

INTERIOR DESIGN
EDUCATORS COUNCIL

IDEC

ANNUAL MEETING
PROCEEDINGS REPORT

2024



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Scholarship of Design Research (SODR)

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Mary Anne Beecher, Ohio State University

Bryan Orthel, Indiana University Bloomington

ABSTRACT

Social and racial justice are among the primary goals of many interior design programs. Decolonizing curricula is an instrumental step in this direction as “...decolonizing compels all of us to take a stand as it calls for identifying systems of exclusion as well as working to change them” (Hadjiyanni, 2020, p. 3). At the same time, a decolonized education empowers students of color to re-define success, sustain cultural integrity, and contribute to their communities’ needs (Watson, 2019). Part of the challenge are interior design history courses, where a Eurocentric prism often overtakes and distorts many aspects of these courses – from their overall titles to the material covered and textbooks used. As a pioneering endeavor, this panel unpacks what decolonized interior design history courses could look like and how to get there.

Knowledge of the history of interiors is required in accredited interior design curricula. The body of material to draw inspiration and learn from is immense. Often courses are surveys and range from ancient to modern and from the United States to the world beyond. The urgency to decolonize is exemplified by a history course offered at [name of institution withheld for blind review]. The course is US-focused and its title – “1750-Present” is a poignant indicator of the course’s colonial roots, nullifying the hundreds of years prior to 1750 that this land was home to Native Americans. Session titles draw on British history and include content that teaches the Jacobean, Queen Anne, Chippendale, and Empire styles.

References to slavery (Albert & Tan, 2021; Wilford, 2006) along with BIPOC designers and their contributions to rural and urban landscapes are also largely missing from the discussion.

This panel brings together three highly experienced interior design educators from three institutions across the US. For the past year, these faculty have engaged in two methodologies. First, they have conducted an in-depth literature review of best practices for decolonizing interior design history courses, ranging from altering content to shifting theoretical approaches and pedagogies. Second, they led four virtual dialogues with interior design history educators around the U.S. to critically reflect on decolonized directions and collaborative action. These conversations have tackled questions that include: How would our understanding of design history change if we talked about indigenous stories independent of European colonization of the Americas? What would it mean to examine the history of the United States from Indigenous and BIPOC perspectives? How would our definition of what constitutes good design broaden if everyday places were part of the history canon? In what ways could

our approach to current social issues, such as human trafficking in the construction industry and supply chains, be informed by colonial abuses of people, heritage, and the environment?

Each of the panelists will build on themes identified through the literature review and dialogues including: a) potential approaches to decolonizing interior design history courses while positioning them holistically in a decolonized curriculum; b) content for typical presentations for courses; and c) materials and organization for digital resources that can amplify decolonized history courses' impacts.

Central to the panel's inquiry is the question of the role that knowledge of history plays in the profession, propelling educators to reflect on the impacts and consequences of their actions for how future interior designers understand the past and plan for the future. Armed with new insights and surrounded by a support network in envisioning a decolonized history curriculum, interior design educators can be empowered to challenge institutional and societal structures that perpetuate inequality and marginalization.

REFERENCES

Albert, T. W., & Tan, L. (2021). The slave house as symbolic artifact. *Journal of Interior Design*, 46(2), 55-72.

Hadjiyanni, T. (2020). Decolonizing interior design education. *Journal of Interior Design*, 45(2), 3-9.

Watson, J. (2019). Understanding Indigenous education practices as a way of engaging deeply with refugee-background students (and everyone else) in the classroom. *European Journal of Applied Linguistics [Special Issue]*, 203-224.

Wilford, J. N. (2006) Looking for remnants of slavery's history. *New York Times*. Retrieved from <https://www.nytimes.com/2006/09/06/health/06iht-snsslave.html>

Scholarship of Design Research | Panel

Revisiting the Purpose of VR/XR Labs in Interior Design Programs: Defining Their Core Mission

Newton Dsouza, Florida International University

Tilanka Chandrasekera, Oklahoma State University

Luis Mejia Puig, University of Florida

Sam Moshaver, Florida International University

ABSTRACT

The panel's primary objective is to initiate a dialogue surrounding the fundamental mission of VR/XR labs within interior design programs. The panel hopes to first question the use of VR/XR labs in interior design education and the value they add to these programs. Subsequently, the goal is to address into philosophical inquiries regarding the distinctiveness of VR/XR labs in the context of interior design programs, framed within the theoretical concept of "interiority," and their genuine contribution to the discipline of interior design. By highlighting the work conducted in VR/XR labs at three interior design programs in the nation, the panel aims to foster diverse perspectives on their value, role, function, and overall return on investment within interior design programs.

Scholars have asserted that interior design goes beyond mere arrangement and object placement, embodying a spatial strategy through which a building gains cultural significance. Interiority, in this context, is viewed as an individual's unique perception of the world and their meaningful psychological connection to it. Attempting to simulate these intricate qualities of interior spaces necessitates a critical examination of VR/XR labs.

Presently, VR/XR labs strive to replicate physical reality of interior environments through photorealistic and immersive environments, applying them to design education and research pedagogy. While VR/XR labs have the potential to revolutionize interior design education and research by providing immersive experiences for students to explore and visualize design, questions arise about their ecological validity. Some argue that, even with high fidelity VR/XR, these immersive technologies do not accurately capture the "real world." Certain viewpoints even suggest a complete departure from VR/XR environments due to their inherently different affordances compared to reality.

Nevertheless, in interior design education, VR labs have proven valuable in offering immersive experiences that facilitate student exploration, experimentation, and visualization of design ideas, aiding in the evaluation of spatial arrangements and space morphology. It is important to acknowledge that VR/XR may not always be the sole means of evaluating these aspects, emphasizing the need to supplement VR/XR labs with other tools to achieve optimal design solutions. Exploring the systematic

application of VR/XR labs in the interior design process for students is a promising avenue and worthy of further exploration.

In design research, VR/XR labs provide a unique environment for conducting controlled experiments simulating reality. These experiments isolate specific variables of interest, such as measuring psychological constructs like pleasure and arousal or assessing physical design elements like lighting, spatial saturation, and openness. These experiments can be complemented with additional data-gathering techniques such as surveys, physiological observations, and neurological observations, thereby enhancing their validity and contributing to advancements in the field of interior design.

REFERENCES

Ionescu, V. (2018). The interior as interiority. *Palgrave Communications*, 4, 33

Perolini, P. (2014). Interior environments: The space of interiority. *Zoontechnica - The Journal of Redirective Design*, 3, 1–5.

Vahdat, V. (2023). Meta-Virtuality: Strategies of Disembeddedness in Virtual Interiorities. *Journal of Interior Design*, 48(1), 80–92.

D'souza, N., & Nanda, U. (2023). Introduction: Exploring the Future of Interior Design in a Virtual–Physical Continuum. *Journal of Interior Design*, 48(1), 3–5.

Scholarship of Design Research |Panel

Spearheading faculty collaborations – Interior design and the fight against sexual exploitation

Tasoulla Hadjiyanni, University of Minnesota

Susan Ray-Degges, North Dakota State University

Cotter Christian, The New School, Parsons School of Design

Carly Cannell, The New School, Parsons School of Design

ABSTRACT

Collaborations among faculty across institutions have long been lauded as effective means of bringing about change (Eddy, 2010; Kegler et al, 2019). With respect to equity and social justice, interior design inquiry has centered on community engagements (see for example Vaux, 2023), leaving the arena of cross-institutional collaborations with much to be explored. A better understanding of what it takes to foster and cultivate collaborations among faculty across institutions would enable interior design educators to further solidify the field's contributions to creating communities where everyone can thrive.

