilings – think about repeating, folding, stacking, etc. All components of the screens should be thought out clearly and concisely.

Design = Find inspiration from the following cultures assigned to your Team. This can involve patterns, colors, shapes, etc. Be creative!

CULTURE STUDY AND PRESENTATION = 1/24/2022 in class, 10% of the project grade, Slide show presentation in class

Global / Cultural Categories

Africa

1. Fulani Culture
2. Bantu Culture

Europe

3. Celtic Culture
4. Greenlandic Inuit
5. Roman Culture
6. Slavic Culture

Middle East

7. Iranian Culture / Persian Culture

Asia

8. Yamato Culture
9. Kannadiga Culture
10. Korean Culture

Central & South America

11. Costa Rican Culture
12. Yagua Tribe

Components to Consider:

- Screen Design – pattern, material, % of open vs closed area, scalability.
- Screen Frame – Take the time to consider what material the frame is, how the frame and the screen interact, are attached to each other, etc.

- Screen attachments – can be designed and executed separately. Think about what this will look like – how the screen attaches to ceilings, walls, floors etc. What materials?
- Modular requirements and pattern repeats (if applicable)

FINAL PROJECT REQUIREMENTS

- Complete a comprehensive design that supports your concept. Think about your screen in its entirety including its materials.
- Scaled physical model of the entire divider.
    - Minimum (1) 1"=1'-0" scale model showing pattern, frame, and any other applicable components. Use an opening in a wall of 6'-0" in width by 10'-0" by height.
- 3D physical model of the fastener in full scale (extra credit – 5% of the project for additional points)

- Slide show presentation: digital file (one pdf); refer to examples in class
    - Title page
    - Introductory pages; research summary, concept, story telling.
    - Minimum (2) rendered 3D images with human scale figure.
    - Axon with dimensions, include some form of surrounding space with no materials
    - Elevations: black or white or with color; include all dimensions
        - (1) showing screen in 6'x10' opening
        - (1) showing screen repeating
    - Details: Create sections, details, elevations that can be used to manufacture the screen; Key details on associated drawings
        - (1) plan section, (1) vertical section: for example, 1'=3"
        - (1) at top of screen, (1) at bottom of screen
        - 3D printed fasteners, or key components at full scale 1'-0" = 1'-0"
- Poster: Printed in 24"x36", reorganize the images and texts for the format given.

Yamato Culture

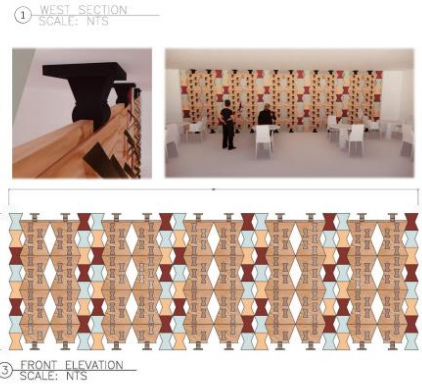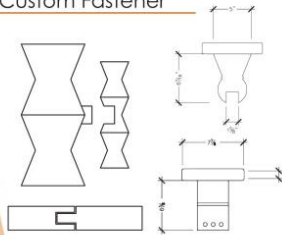## Japanese inspired screen

Concept

This screen embraces elements drawn from the rich and transformative culture of the Yamato Period in Japan. Motifs chosen are inspired by the key architecture of the time. The overall design includes sharp angles and crisp lines to contrast the organic shapes of the custom hardware. Soft, yet bright shades of paint are used on top of a light Japanese cedar wood to help bring in materials specific to the era. A bronze metal will be utilized to emphasize the shape of the cutouts made to allow light to pass through. This adds a visually stunning accent that draws the eye in and transports the viewer back to the era in a unique and abstract way.
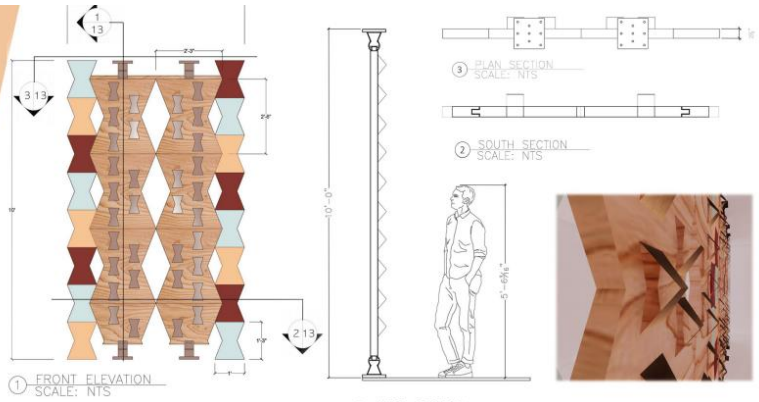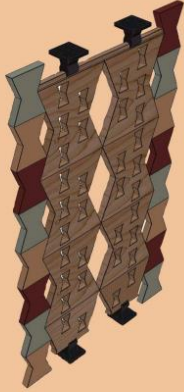
Paint in Antique Jade	Paint in Bolero	Paint in Vivid Beauty	Satin brushed bronze metal	Japanese cedar wood

FRONT ELEVATION
SCALE: NTS

PLAN SECTION
SCALE: NTS

SOUTH SECTION
SCALE: NTS

WEST SECTION
SCALE: NTS

Custom Fastener

FRONT ELEVATION
SCALE: NTS

Layered Media: Defining Interiority in Scenic Design

Michelle Pannone, Marywood University

Abstract

Scenic design affords the opportunity for interior design students to explore the topic of interiority within the theatrical space. Interpretation of an interior space is conceived through narrative and character, and meaning is created through a material and immaterial layering rather than through explicit realism.This abstract discusses an interdisciplinary collaboration between architecture and theatre with the objective of fabricating a set for use in an university production. Pamala Howard, in her book What is Scenography?, says this about the architectural nature of scenic design: Scenography is the actual realization of a three-dimensional image in which the architecture of the space is an integral part of that image.The spatial image on stage is not purely decorative. It is a potent visual image that supplements the world of the play that the director creates with the actors in the space. To know how to release the space demands a profound understanding by the scenographer. Exploration and discovery of multiple points of intersection between the principles and practices of scenography and interior architecture are paramount, creating a built environment that satisfies the aesthetic vision and practical needs of stakeholders in both disciplines. Much as actors perform amidst a fabricated set, users of the built environment become performers themselves, broadening their sense of stage and activating their own delight. The creation of space and/or atmosphere is vastly dependent upon the formation of layer

perception; the act of physically layering materials frames specific views of interaction amongst users. Furthermore, the incorporation of furniture exploration within architecture and theatre invites both users and actors to explore how one might circulate or engage within spaces. The examination of interiority, a notion considering what it means to be within the interior, is derived from interior architecture, but also proves useful for the interpretation and translation of related concepts within theatre. Through this investigation, connections have been made regarding user experience and circulation through the theatrical concept of blocking. In interior architecture, the particular inhabitants of the built environment are considered for the purpose of determining their circulation and experiential moment within a space. In theatre, character and narrative analysis informs the process of blocking, to establish choreographed movement patterns of the actors on stage. The process of blocking presumes a similar fluidity of movement as the concept of circulation on stage. Blocking comparably takes into consideration the way actors interact with not only each other, but also the set, and the manner in which that movement, or circulation, may affect the audience's perception of characters, of specific narrative moments, and of the themes of the play as a whole. Additionally, discussions regarding materiality and lighting transpire with respect to both disciplines, with the intent of evoking viewers sensory perception in specific ways through the establishment of atmosphere. Ultimately, the material translation of dramatic themes through the dynamics of interiority creates spatial configurations that are a result of narrative and thematic imperatives in the play, thus enhancing and deepening the experience of the audience.
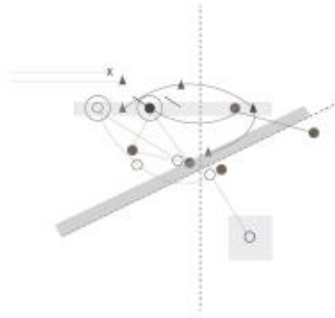
References

Pamela Howard, What is Scenography? (London: Routledge, 2002), 15.
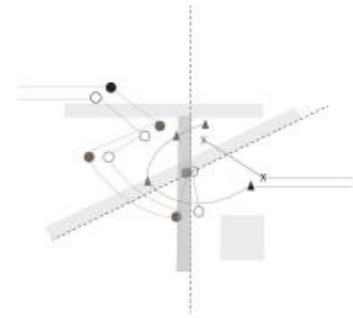
SPACIAL DEVELOPMENT INTERPRETING FORMS

ACT ONE
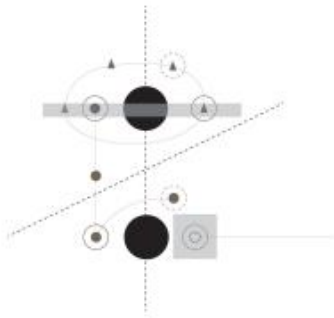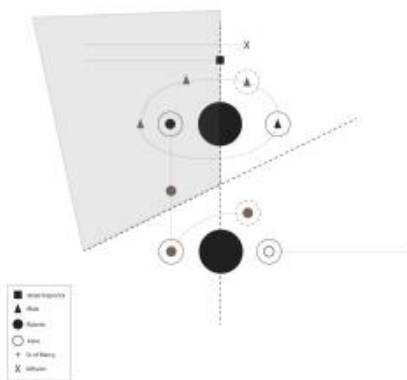
ACT TWO

ACT THREE
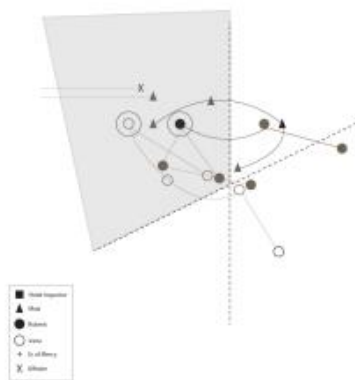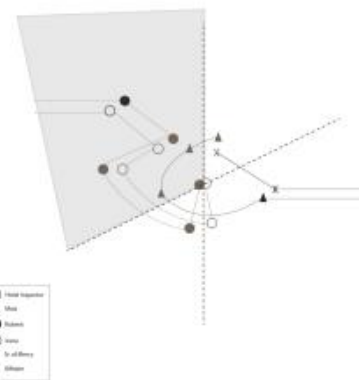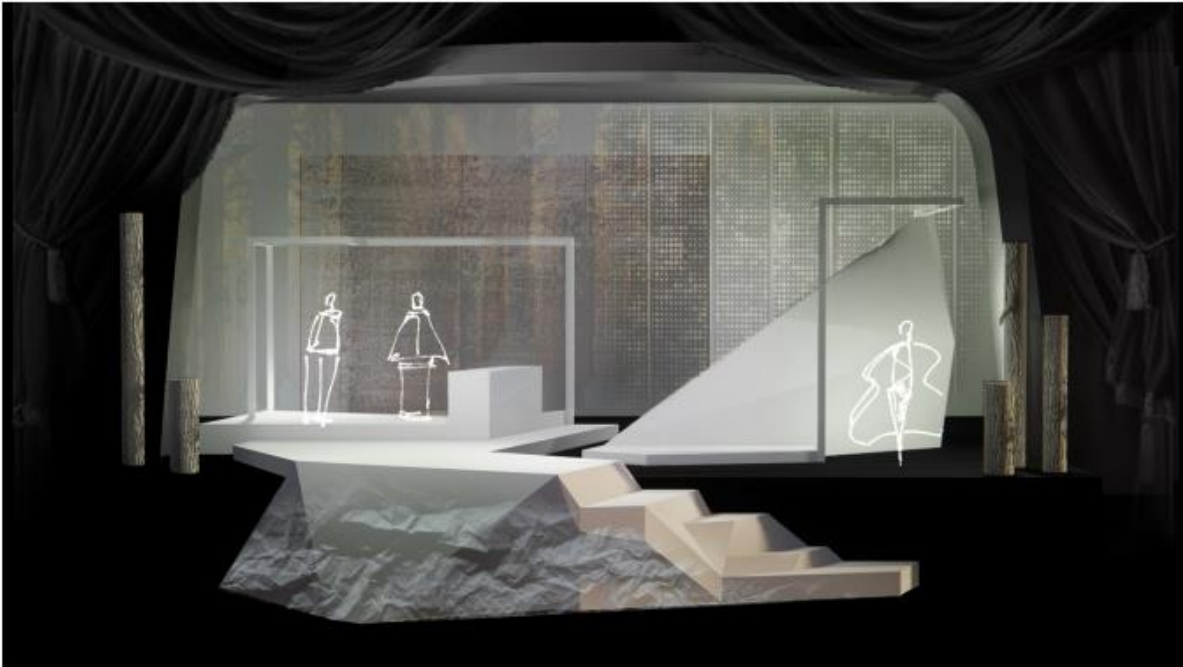