The question of cross-institutional faculty collaborations is amplified within the context of sexual exploitation or sex trafficking. The numbers are shocking—it is estimated that 28 million people, mostly girls and young women, are trafficked each year globally (Polaris Project, 2023). The US Government's National Institute of Justice defines sex trafficking as: “ the commercial sex act is induced by force, fraud, or coercion, or in which the person induced to perform such an act has not attained 18 years of age” (NIJ, 2022). The instrumental role that interior design can play in broadening discourses around how to work toward putting an end to modern day slavery has been charted through a 2014 Journal of Interior Design article on the placeness of trafficking (Hadjiyanni et al, 2014).

This panel discussion multiplies the field's contributions both to anti-trafficking work as well as to collaborative methodologies. Four interior design researchers and educators from three different institutions across the United States [NAMES WITHHELD FOR BLIND REVIEW] come together to reflect on lessons learned from their collaborations through the [EXHIBIT NAME WITHHELD FOR BLIND REVIEW] exhibit. This global exhibit uses photographs of places enmeshed in trafficking to shed light on the fact that trafficking is happening right here, in peoples' communities. Places caught in trafficking are often hidden in plain sight - from places where youth are recruited to places used by traffickers to

transfer people across state lines, places where sexual transactions occur, places used by law enforcement to stop trafficking, and places where survivors can transition and heal. All types of places can be represented – from hotels to highways, bars, massage parlors, schools, and private homes.

Drawing on their collaborative experiences, the panelists unpack the nuances behind cross-institutional interior design faculty collaborations as mediums for social justice and as innovative approaches to complex and pressing social issues. Questions tackled center on what can be unique and different within the discipline in terms of faculty collaboration and include: how to jumpstart faculty collaborations; what characteristics and values should be defining constructive collaborations and how do these relate to collaborations that advocate for social and racial justice; ways to evaluate the investment in time and energy, both on a personal level as well as for promotion and tenure; how to identify and tackle logistics from securing funding to engaging students; how to build trust and demonstrate commitment and respect, as well as unforeseen challenges and how to overcome them.

The goal of this panel presentation and follow-up discussion is to spearhead the development of a set of principles that can guide future collaborations among interior design faculty across institutions. With access to best practices for what makes constructive collaborations within the discipline, future coalitions can be better poised to embrace strategies that can overcome current limitations and set the stage for transformative change. The panel gives an opportunity to presenters and participants to pause and reflect on their values as well as the profession's values and how these inform who we are, who we want to become, and how to get there.

REFERENCES

- Eddy, P. L. (2010). Partnerships and collaborations in higher education. College of William and Mary, School of Education Book Chapters. Retrieved from <https://scholarworks.wm.edu/cgi/viewcontent.cgi?article=1037&context=educationbookchapters>
- Hadjiyanni, T., Povlitzki, M., & Preble, H. (2014). The placeness of sex trafficking – Instilling consciousness through Minnesota's experience. *Journal of Interior Design Special Issue on Interior Design Collaboration*, 39(1), 1-16.
- Kegler, M.C., Wolff, T., Christens, B.D., Butterfoss, F.D., Francisco, V.T., & Orleans, T. (2019). Strengthening our collaborative approaches for advancing equity and justice. *Health Education & Behavior*, 46(1_suppl):5S-8S. doi:10.1177/1090198119871887
- National Institute of Justice (NIJ) (2022). Overview of human trafficking and NIJ's role. Retrieved from <https://nij.ojp.gov/topics/articles/overview-human-trafficking-and-nijs-role#note1>

Scholarship of Teaching and Learning | Panel

Artificial Intelligence and Interior Design Education: Ethics, Insights, Applications, and the Inevitable

Rebekah Radtke, University of Kentucky

Amanda Gale, UNC Greensboro

Michelle Pearson, Texas Tech

Melanie Duffey, Auburn University

ABSTRACT

Introduction

The Terminator franchise, filmed in 1984, introduced the notion of Artificial Intelligence (AI) and later how it threatened the existence of humanity. Over the following decades, the idea of artificial intelligence continued to be foreign and misunderstood. However, today generative AI is seemingly part of our everyday life, in the profession, higher education, and interior design curriculums. Generative AI has been a recent thread in professional organizations (ASID, 2023), social media, and has been integrated into the theme of the 2024 IDEC Video Competition. However, thus far neither CIDA nor IDEC, two organizations most related to issues facing interior design education, have released statement guidelines on AI. The Journal of Interior Design, through its publisher Sage, provides guidance on how large language models such as ChatGPT can be used in the development of manuscripts and the way that should be acknowledged (Sage, n.d.). R1 institutions provide faculty with syllabus statements dependent on the instructor's desired level of use of generative AI tools in the classroom that range from usage that is open, moderate, or strictly prohibited (Biggio Center, n.d.).

Context + Purpose

With AI, text-to-image models generate detailed images based on text descriptions input by an individual. For instance, the image in Figure 1 was produced using the input, "Gaudi, stained glass, hotel lobby overlooking olive trees".

Numerous YouTube tutorials exist on how to use the various AI text-to-image applications such as Stable diffusion, Midjourney, Adobe Fire Fly, and Dall-e 2, with real-time examples. Interior design firms are

marketing their use of AI as a valuable design tool (Blackwell & Jennings, 2023), and professional organizations are outlining potential uses in the field (ASID, 2023). However, there is minimal existing design-related research on the topic of AI and educational applications. Current literature on the topic is informal informational pieces or calls to raise awareness.

There are several ethical considerations including copyright, social bias, user privacy, and environmental damage when considering the impact and use of AI (Abor, 2023). Cost, availability, and ease of use are topics that will impact its integration within the interior design studios and adoptions by students. Therefore, the purpose of this panel is to 1) demonstrate the range of applications in interior design curriculum for the technology, 2) expand the conversation beyond ChatGpt and plagiarism, 3) explore the advantages and disadvantages of its' integration into the interior design pedagogy and 4) address areas of inquiry for future research.

Method

The panel will include four seasoned faculty members from CIDA-accredited programs within state universities. Each panel member has varying levels of experience with AI applications, ranging from novice to training provided by their institution. Each panelist integrated various AI applications into an upper-level interior design course. The integrations included a formal assignment, a quick extra credit activity, and an in-class tutorial and concept imagery creation. During the panelists' presentation, examples of student work, descriptions of how AI was implemented, and lessons learned will be shared. Audience participation will be encouraged.

Outcomes

The presiding narrative in higher education of AI is often one of fear and trepidation; however, the panel's goal is to facilitate a conversation about how IDEC and interior design educators can lead the dialogue around design and artificial intelligence by encouraging points of access, increasing educator knowledge about AI applications, and aiding in implementing AI into instructional materials engaging best practices. As interior design educators, our goal is to prepare students to enter an increasingly complex professional landscape with criticality and creative confidence. How will generative AI impact our ability to do so?

REFERENCES

Abor, C.L. (2023, June 27). The hidden cost of AI: How data centers are polluting the air and how to stop it! Retrieved September 1, 2023, from <https://www.linkedin.com/pulse/hidden-cost-ai-how-data-centers-polluting-air-stop-c-l-abor-jr/>

ASID (2023) Trends outlook. Retrieved June, 19, 2023 from <https://www.asid.org/resources/research>

Biggio Center (n.d.) Syllabus language for generative artificial intelligence. Retrieved September 14, 2023, from <https://biggio.auburn.edu/programs/auburn-online-programs/ai-syllabus>

Blackwell & Jennings. [@blackwellandjennings]. (2023, July 13). I'm thrilled to announce I've been trained in MidJourney and I'm designing in AI! [Photograph]. Instagram. https://www.instagram.com/p/Cupxg_EBZIT/?img_index=1

**Artificial Intelligence and Interior Design Education:
Ethics, Insights, Applications and the Inevitable**

APPENDIX

Table 1. comparison of Panel members integration and experience

	ID program A	ID program B	ID program C	ID program D
Instructor experience w/ AI	Training by university	Minimal - Discussion with colleague	Minimal Presentation by colleague	none
AI application	Dall-e2	ChatGpt + Adobe Firefly	Midjourney	Freepix
Classroom integration	Concept & inspiration images	Theories integration assignment	Concept & inspiration images	Extra credit – critical analysis of AI imagery
Student Year level	4 th year	4 th year	4 th year	3 rd year



Figure 1. Image created using Midjourney from novice within 30 minutes, “Gaudi, stained glass, hotel lobby overlooking olive trees”

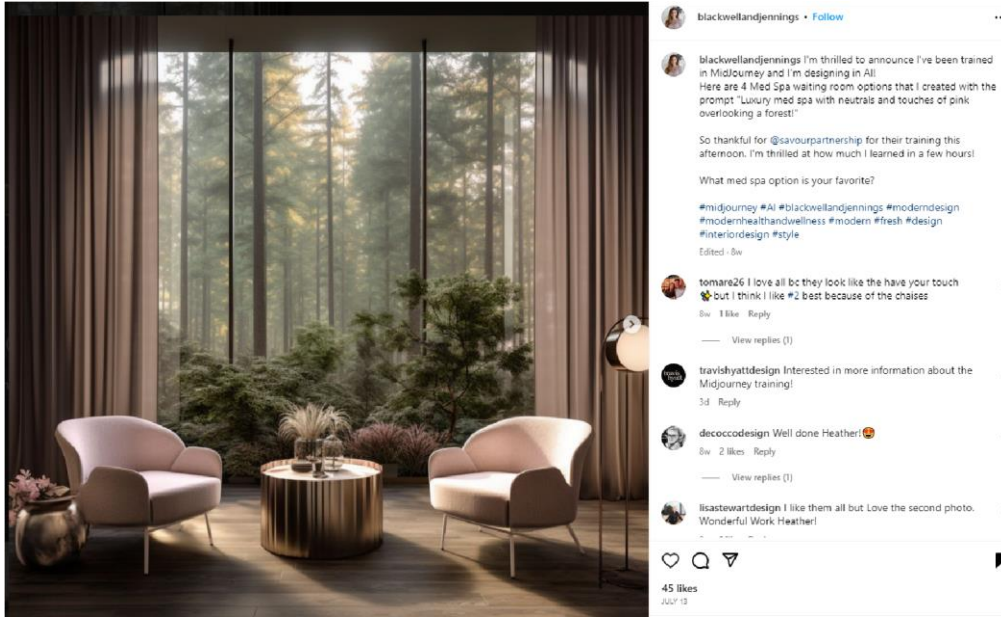


Figure 2. Instagram Post Promoting AI produced rendering
Source: [hUps://www.instagram.com/p/Cupxg_EBZIT/?img_index=1](https://www.instagram.com/p/Cupxg_EBZIT/?img_index=1)

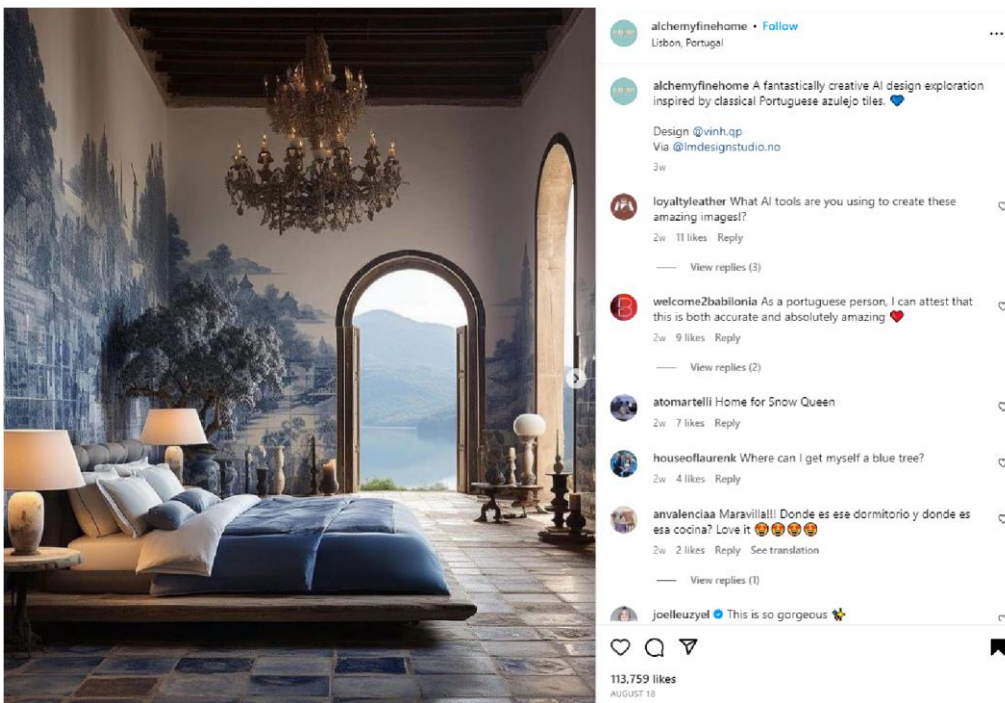


Figure 3. Instagram Post Promoting AI produced rendering
Source: [hUps://www.instagram.com/p/Cupxg_EBZIT/?img_index=1](https://www.instagram.com/p/Cupxg_EBZIT/?img_index=1)

THEORIES IN SPACE

Select a theory discussed in [XXX] (or perhaps a new theory discovered in your research) and sketch a space showing how it might influence a real-world design scenario or a future challenge in design as it relates to your capstone project.

EXPLORE AI: Using an AI visualization platform of your choices (ex. Midjourney) create an AI generated image or series of images that show how your selected theory might influence a real world design scenario. Print and past in your sketchbook.

REFLECTIONS

What were the challenges? Do you see any benefits in this process? How might this contribute to your design process? Feel free to annotate notes directly over the images pasted from AI.



Figure 5. Course Assignment and corresponding student work

Scholarship of Teaching and Learning | Panel

Community in Context: A Process for Interdisciplinary Service-Learning

Beth McGee, Georgia Southern University

Ryan Couillou, Georgia Southern University

Christine Wacta, Georgia Southern University

ABSTRACT

This panel will discuss a framework that has been developed over the past four years that continues to help with interdisciplinary service learning in interior design and psychology senior capstone courses. Three panelists will each discuss their perspectives and how the course has provided opportunities for meeting course learning objectives related to their field of study at a public university in the rural southeast.