BLOCKING CHARACTER DEVELOPMENT

ACT ONE

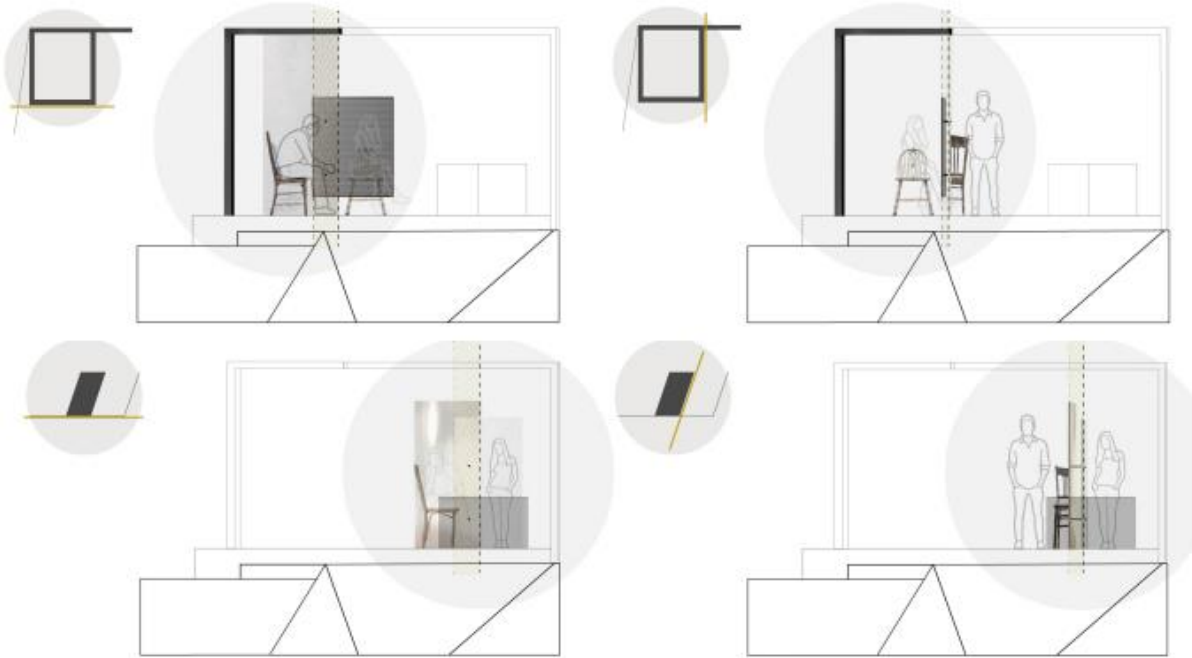**ACT TWO**

ACT THREE

ATMOSPHERE CONCEPT RENDER | LAYERING • TEXTURE

MATERIAL CUES FRAMING BOUNDARIES
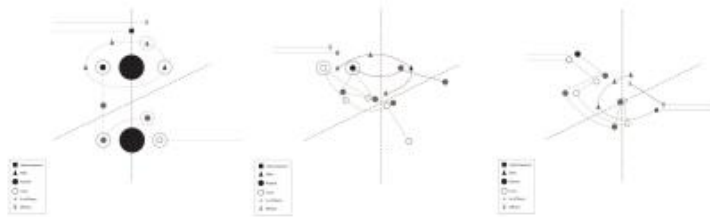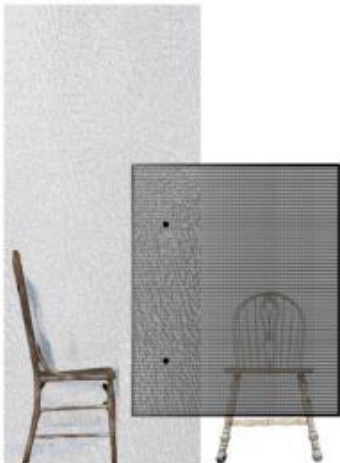
MATERIAL CUES

Future Proofing Interior Architecture: Technology and Material Explorations

*Michelle Pannone, Marywood University*

Abstract

In reality, the time frame from a design idea through completion of a space can take several years. From the moment that the pencil hits the paper it is in danger of being outdated by the time of completion. For this reason, it is imperative that students are prepared to innovate, proposing designs that exceed the needs of the users and speculate the future of inhabited spaces. How might we prepare students with the tools and skills that enable students to be innovative and prepare for working and designing in an ever-changing landscape? Pradeep Sharma (2013, 231-232) explains that creativity is one of the key principles to innovation, stating. Look at invention, innovation, and entrepreneurship as a series of activities. Quite simply, creativity is the behavior that animates the innovative process. Students benefit from understanding design theory, the effective use of digital tools, and the structural and physical limitations involved in designing spaces for people, but creativity is ultimately what enables a designer to truly innovate rather than just reproduce. Within the interior architecture course sequence this studio focuses on the intersection of human and object acknowledging that concepts of form, space, light, color and material are a starting point for defining interior environments. Emphasis is given to innovative approaches to interior environments that foster making, learning and discovery. This semester-long

project is outlined by a series of Press Releases introducing students to the fictitious competition occurring in the year 2090 while introducing terminology such as a Request for Qualifications (RFQ) and a Request for Proposals (RFP). The competition asks students to respond to the discovery of a new material that has become an invasive species rethinking how this material may be used as a column grid by which to structure the program of a Sensory Institute. By experimenting with a fictitious material, the students are free in their manipulation and proposals without the confines of an inherent understanding of the properties. In a sense they are permitted to play within this fictitious environment, and come up with creative ways of interacting within the material framework. Play gives us freedom to understand the science and technology that are behind what seems magical: there is no right or wrong in play, only experimentation. Play allows us to explore novel spatialities that might only last for short periods of enjoyment, but these experiences also indicate one possible future for spatial design in which technology does not prescribe behaviors but rather provokes unexpected ways to engage with space. (Duarte and Alvarez 2021, 86) Echoing this sentiment, the power of play as a driving force for creative and innovative thought is observed in the coursework of the case study studio. As the students explored this material, spatial discoveries were augmented into experiential sequences and programmatic innovations. Furthermore, it is through this removal of familiarity and introduction of the unfamiliar that creative spatial proposals emerge. As students played, imagined, and created with spatial delight as the objective, creativity is fostered, positioning students to act as innovators.

References

Duarte, Fabio, and Ricardo Alvarez. Urban Play: Make-Believe, Technology, and Space. Cambridge: The MIT Press, 2021.

Sharma, Pradeep. "Acting into the Unknown." In The Art of Critical Making, edited by Rosanne Somerson and Mara Hermano, 230-243. Hoboken: John Wiley & Sons, Inc., 2013.
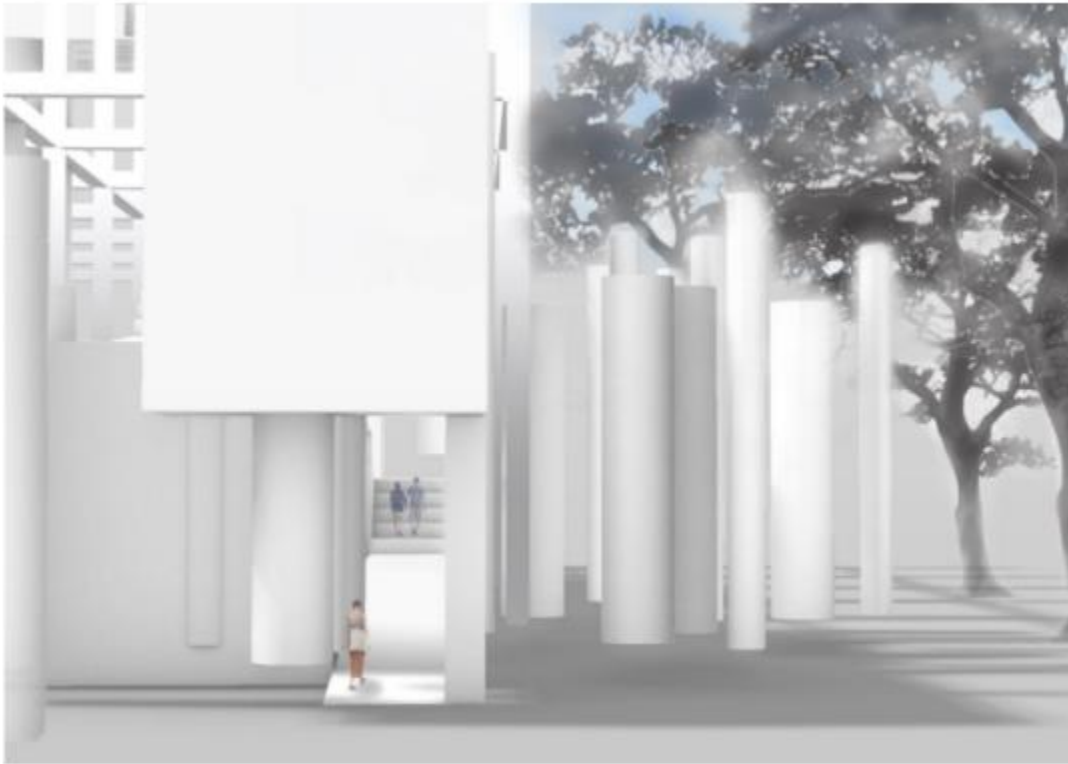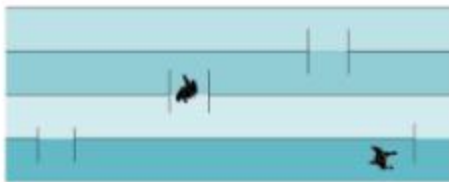
Sensory Encounters

Teaching Design Representation: Critical Examination of Conventional Techniques Through a Contemporary Lens

Anna Gitelman, Suffolk University

Abstract

Interior Design representation is a language and a source of ideas and visual theorization. Regardless of the media, representation is a creative, vital, and organic process that leads both to the development of a design and the speculative exploration of the projects extended possibilities. It is not a conclusive index of the design already completed. Rather, representation is integral to the design process and the production of interior design it is an active participant in exploring and making. It occurs in multiple instances and forms along a project's evolutionary path. Though not always resulting in the finished design concept, representation techniques selected to visualize ideas influence the evolution and outcome of the design process. The final design work inevitably bears the traces of its representational origins. This presentation examines the state of contemporary design representation and discusses a new teaching methodology that was developed to enhance students' representation skills and encourage analytical thinking in the design process. This research resulted in the development of a new course sequence that starts with the analysis of conventional representation techniques and their intentions. Using this knowledge as a platform, the following topics pivot to consider representational themes emerging in response to the contemporary context those that explore the limits of traditional representation and

question what each offer for the present. This course sequence allows Interior Design students to explore tools of the trade the media with which designers work. While tools have evolved and expanded considerably in recent years, drawings and models remain the primary media of the designer in developing, representing, and executing a design concept.   Just as a building is composed of a series of independent systems that together construct a built environment, the drawing can be understood as archeology of lines consisting of multiple layers and ideas within a surface that together imply the third dimension. It is the range and relationship of these lines within a drawing that can establish complex contextual, spatial, proportional, and dimensional relationships that are embedded within the development of a design concept. Physical models made from paper or cardboard have the ability to explore volumetric and spatial relationships and, to understand scale and proportions. Though often freed from materiality, cardboard or paper models can suggest fluid conceptual associations between unlike materials but whose properties encompass similar characteristics. The computer not only enables alternative modes of representation through 2-D and 3-D modeling but also allows (through the use of applications) to program a wide range of machinery to produce highly complex combinations of forms that exceed the normal graphic and modeling capabilities of standard analog techniques. These models give the designer the freedom to study form from a variety of perspectives and facilitate the study of form within its environmental, perceptual, and physical context. Examples of students work and class assignments will demonstrate the exploration of these conventional techniques as well as contemporary critical stances in relation to these techniques.

References

Cook, Peter. Drawing: The Motive Force of Architecture (Architectural Design Primer 0. Chichester, England: John Wiley & Sons, 2008

Norberg-Schulz von. Le Corbusier, Elements of a Synthesis. Cambridge:MIT Press, 1979

Perez-Gomez, Alberto. "The Space of Architecture: Meaning As Presence and Representation." Questions of Perception: Phenomenology of Architecture. San Francisco, CA: William Stout, 2006
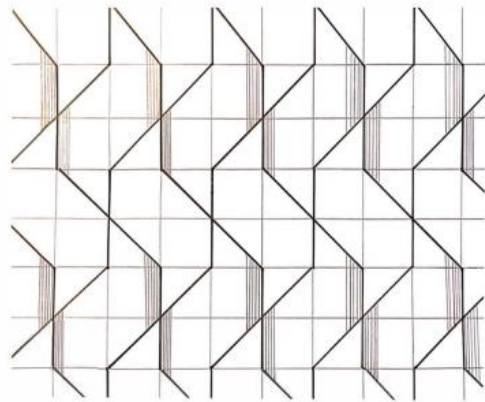
Simitch, Andrea and Warke, Val. The Language of Architecture. Rockport Publishers, 2014

ASSIGNMENT 1.1:
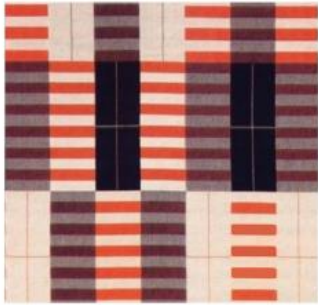**FREEHAND LINES**
Control hand to draws the straight
lines. Practice control. Practice various
lines of different widths, different types.