Service-learning is well established as a high impact practice and contributes to student academic learning, civic learning, and personal growth (Bringle et al., 2016). In both Interior Design and Psychology, fostering interdisciplinary student work is highly desired (American Psychological Association, 2013; Council for Interior Design Education, 2022). While Interior Design and Psychology are diverse fields, they share learning objectives around fostering student collaboration and communication. The development of this framework occurred with projects that Interior Design and Psychology students worked on together in order to create design recommendations. Each project was targeted for meeting a community partner's needs in a semester-long assignment that focused on evidence-based design. Biophilic design attributes were also introduced to both classes for establishing a shared design language and to provide additional resources (McGee et al., 2019; McGee & Park, 2021).

The multi-step process is evaluated each semester through pre- and post-testing of students' perceptions to evolve the framework. Additional qualitative and quantitative results show that design related service-learning projects can benefit from this process of interdisciplinary collaboration. The development of the final student work and design recommendations included research support and tangible examples that were shared with the community partner to address the design problem presented. The most recent development has allowed a more data-driven approach to programmatic research related to space, time, and sociocultural trends by using geographic information systems (GIS) and community analysis. This approach facilitated a better understanding of problems by limiting bias and preconceived notions. The panel will review the evolution of the framework, current lessons learned and how using a shared language among teams can be beneficial for interdisciplinary work.

Also, how the use of data driven community-based analysis helped students to create stronger research questions and design recommendations will be discussed.

Panelist #1 is a licensed interior designer and an associate professor in interior design. Her research interests include biophilic design, restorative environmental design, and service-learning to address the balance between global- and human-centered design.

Panelist #2 is a licensed psychologist and an assistant professor in psychology. His research interests include community engagement and service-learning broadly. He is also a creator of the REFLECT program, an action-research and service-based training program.

Panelist #3 is an architect-urban designer with landscape architecture and preservation focus, her research focuses on geospatial analysis as a way to reconcile human geography with natural and urban ecology. Few of the topics include: spatial definitions of human performance, integration of game principles and mechanisms in teaching, spatial cognition and mental representation of space.

Schedule: 5 minutes per speaker for introductions, 15 minutes for framework review, 10 minutes for example work, and then q&a

REFERENCES

American Psychological Association. (2013). APA guidelines for the undergraduate psychology major: Version 2.0. <https://www.apa.org/ed/precollege/about/psymajor-guidelines.pdf>

Bringle et al. (2016). Enhancing the psychology curriculum through Service Learning. *Psychology Learning & Teaching*, 15(3), 294–309. <https://doi.org/10.1177/1475725716659966>

Council for Interior Design Education. (2022). CIDA professional standards 2022. CIDA. <https://static1.squarespace.com/static/5c9ae7530490796e32442342/t/61def12b98890e3d27744c59/1642000683919/Professional+Standards+2022.pdf>

McGee, B., & Park, N. K. (2021). Beyond Plants: Biophilic design as a pedagogical tool. *The International Journal of Design Education*, 15(2), 209–228. <https://doi.org/10.18848/2325-128X/CGP/v15i02/209-228>

Psychology & Design Studio Capstone Project Description and Guidelines

Overview For this project, our class will be working with a nearby City for a future live.work.play development downtown. We will be working in collaboration across classes (Psychology & Interior Design) to provide design-based and other recommendations for a proposed new location.

Recommendations will be based on best practices and grounded in psychological and environmental research.

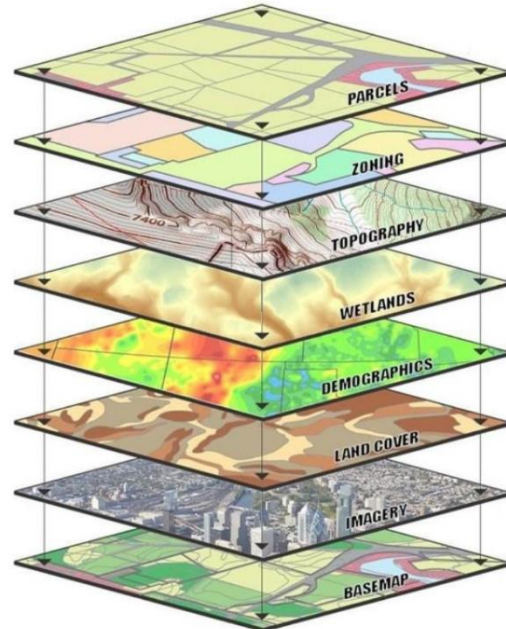
We will be facilitating the project with designated group work time in-class. Groups will also be expected to work outside of class to complete most deliverables. Most deliverables for this project will be **due on Fridays at midnight**. See the course calendar below for project due dates.

Please keep in mind that your involvement in the project and how you communicate with your group is important. A portion of your grade for the project will be directly tied to how involved you are in the project.

Below is a list of the different graded components of the group project along with a description of the expectations for the final project. However, please note that due to the collaborative nature of the project, the group-work schedule may be revised throughout the semester.

ArcGIS Data Layers:

*“Anything that we design exists in one of these 8 DATA layers. Our natural environment is in perfect harmony with a natural cycle of life _birth _ growth _flourish _death_ This natural cycle is healthy and allows new things to emerge and go through the same cycle. As designers, our job is to carefully create a harmonious design that uses the right amount of each layer as it relates to the context, climate and time to keep our environment balanced. Any excess or waste will cause an unbalanced environment and endanger all ecosystems and lives. Knowing what’s there and how it functions is the FIRST step in designing resilient and safe communities, GIS provides us with **theknowHow**”. Dr Wacta*



GIS data layers tied to specific locations on Earth. Source: Ontario County NY and USGS, public domain.

Psychology & Design Studio Capstone
Project Description and Guidelines

Activities
1. Group Fit Survey A survey to identify the best time and work style to form optimal groups.
2. Introduction Activity Group members will participate in an introduction activity to get to know their other group members.
3. Pre-Survey
4. Community Representative Interview
5. Define Your Community Needs Activity to identify community needs: Needs Assessment: Each group will prepare and ask selected questions to the service-learning partner (see 4.). Community analysis: ArcGIS software, Census data, literature and other research will be used to support identifying research questions with data support. Intro activities to Community Analyst + ArcGIS Online included. Site visit and documentation activities are also included.
6. Literature Map Create a literature map that includes sources that could potentially be used to inform your recommendations. Use the given template and topics should include community mental health and interior design/architecture.
7. Mid Survey 1
8. Method Worksheet In class exercise identifying additional research methods needed for data collection
9. Data Collection + Analysis Group members will focus on different data collection and documentation methods for community feedback, including an emotion capture app and survey design, execution and analysis.
10. Recommendations Draft Group members in each class are to come up with 1 <u>unique</u> recommendation per person for the service-learning partner based on the needs of the organization that is informed by the literature and data collected. Each recommendation should be visually supported with infographics, citations, and products to identify how the recommendations can be applied.
11. Mid Survey 2
12. Final Presentation Group members in each class are to submit a revised version of the recommendations. Presentation to the City.
13. Reflection Each group member will individually provide a summary about what they learned and an overall reflection.
14. Post Survey

Scholarship of Teaching and Learning | Panel

Decolonizing the Interior Design Curriculum: Experiments Beyond Borders & Across Institutions

Laura Cole, Colorado State University

Rula Awwad-Rafferty, University of Idaho

Bryan Orthel, Indiana University

Sara Reed, Virginia Commonwealth University

Taneshia West-Albert, Auburn University

Heather Carlile Carter, Johnson County Community College

ABSTRACT

Recent events have caused scholars to grapple with the rhetoric of exclusion, oppression, eurocentrism, and injustice (Nguyen et al., 2021). Interior Design (ID) author Jessica Bantom broke the invisible barrier on integrating these issues into ID education and practice (Bantom, 2023), making a place for courageous conversations on “decolonizing ID education” (Hadjiyanni, 2020). This panel highlights design justice teaching experiments across five U.S. ID programs, highlighting the methods and outcomes from each course. We discuss opportunities and challenges faced while integrating novel concepts into the following courses:

Intro to Interior Architecture and Design (IAD): This first-year course explores transdisciplinary design issues with a human-centered, emphatic, evidence-based, contextually rich approach. Students explore intersectionality, identity, technology, place, and responsibility towards a just and resilient environment. Global examples, diverse worldviews, and processes are provided. The course integrates a “restorative justice circle” approach to identify needs and wants, building team capacity, and assignments that invest in building curiosity and reasoning beyond borders.

Design & Culture: This course challenges students to consider who they are, how they design, and how they use their identities and design processes to design justice. Most students are acutely aware of injustices in society but are less prepared to actively work to address issues. The course helps students initialize their own strategies and visions. Ideally, they will recognize their responsibilities and capabilities to proactively use critical frameworks to address inequity and injustice (Appendix A).

History of Interiors: Design justice can take on several different forms in ID history courses, including broadening and questioning the design canon. Two examples include: 1) researching lesser-known designers from around the world (Appendix B, Fig. 1-3) and 2) exploring concurrent building practices across time and place (Appendix B, Fig. 4-6). The challenge entails more than elevating the incredibly important work of marginalized designers. Provoking students to understand the circumstances by which exclusion and lack of access have informed the existing narrative is intended to inspire a future generation of designers who actively challenge systems of injustice.

Interiors Studio IV: This junior-level studio challenged students to create an inclusive birth center for the BIPOC community. Students engaged in reading, reflection, and sustained interaction with a community of black designers and midwives throughout the project. While several projects demonstrated rich cultural sensibilities (Appendix C), most students had insufficient backgrounds in social justice to engage deeply. The process left important questions about how to integrate important topics without cognitive overload.

Capstone Studio: In this senior capstone course, students explored social justice issues on the island of Oahu and traveled to the island to reconcile inconsistencies between book knowledge and lived experiences. Enrolled students participated in a required week-long travel experience as the foundation for studio work. Students immersed themselves in island cultures and ventured into natural spaces across land/sea. The resulting synergies allowed them to respond to the island's complex cultural and ecological challenges with a community-driven design intervention (Appendix D).

The panel moderator will highlight contextual and cross-cutting course themes, integrating questions and insights from the audience. Our key objective is to uncover meaningful and implementable strategies for integrating diversity, inclusion, and equity (DEI) themes into ID education, which additionally assists with CIDA compliance. We further seek to inspire and inform DEI experimentation across the IDEC network and seed ongoing, critical conversations about activating curriculum change.

REFERENCES

Bantom, J. (2023). *Design For Identity: How to Design Authentically for a Diverse World*. Publish Your Purpose. Hartford, CT.

Hadjiyanni, T. (2020). Decolonizing interior design education. *Journal of Interior Design*, 45(2), 3-9.

Nguyen, T. T., Criss, S., Michaels, E. K., Cross, R. I., Michaels, J. S., Dwivedi, P., ... & Gee, G. C. (2021). Progress and push- back: How the killings of Ahmaud Arbery, Breonna Taylor, and George Floyd impacted public discourse on race and racism on Twit

Appendices

Appendix A: Design & Culture

Appendix B: History of Interiors

Appendix C: ID Studio IV

Appendix D: Capstone Studio

Appendix A: Design & Culture

Process Notes

Find a problem

Friend absentmindedly tried to open kitchen cabinet from hinge side, because of featureless doors.



Which side does the tall cupboard on the left open towards? Wrong. It opens on the left.



Asked Hannah for her participation – chose words to minimize power imbalance in design process.

The time working on the project was part of a weekly scheduled hangout, minimizing inconvenience for both of us.

Hannah had several problems around her apartment that she suggested we might attack, but the cabinets were the simplest design problem and the one we came back to.

State the problem parameters

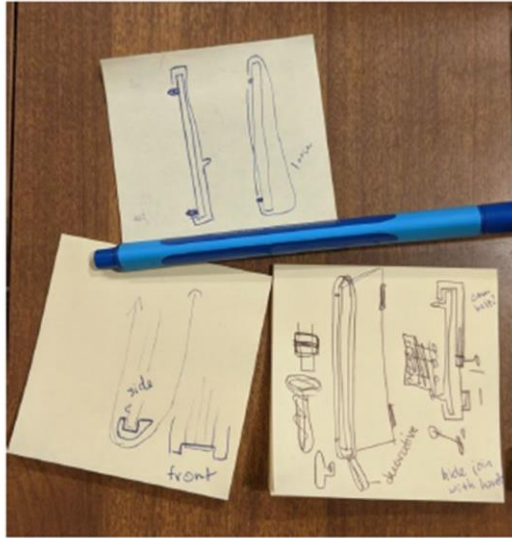
Difficult to tell which side to open because there is no marker. Some are paired and open outward, but isolated doors are hard to tell. Lack of handles also means varnish gets sticky from use/contamination, then wears thin when cleaned.



The ideal solution...

- doesn't damage the doors or change the hardware (apartment is rented)
- has a handle-like feature (Hannah has long nails and doesn't like the scraping feeling of opening the door from the edge)
- looks good and professional (Hannah is also a design student and also wants her things to look nice)
- doesn't interfere with the closing of the door (there are little plasticky nubs so they don't slam. Note – some of these are missing, and the adhesive residue causes the doors to stick.)
- doesn't interfere with the shelf space inside the cupboard
- will not damage the facing door when opened all the way, in the case of the corner cabinets
- Has decorative elements that can be changed out (Hannah likes to decorate based on season. The kitchen is currently very fall-themed.)

Brainstorm and evaluate ideas



We wish the doors would open both ways (like the cool rope mechanism from the internet) but we don't have the authority to change the hardware.

Suggested fabric loop the whole height of the door, pull on the slack on the front to open (top post-it, right side).

Hannah had idea (top post-it, left side) of clip system that fits around the plastic bumpers. Could combine with ribbon clipped top and bottom (bottom left post-it), but the action of opening might bump the clips loose (Hannah pulls slightly down when opening things)

Big spring clip over the door (bottom right post-it), but that's bulky and specific to a certain size of door (there are two different sizes that need the attachment). Clip tightened with bolt to prevent sliding along the door by friction at the top and bottom – again, specific and bulky. Metal might mar the facing door, plastic looks bad, wood would be cool but hard to match.

Long ribbon with ~3-5" tab at bottom to pull (prototyped with shoelace) with tightening clip – but must be secure, otherwise would be frustrating to keep readjusting. Idea of a winch was suggested, but was deemed too bulky. Existing buckles like self-tightening and friction-holding ones on backpack straps could be used.

Context and Culture

The immediate, physical context of the project was the kitchen of Hannah's rented apartment. The positioning of the cabinets sometimes indicated the direction the door would open – for example, paired doors open outward by common convention (a cultural aspect) – but in other cases was ambiguous and needed another indicator. The visibility of the kitchen from the open-concept front room (a cultural trend) also contributed to the need for a solution to look nice. Hannah as a person was a part of the design context as well, with her personal preferences and aversions. Her love of seasonal decorations (also culturally dictated), her need for a solution that would accommodate relatively long fingernails, and her dishwashing and cooking workflow all made an appearance in our conversation and influenced the final product.