ASSIGNMENT 2.1:
FIELDS CONSTRUCTED
Using the geometric knowledge create three
Repeated graphics.
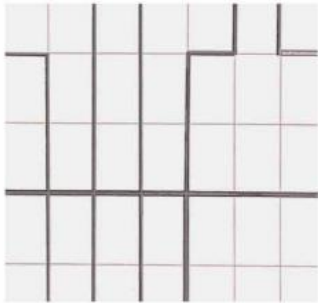
ASSIGNMENT 3.2 : LINES AND PLANES
Use line color to identify space

ASSIGNMENT 4.1 : THE CUBIC CON-STRUCT

Construct three three-dimensional models
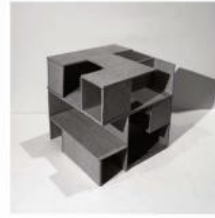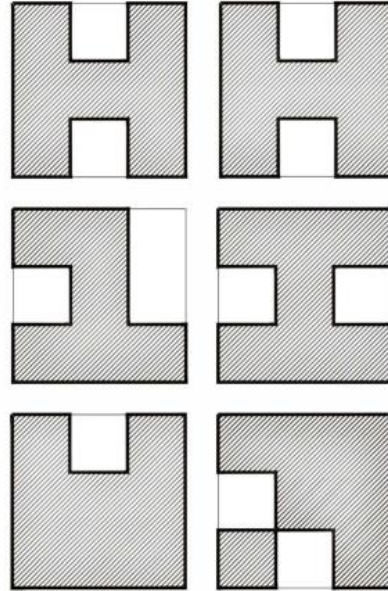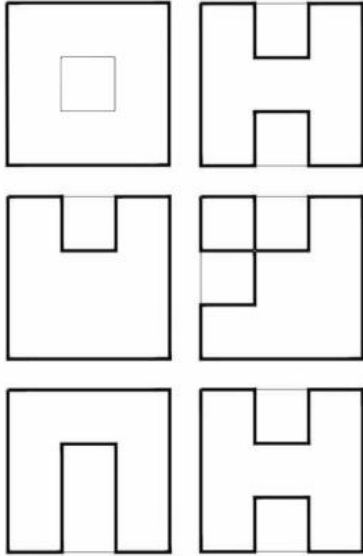
**ASSIGNMENT 4.2: THE CUBIC CONSTRUCT -
PROJECTIONS**

Construct three three-dimensional models
Draw 6"x 6"x 6" cube at 1:1 scale in CAD, document volumetric and
planar relationships within cubes.

VIEW 1
This view shows
the view of a child's
height looking under
the stairs. This view
is in the evening.

VIEW 2
This view highlights
the podium mez-
zanine and its partial
function as a stage.
This view is in the
evening.

VIEW 3
This view highlights
the entry into the
temporary library
space.This view is in
the evening.

VIEW 6
View 6 takes place
during the day and
showcases a family
nook in the library.

PARTIAL VIEW 3
This view shows a child
utilizing circular seating.

Virtual Reality, A Tool for Accessible Design: Benefits and Challenges of Adopting VR in a Design Studio Setting

Jisun Lee, Michigan State University
Marjan Miri, University of Arkansas

Abstract

Virtual reality enables a fully immersive virtual environment, which is decorrelated to user space and allows users to interact with virtual objects (Parveau & Adda, 2018). VR can be used as an effective design tool, providing realistic experiences of spaces resulting in a greater understanding of the architectural atmosphere, which traditional 2D drawings struggle to convey (Hermund et al. 2018; Pamungkas et al. 2018). Despite the benefits VR could offer, little study has focused on how VR can be adopted as a useful design tool in an interior design studio setting. This funded project aimed to investigate the extent to which VR can help improve students' design ability and spatial understanding in developing a multi-unit elderly housing that respects accessible design principles. The Department of Justice published accessibility standards referred to as the Americans with Disabilities Act (ADA). It is required to adhere to the ADA standards as minimum requirements for accessible design in the design profession, but students often struggle in learning and applying the standards with limited design experience. Therefore, we adopted VR to help enhance students' spatial understanding of the required dimensions, proportion, scale, and relationships between spatial elements that comply with the ADA standards. Students were assigned to design an elderly multi-

housing which included three different unit types: assistant living, independent living apartments, and hotel rooms for visitors. Three communal space designs were also included in the scope of the work. A head-mounted display (HMD), Oculus Quest 2, was available per student throughout the design process. Directly connecting an HMD to their laptops via Revit and Enscape, students had immersive virtual experiences of their 3D model spaces in each design stage, i.e., preliminary design, schematic design, and design development. They were asked to experience the spaces related to the accessible routes, toilet and bathing room, and kitchen requirements. The tasks included proposing inclusive design ideas, examining the required clearances and elements, and correcting errors after virtual experiences. After project completion, we conducted a self-administered survey to investigate students immersive virtual reality (IVR) experiences to investigate the benefits and challenges of employing IVR for accessible design. 23 second-year interior design students participated, and 18 completed responses were collected. We examined how IVR helped them get better knowledge and understanding of spatial qualities complying with the ADA standards. Students responded that IVR enhanced their interaction with the environment and improved their understanding of the relation of the body to the environment. They also replied that IVR helped them develop a better spatial understanding of the ADA-compliant clearances and the depth, width, and height of the ADA-compliant elements. Students found IVR was more helpful for examining the changes than applying changes to their design errors. Regarding the challenges, some reported technical difficulties of connection, hardware limitations causing glitchy displays, and slight motion sickness. The findings suggest the associated benefits of employing IVR for teaching and learning

accessible design and the need for consistent studies to adopt IVR effectively in an interior design studio setting.

References

Parveau, M., & Adda, M. (2018). 3iVClass: a new classification method for virtual, augmented and mixed realities. Procedia Computer Science, 141, 263-270.

Hermund, A., Klint, L. S., & Bundgaard, T. S. (2018). The Perception of Architectural Space in Reality, in Virtual Reality, and through Plan and Section Drawings-A case study of the perception of architectural atmosphere.

Pamungkas, L. S., Meytasari, C., & Trieddiantoro, H. (2018). Virtual Reality As A Spatial Experience For Architecture Design: A Study of Effectiveness for Architecture Students. In SHS Web of Conferences (Vol. 41, p. 05005). EDP Sciences.