It was also relevant that the apartment in question was a rental – this is a mix of culture and context, given the social construct of renting living space, specifically as a student, in Bloomington and in the US as a whole. Renting meant we could not alter any of the fixtures, and Hannah's solution had to be easy to remove without a trace when she moves out, taking it with her or repurposing it depending on whether her next living arrangement has a similar problem. The context of it being a larger apartment complex meant she would have little bargaining power to request the installation of cabinet handles, since other units do not have them and she doesn't know the people making the decisions personally.

Culture also somewhat dictated Hannah's authority over the kitchen space, even though she and her boyfriend both cook and clean. Kitchens are historically a female sphere in US dominant culture, and a clean and functioning kitchen is the mark of a good homemaker, while a dirty or neglected one will draw judgement. Hannah and her boyfriend don't stick to traditional gender roles, but they're also hard to entirely get away from, and Hannah seemed to have more decision-making power about the appearance and functionality of the solution, if it were to be implemented.

Beyond The Canon: Miodrag Živković

Yugoslavia and the Cannon:

After suffering years of human atrocities under Nazi occupied rule, modern day Serbia (then part of Yugoslavia) was liberated by the Soviet Union in 1944, to which independently established itself as a socialist country under the League of Communists, and allied itself with the USSR (initially). Although Yugoslavia was not an official Soviet State, it was still considered by many in the west to be victim to the notorious "iron curtain" -thus was henceforth affiliated with the actions of that "Evil Empire". Likewise however, the Soviet Union viewed the nation as equally abhorrent, in regards to Yugoslavia's elected official, Tito, to which Stalin despised for his revisionist approach to socialism in defiance of Stalinism (2. The Breakup of Yugoslavia)

This war torn nation, abandoned by both sides of global powers, was now looking for stability, reconstruction, and perhaps most essentially -a sense of a unified national identity.

Mending a Divided Country:

Emerging from the ruin of WWII, with the atrocities committed by the Nazi regime fresh in his people's mind, Tito ambitiously took action to unify his new country, consisting of former Bosnia, Croatia, Serbia, Macedonia, Montenegro, and Slovenia (which was essentially comprised of lands inhabited by both the victims of the war and it's perpetrators). His plan was to consult with an array of designers and architects to construct "memorial spaces of solace, reflection and forgiveness" that would satisfy both sides of the conflict in a single act of unity (3. Twice There was a History).

The first attempts failed miserably -some were too soviet in nature, while others were too traditional in favor of one former nation over the other, thus internal conflicts continued to prevail. Tito needed a new plan, or at least a new approach to design. One of the candidates for the job was a young and relatively unknown Serbian designer by the name of Miodrag Živković, who proposed the idea of structures absent of identity and familiarity, which would serve as a channels for highlighting universal ideals. (A modern approach to design). In turn, these designs would promote something purely Yugoslavian, while addressing a base for a unified country -a solution Tito found exceedingly promising. These spaces of a unique nature thus began to sprout across Yugoslavia, and have come to be known as "Spomeniks" (1. Spomenik Database).

The Nature of Spomeniks:

It's important to understand that Spomeniks embody the essence of several difficult conversations; They're objects of both suffering and liberation - anger and peace. In addressing these several attributes, Živković wanted to create something in a style that was abstract enough to where no single prior culture could claim it as their own, but addressing an element familiar enough to where both an individual and the populous could relate to, and gather in appreciation as a unified Yugoslavia. His solution was to use these abstract and unique forms to highlight an innate and fundamental human appreciation; nature (1. Spomenik Database).

"The Battle of Sutjeska" (pictured throughout) located in Tjentište, for example, appears as though erupting from the earth in an act of violent and sudden emergence, but frozen in a manner so elegant, that the form becomes a graceful interpretation/imitation of the environment which cradles it, and therefore flows in a "seamless transition from that which is manmade, to that made by the hand of God" (1. Spomenik Database). By their nature, they function as both a space of intrigue and gathering, and in their relative simplicity, humbly serve as frames to the greater beauty of their surroundings. Živković was fascinated by this notion of a space defined not by walls, but by the nature of it's existence -he viewed them as outdoor classrooms, which generated function in the spaces not defined, but in the spaces in-between. Essentially, a structure with a purpose not dictated by a physical entrapment, but one directed by the purpose of their intent.

Redefining Space:

Through this monumental work, Živković began to beg several questions. First of which, What defines a space? Is it dictated by the caging of an individual between walls, or as the orator of a specific intent, regardless of the form it may take? Živković provides us with this proposition that a space is more about the reason of a unitive gathering/ the conversation it evokes, rather than the means of housing that gathering -thus we become more attuned to the in-between spaces that are created by imposing a foreign and unfamiliar object into an environment, to which the space becomes more of what the individual makes of it, rather than a function imposed onto the individual. With all this considered, whether Spomeniks are your aesthetic of not, I believe Živković's teachings serve as an important lesson to all of us as designers, that the dichotomy of Freedom and dictation of function is a battle relevant in every case, regardless of the project -and that battle should be clearly evident within every design.

Furthermore, I believe Živković's work proposes this beautiful notion that what we create should always be subject/ subordinate to that of the natural environment. If you note his work, his spaces were never situated at a mountaintop, but rather were cradled at the base and acted as a frame for that mountain. Živković understood that what we build is temporary in comparison to the longevity of nature, and we as designers have an obligation to humbly acknowledge that beauty in our work.



Works cited:

"Spomenik Database | Profile for Miodrag Živković (Miodrag Živković)". Spomenikdatabase. www.spomenikdatabase.org/miodrag-zivkovic.

"The Breakup of Yugoslavia." U.S. Department of State, U.S. Department of State, history.state.gov/milestones/1989-1992/breakup-yugoslavia.

Lampa, John R. Yugoslavia on History: Twice There Was a Country. Cambridge Univ. Press, 2010.

IDEC Figure 1

Appendix B: History of Interiors

Excerpt from "Beyond the Canon" project by Rickie Lindemann, Interior Design sophomore, spring 2020

Serpentine Pavilion 2018

The Serpentine Pavilion was designed by Frida Escobedo in 2018. It is located in Hyde Park, London, England. The building is often referred to as a "living time piece" because of its position on the Prime Meridian and the light moving through the space, measuring different times of the day. Escobedo demonstrates modernism in the pavilion through the geometry of the building and the linear elements found throughout the space. The pavilion is comprised of two rectangles that overlap, one parallel to the Serpentine Gallery and one parallel to the Prime Meridian. "No matter where the pavilion goes, it will not lose the spirit of its geometry or echo of place" (Escobedo 2018). There is also evidence of industrial design through the functionality and value of the space by reorienting materials to benefit the space and user. "We usually work with simple materials - industrial materials - and we try to create more sophisticated forms or arrangements with them. It's not about super expensive finishes, it's about what you can create with simple things" (Escobedo 2018).



Frida Escobedo

Frida Escobedo is a Mexican architect from Mexico City, Mexico. She studied Architecture and Urbanism at Ibero-american University, Mexico and Art and Design and the Public Domain at Harvard, Massachusetts. In 2006 she started her own practice and in 2018 became the youngest architect to design the Serpentine Gallery Pavilion. Escobedo focuses her projects on finding opportunities from crisis through interactive architecture by designing spaces that typically allows multiple purposes and influences people to use the space to its full potential.

Works Cited:

Escobedo, F. (2018). Drawing connections. *Interior Design*, 89(14), 100.
Hobson, B. (2018, September 06). Serpentine Pavilion 2018 shows "what you can create with simple things" says Frida Escobedo. Retrieved from <https://www.dezeen.com/2018/06/13/video-interview-frida-escobedo-serpentine-pavilion-2018-simple-materials-movie/>
Serpentine Pavilion 2018 designed by Frida Escobedo. (2018, June 15). Retrieved from <https://www.serpentinegalleries.org/exhibitions-events/serpentine-pavilion-2018-designed-frida-escobedo>
Square, R. (2017). Frida Escobedo. Retrieved from <http://chicagoarchitecturebiennial.org/participants/frida-escobedo/>



IDEC Figure 2

Excerpt from "Beyond the Canon" project, Caitlin Sammons, Interior Design sophomore, spring 2020

SO-IL

SO-IL is an internationally recognized architecture and design firm based in New York. We create structures that inform new cultures, institutions, and networks.

~ SO-IL website <http://so-il.org>

BEYOND THE CANON

I believe this artist should be added to the cannon because of the level of creativity and her strive completing a challenge as difficult as this one. The project requires a huge and quick turnaround for concept development and construction that fit within a tight budget. Being that she completed that challenge was fulfilled so greatly I believe anyone with that type of drive and determination should be awarded.

WORKS CITED:

- Liu, J. (n.d.). SO - IL | Frieze Art Fair. Retrieved April 16, 2019, from <http://so-il.org/projects/frieze-art-fair>
- SO - IL | Frieze Art Fair. (n.d.). Retrieved April 16, 2019, from <http://so-il.org/projects/frieze-art-fair>

Architect Jing Liu



Allen, V. (n.d.). Jing Liu. Retrieved April 16, 2019, from <https://www.vanalen.org/profiles/jing-liu/>

ABOUT:

Jing Liu is a native to China who received her Masters degree in architecture at the Tulane School of Architecture in New Orleans. She's been a faculty member of the graduate school of architecture at Columbia University since 2009. She co-founded the designing firm SO-IL in 2008 with emphasis on building cultural projects as an indispensable part of urban infrastructure.



Frieze Art Fair



The frieze art fair was planned to only be in use one time only but the design had such great feedback that its now used every year until its redesign of 2018.

WORKS CITED:

- Alen, V. (n.d.). SO - IL | Frieze Art Fair. Retrieved April 17, 2019, from <http://so-il.org/projectfrieze-art-fair>
- IL, S. -. (2014, February 03). Frieze Art Fair NYC. Retrieved April 17, 2019, from <https://www.architectmagazine.com/project-gallery/frieze-art-fair-nyc>

IDEC Figure 3

BY: Kassiah Skipwith

Excerpt from "Beyond the Canon" project by Kassiah Skipwith, Interior Design sophomore, spring 2020

What was happening in the world?

IDEC Figure 4

Figure 12. Source: (Smarthistory, 2015)



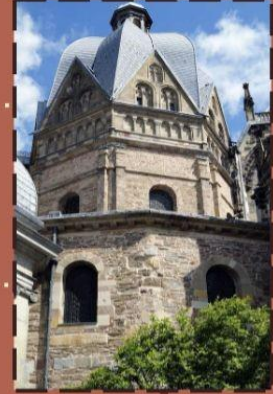
c.532-537 CE – Hagia Sophia is built in Constantinople

Figure 14. Source: Brown.edu



c.700 CE – Chinese invent gunpowder; mainly used in fireworks

Figure 16. Source: Khan Academy



c.790-805 CE – Palatine Chapel in Aachen, Germany is constructed.

c.608 CE – Rome's Pantheon is converted from a pagan temple to a Christian church.

Facades are important!



Figure 13. Source: (Aleteia, 2018)



Figure 15. Source: (Britannica, 2021)

c.705 CE – Empress Wu Hou becomes first female Chinese ruler Tang Dynasty

Excerpt from "What'd We Miss?" project by LaMiyah Robertson, Interior Design BFA sophomore, fall 2021

Timeline

<https://www.livescience.com/38903-palace-of-versailles-facts-history.html>



1644-1710- Palace of Versailles, Baroque. Versailles, France

<https://www.classicfm.com/music-news/coronavirus/st-pauls-cathedral-rotting-risks-closure-financial-crisis/>



1675-1710- St. Paul's Cathedral: Restoration Period (William and Mary). London, England.

<https://www.thechinaguide.com/sight/potala-palace>



1694- Potala Palace: Potrang Marpo-the Red Palace. Tibet China

<https://www.schloss-nymphenburg.de/englisch/palaces/amalien.htm>



1734-1739- Amalienburg, Nymphenburg Palace, Rococo. Munich, Germany

[https://en.wikipedia.org/wiki/Moti_Masjid_\(Red_Fort\)](https://en.wikipedia.org/wiki/Moti_Masjid_(Red_Fort))



1662- Pearl Mosque: the Red Fort Palace. Delhi, India.

<https://www.earthtrekkers.com/ultimate-guide-hiking-tigers-nest-bhutan/>



1692- Paro Taktsang, Paro Valley, Bhutan.

<https://www.travelandleisure.com/travel-tips/celebrity-travel/buckingham-palace-renovations>



1705- Buckingham Palace, Neo Classical. London, England

<https://www.cnn.com/travel/article/presidential-homes-historic-preservation-act-50th/index.html>



1743- Mount Vernon, American Georgian. Alexandria, Virginia.

DECENTERING WHITENESS IN DESIGN HISTORY RESOURCES

bit.ly/decentering

Decentering Whiteness in Design History Resources

Contents

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[Contemporary design practice and social justice](#)
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[Demographics of the design professions, past & present](#)
[The Post-Colonial State](#)
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[Black, Indigenous, Latinx, Asian, and other designers of color](#)
[Collectively, by industry](#)
[Individual Designers, by date of birth](#)
[Compelling assignments/student projects](#)
[Colophon](#)
nyy

Graphic design by Brockett Horne; “Decentering Whiteness in Design History Resources” is a collaborative, open-source annotated bibliography.



Origin Point Birth Center

Studio IV 2022

The Berry Building, located in Historic Downtown Columbia, MO is the site for this project. The goal for the remodel of The Berry Building is to design a natural birthing center that is specifically aimed to support and serve the BIPOC community. From research during the semester, the designer learned about the racial disparities that exist in medical spaces, as well as the fact that black women are 4 times more likely to child during childbirth then white women are in the US.