Appendix

VR workshop

Middreview

Creative Scholarship – Design as Idea
Presentation

Mountain Laurel: Renewable Energy Art and Design

Mihyun Kang, Pennylvania State University
Phil Choo, Pennsylvania State University
Bruce Logan, Pennsylvania State University
*Anjana Padmakumar, Pennsylvania State University*

Abstract

Climate change threatens human health and economic wellbeing and impacts our interactions with the built and natural environments. Clean energy positively impacts avoiding climate change, and using renewable energy saves energy costs and lowers greenhouse gas emissions. There are growing and urgent needs to enhance energy literacy and empower renewable energy adaptation. Renewable energy art and design is a relatively new type of art and design that generates or harnesses renewable energy for public art and city design. It connects art and design with ecological function and engages us with an energy system for a sustainable future. An interdisciplinary research team developed renewable energy art and design entitled Laurel, which intends to connect us with nature and enhance the experiences of nature in design. The renewable energy art and design inspired by mountain laurel is designed to promote the benefits of solar-based electricity generation, stimulate the imagination, and urge renewable energy adaptation through the form of art and design. The mountain laurel is Pennsylvania State Flower, and this North American shrub thrives in the shade and blooms in late spring and early summer. The mountain laurel is a flower that also acts

as an important element for pollination. It makes this flower a very important element in the flora and fauna of Pennsylvania. It has a symmetric structure, interesting patterns and color variation. Similar to the aesthetic of the flower and mimicking at the ecosystem level, Laurel renewable energy art and design is designed to be a system of structures that absorb solar energy. The configuration of the system is interchangeable and organic, much like the occurrence of the flower itself. In this concept, PV solar cells are used to absorb solar energy, which is then saved in a helium battery to use for a variety of purposes. As the sun sets, the petals of the structure move up, and the energy saved during the day is then used at night to light up the space for visitors. The images Illustrate the proposed installation of the Laurel renewable energy art and design to contribute to transforming spaces into places for visitors meaningful experiences and empowering renewable energy adaptation. The research team will continue to seek out additional funds for the implementation of renewable energy art and design pieces developed and will conduct community workshops with stakeholders to build support toward implementation.

References

None listed.
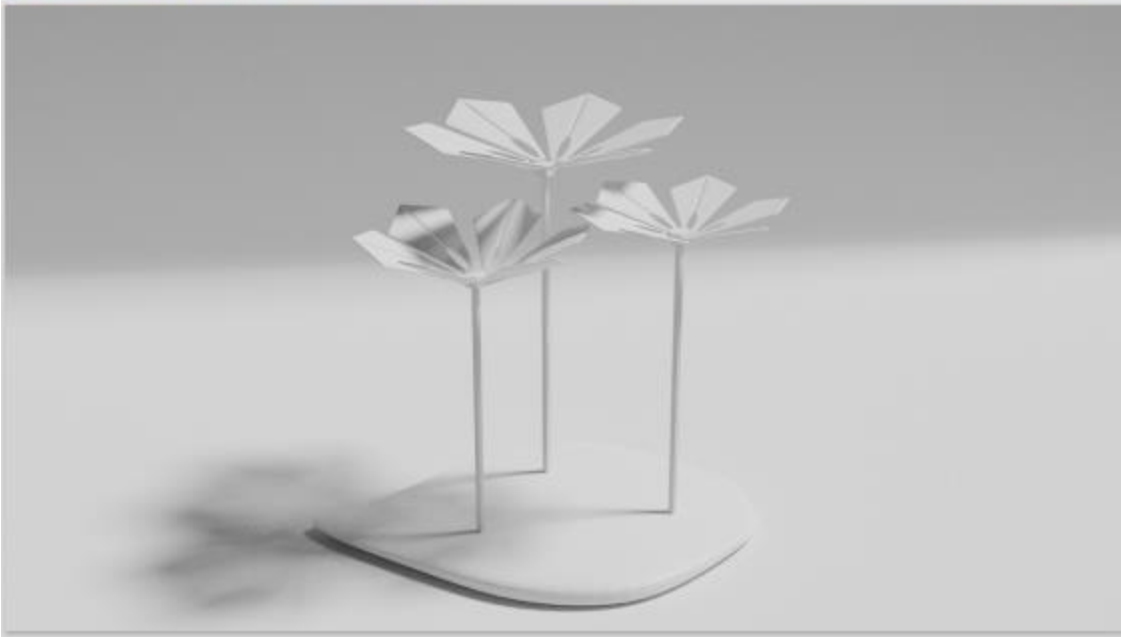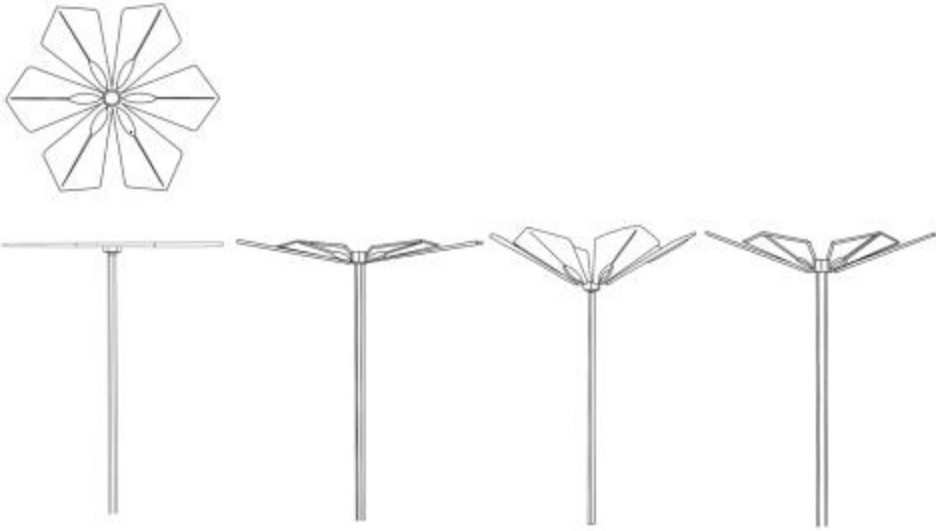
Design as IDEA: Banish the Bubble

Carol Bentel, New York School of Visual Arts

Abstract

A presentation of Interior Design student work based on a method of designing that puts IDEA first above all else - a teaching method I used for thirty years with junior-level students. The students begin with a precedent study of an interior similar to the interior they will be asked to design. The precedent, one considered noteworthy, is broken down into isolated categories: circulation, structure, hierarchy, geometry, etc., until the bare minimum diagram is found the napkin sketch. Then a real site is studied, the space-type is given out, a is selected, and an energy source for the interior is decided based on the climate. The students are asked to bring in three IDEAS to present to their classmates. The students are the critics, which strengthens their own design-eye by being both a student and a critic. The discussion that ensues is about the IDEAS that relate to the given material (site, space-type, client, climate). In addition, the students are asked to draw their ideas as sections or 3-dimensional diagrams, forcing them to avoid the common response of drawing plan diagrams which often create spaces. One idea is selected after this class critique and is applied to a small part of the project a room, if the project is a hotel or a bar, if the project is a restaurant. The method is now to work backward in comparison to the precedent study now working from a bare-bones diagram with the goal of creating a fully developed project. If a student has difficulty

making decisions about their design, they return to the IDEA sketch for their answers. This project is then critiqued based on the student's adherence to the IDEA. Bubble diagrams, adjacencies, and function are not the primary focus but are only discussed in support of the IDEA. Too many designs come from using a two-dimensional plan bubble diagram and then building walls around the bubbles.Then the full project is given out hotel or restaurant and the IDEA is applied again. My presentation will walk the audience through two different student projects using this method and will include commentary from the students about this method of study versus other design studios they have taken. Students from this junior studio have won top prizes in national and international competitions for their work. Adjacencies and function still are well done in this work, but do not dictate the design, but serve as reinforcement of the IDEA. Returning to the IDEA throughout the project gives the student a point of reference that creates consistency in the project, rather than waiting for an idea to suddenly materialize. The student is training their own design-eye to recognize ideas in former designs of note, and then get to exercise the building of a project from an IDEA a napkin sketch. It is a method I have used in my professional career as an architect and interior designer, also for the last thirty years.

References

Dr. Carol Bentel, Dr. Paul Bentel, and Peter Bentel; John Morris Dixon, ed. Nourishing the Senses: Restaurants of Bentel & Bentel (VPB, 2018).

Dr. Carol Bentel, Dr. Paul Bentel, Peter Bentel, and John Morris Dixon. Correlations: Life + Work, Bentel & Bentel Architects (Images Publishing), 2022.

Project Brief

This project is a transitional hotel room designed for a single parent who was incarcerated and their two children. The inhabitants will live in this "HOME" for three months. While working to pay for their lodging is a vulnerable opportunity to make connections and get to know their children more when living together.

Design Intention

"Family" plays an influential role in a person's life, especially for people who were incarcerated. Parents always look after their children since they are born. However, this is the time for children to show their love, help, and support to their parent. With the children's help, they are more likely to get back to the life they hoped to have.

I aim to create an enjoyable spatial experience for the parent and their children to stay and spend as much time as possible. This room is not only a resting space but also a playground for creating joyful memories.

Design Concept- Turning & Merging

The words "Turning" and "Merging" could best represent my design inspiration. Taking two cortical forms - twisted and untwisted, each representing the parent's side (people who have been through trauma) and the children's side. By merging the two cortical forms, creating a typical house shape in the center- symbolizing the two sides of people getting together, people who were incarcerated are ready to be back to their family and farm that I miss book with the hour of their children.

Parti Diagram

The strategy is to create a form of twisting and merging through intersection and addition.
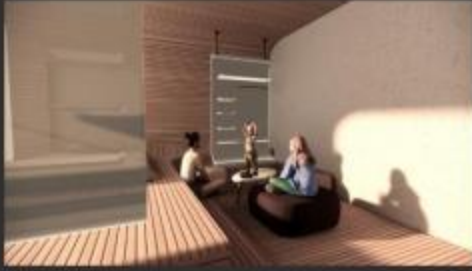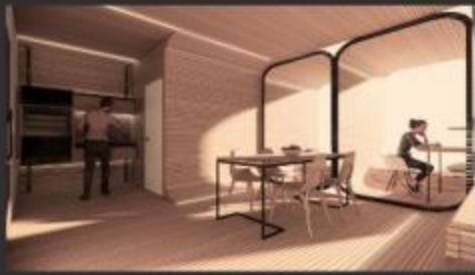
The room's exterior will each be painted orange, yellow, red, and blue and with the combination of black. Incorporating the bright colors to the exterior surface creates an exciting exterior visual experience.

Furthermore, each room is intended to stack together and become a transitional hotel for people who need a HOME during their recovery.

Student Project 2

DAY TIME   NIGHT TIME

YOU BELONG HERE: A Welcoming Reinstallation

Tamie Glass, University of Texas at Austin

Abstract

You Belong Here was the title given to the reinstallation of the permanent collection at a prominent university art institution. Along with this came the opportunity to reconsider not only the museum's major holdings but also the overall visitor experience with the aim of creating a more welcoming and inclusive atmosphere for the museum diverse audiences. The surrounding campus and city had evolved to be alive and more vibrant than ever, and visitors and curators alike wanted the museum to do the same. So, for the first time in over a decade, the museum underwent a significant transformation. The main entry, which looked more corporate than cultural, was strategically addressed to improve it aesthetically and functionally, allowing for a more intuitive check-in process. Upstairs on the main gallery level, new openings were created, and others were closed for better flow and circulation throughout the collection galleries, which were also reorganized for greater clarity. Additional wall partitions provide increased surface area so that nearly twice the amount of art can be displayed, making room for rarely-seen pieces and new acquisitions. All existing gallery furnishings were refurbished, and new contemporary modular seating was added in the communal areas between galleries to create more opportunities for visitors to relax and socialize in the daylit atrium. A revitalized storytelling lounge with tiered seating and maker tables provide more areas

for increased engagement. New wayfinding and environmental graphics bring a fresh, bold approach to aid visitors with orientation. Ever present throughout the redesign was the museum brand promise to provide thought-provoking, visually arresting, and personally moving art experience. For the preservation and protection of the artwork, the museum has strict guidelines and measures in place that meet and exceed best practices regarding UV exposure, humidity and temperature control, and indoor air quality to prohibit airborne dust and toxins. Great care was taken during planning and construction to adhere to these requirements. Finally, all changes to the building were constructed to be reversible, to allow for future modifications (closed door openings can be reopened, the original check-in desk can be reinstated, etc.). Security and visitor services staff were integral to the planning process to allow for the best guest experience while not jeopardizing the museum assets and making the most of the available resources. A primary focus was on creating a memorable environmental graphics system throughout that was budget friendly and able to improve overall navigation for visitors, easing the burden on staff. One of the overarching challenges of this interior project was working at the intersection of art, graphic design, environmental graphics and wayfinding, and interior design. This negotiation between art and design required a different mindset than many interior projects where art is often complimentary to design rather than the primary focus.
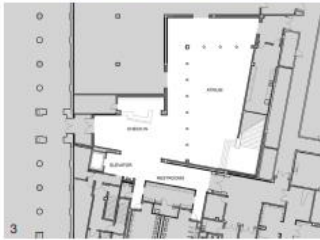
References

None listed.

YOU BELONG HERE:
A welcoming reinstallation

1 Re-skinned check-in desk with supergraphic
2 Check-in - existing condition
3 First floor plan indicating visitor services areas
4 Atrium/mezzanine supergraphic
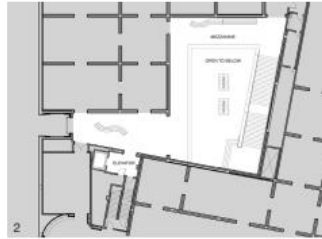
1 Accentuated entrances to restrooms/lockers with artwork previously in storage
2 Visitor services area - existing condition
3 Entrance to restrooms/lockers - existing condition
4 Gender neutral restroom
5 Elevator supergraphic
6 Elevator - existing condition

1 New seating between galleries
2 Second floor plan indicating general purpose areas
3 Mezzanine - exsiting condition
4 Mezzanine supergraphic and new gallery entrance
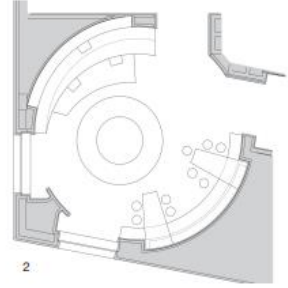5 Elevator lobby with "You Belong Here" artwork by
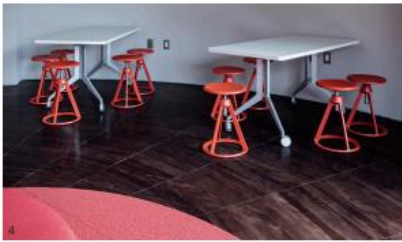Tavares Strachan

1 New entrance to European Galleries
2 European Galleries with refurbished seating and new paint colors
3 Galleries and seating - existing condition

1 Lounge - existing condition
2 Second floor plan of lounge
3 Concept sketch
4 New maker area in lounge
5 Refurbished furnishings and new tiered seating for storytelling

Looking Back to Inform the Future: Exploring Culture and Territory in U.S. Birthing Environments

Natalie Holmes-Mitchell, Kean University

Abstract

Birthing is a unifying life event in its significance worldwide, but its related cultural norms, processes, symbolism, and beliefs vary between different communities and ethnicities. There is an innate need for safe, secure, and private birthing locations, which may be interpreted differently by cultural context and tradition (Nilsson et al., 2020). Pregnant and birthing people often have an urge to nest, relating to a safe, secure place, and can suggest territory. Territoriality is a communication tool indicating control and other factors (Augustin et al., 2009, 99). Ulrich's Theory of Supportive Design requires (3) factors for wellness through interior design: a sense of control, access to social support, and access to positive distractions (Ulrich, 1997). Stress impedes hormone levels which may lead to birthing difficulties, so all factors to support a calm birth with optimal birthing hormones are essential, including environmental elements (Nilsson et al., 2020). There have been historical examples of medical violations against Black, Indigenous, and People of Color (BIPOC), without consent, such as the Syphilis Study of Tuskegee, forced sterilization of Native Indian and Black women, and the use of Henrietta Lacks cancer cells. Such travesties have created a legacy of medical mistrust for some BIPOC communities. This poster and study aim to show the historical evolution of U.S. typical birthing environments in parallel with those

for BIPOC, consider cultural contexts and environmental psychology to identify opportunities for positive design interventions. The Appendix timeline indicates some of the birth-related experiences through time for various ethnicities and will be further developed. Due to the many diverse ethnicities and tribes in the U.S., a sample of BIPOC groups is being included in this ongoing study. Consideration by community or ethnicity is valuable as they represent a sample of the Black, American Indian, and Alaska Native birthing people in the United States who are 2 to 3 times more at risk of death during pregnancy, delivery, or within a year of birth than Hispanic and White as seen in Appendix Graph 1. Additionally, the rate of U.S. pregnancy mortality has a long-rising trend that disproportionately impacts BIPOC communities, as indicated in Appendix Graph 2. Peer reviewed articles and grey literature were gathered from online databases and libraries. The review found plentiful obstetric and nursing history articles of all birthing people as one subject group and cultural histories for some BIPOC, but little intersection between the two subjects. Also, much-valued research is being conducted regarding medical and public health factors and maternal mortality, which is multifaceted and complex. However, research into the built environment's relationship to birthing was partly lacking, though some identified the importance of windows, views, room shape, positive distractions, and controls (Nilsson et al., 2020). A study of Aboriginal births in British Columbia emphasized the connection of the native land, which is integral to the communities beliefs. It found that when birthing people were removed from their land, they tended to experience isolation and disconnection (Kornelsen et al., 2010).

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APPENDIX

A Timeline of Birthing in the United States (I)

Comanche Native Indian Birthing

NLM/Science Source/SCIENCE PHOTO LIBRARY

American Pioneer Birth Scene

Gustave Joseph Witkowski

Pain relief began to be administered to the wealthy during labor, such as ether.

OUTSIDE

AT HOME

Inuit Birth Position Statue

1847   1887 http://resource.nlm.nih.gov/101434275

1900

1600

Colonial births were at home, surrounded by female family members and attended by a midwife. This continued to be the norm for white families until hospitals became popular.

1871

Florence Nightingale wrote on the risks of birthing in "lying in hospitals," advising women give birth at home. Nightingale referred to statistics, finding poor social conditions at home were less of a risk than delivering in hospital with medical professionals.

A Timeline of Birthing in the United States (II)

Water births build in popularity to offer more choice during delivery. Designs aimed to feel more residential to aid familiarity but is challenged by increased use of technology.

https://www.inspirahealthnetwork.org/

AT HOME

1917 Nurse preparing Faulkner Hospital delivery room - Digital Commonwealth

2000s

HOSPITAL/ MEDICAL FACILITY

Midwife Maude Callen

By W. Eugene Smith

1915

Anesthesia became controversially popular to create "Twilight Sleep" during delivery and encouraged a shift towards hospital births. Initially this trend was for wealthy white people. Other cultures and ethnicities continued to use midwives, and elder females at home typically.

1951

W. Eugene Smith: LIFE Magazine 1951 Photo Essay, 'Nurse Midwife' | Time

2021

Water births have become a typical option, and hospital/ facility delivery rooms are required to be larger to accommodate the tub. Designs evolve towards hotel and spa aesthetics.

Special Delivery: Virginia Mason Birth Center - HCD Magazine (healthcaredesignmagazine.com)

Graph 1: Racial/Ethnic Disparities in Pregnancy-Related Deaths - United States, 2007–2016

Legend: Hispanic, Asian/Pacific Islander, American Indian/Alaskan Native, Black, White

Source: "Infographic: Racial/Ethnic Disparities in Pregnancy-Related Deaths - United States, 2007–2016." *Centers for Disease Control and Prevention*, Centers for Disease Control and Prevention, 4 Feb. 2020, www.cdc.gov/reproductivehealth/maternal-mortality/disparities-pregnancy-related-deaths/infographic.html.

Graph 2: Trends in pregnancy-related mortality in the United States: 1987-2017

*Per 100,000 live births

Pregnancy-related mortality ratio
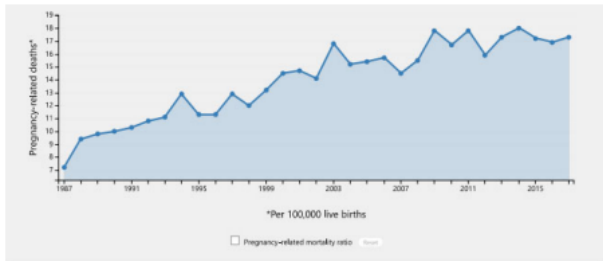
Source: "Pregnancy Mortality Surveillance System." *Centers for Disease Control and Prevention*, Centers for Disease Control and Prevention, 25 Nov. 2020, www.cdc.gov/reproductivehealth/maternal-mortality/pregnancy-mortality-surveillance-system.htm#about-pmss.

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