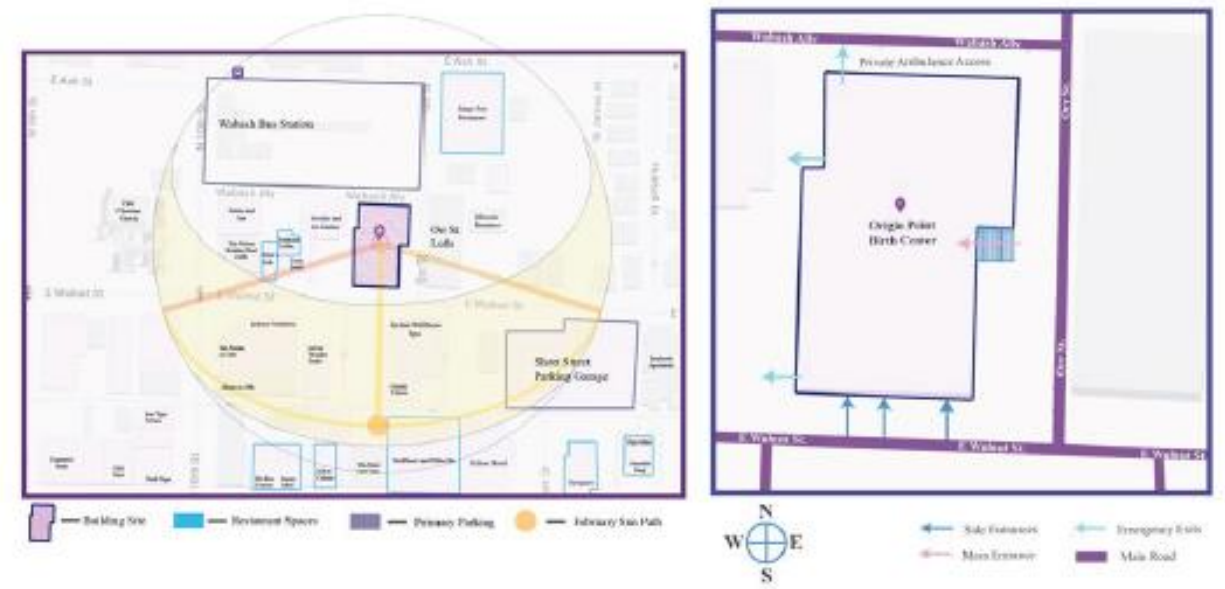
A huge concept behind the natural birth center is to cater to each woman's specific needs and wants. Women need to be heard and listened too in their most vulnerable hours.

In this project there were three main focus areas to design in full: A first floor supporting program, a lobby space, and a birth suite.



Existing Building Exterior and Interior Views

The concept word for the new birth center is KALEIDOSCOPIC. This idea stemmed from a quote while the designer researched black history in Columbia, MO. The grand visual of a kaleidoscope, is used to visualize the black community and empowerment of women. The origin point of a kaleidocsope symbolizes the specific woman giving birth at a given time, and making her the focal point of the moment. All of the beautiful colors and geometries that surround that origin point represent the family, staff, and any member of the support system that are there to surround the mother in love and support.



Appendix C: Interiors Studio IV



Lobby Rendering Made in Revit and Finalized in Enscape

Origin Point Birth Center

Focus Area #1: Creator Cafe

Creator Cafe sits on the first floor of The Berry Building and is the first focus area of this project.

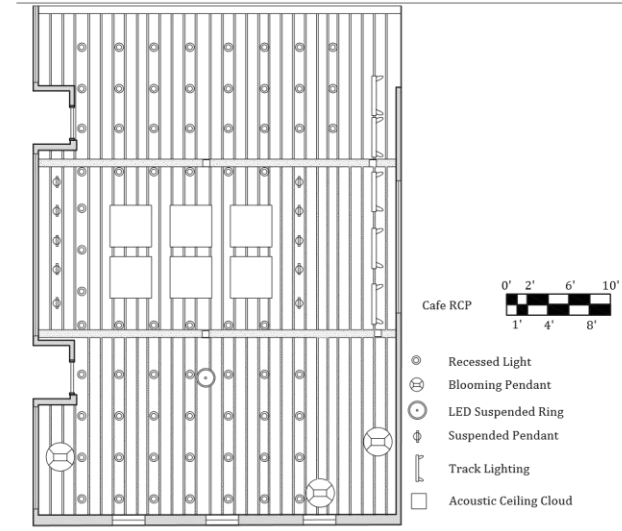
This program is accessible to both the birth center users and general public that are visiting downtown Columbia. Creator Cafe utilizes the same concept as the birth center, kaleidoscopic, but with more focus on empowering women of all backgrounds and less focus on the act of birth.

The design keeps the historic beam work found in The Berry Building and incorporates the unique south facade entrance points to frame additional seating. Acoustical drop ceiling clouds are used to help with sound in the cafe, and also to center the bar station as the main traffic zone.

Cafe Rendered Floorplan Using Enscape



Cafe Reflected Ceiling Plan



Steelcase Neighbor Seat



Steelcase West Elm Swivel



Perigold Blu Dot Pedestal Dining

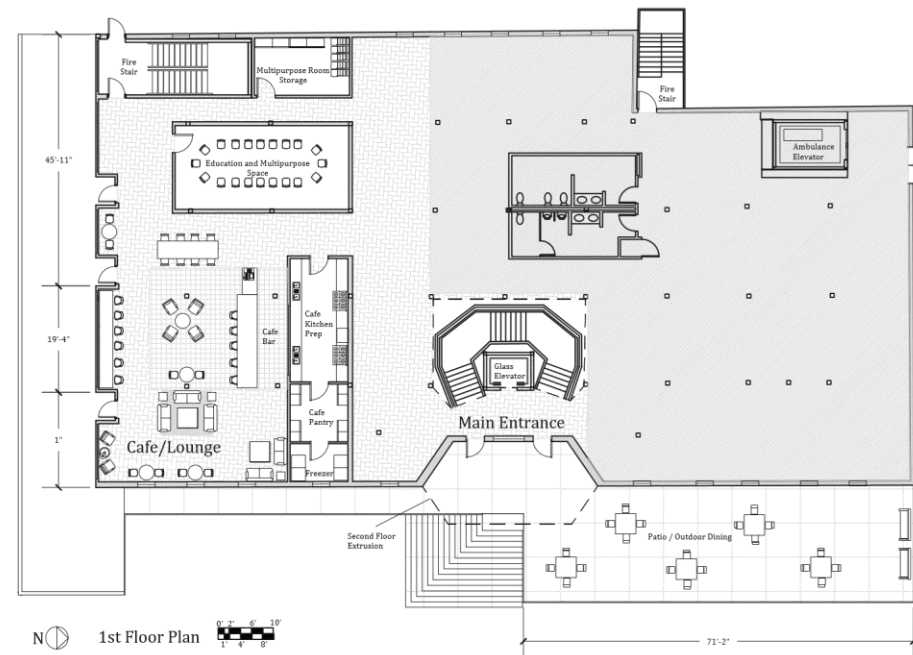
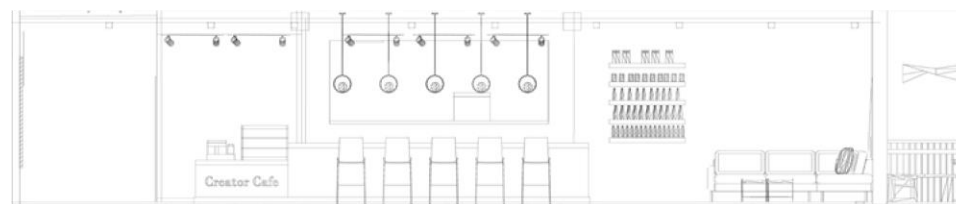


Temple and Webster

Rendered Views of Creator Cafe made in Revit and Finalized in Enscape



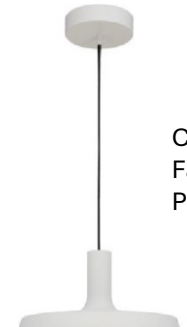
Cafe Interior Elevation



Leti Suspended Ball Light



Possini Euro White Chandelier



Circa Lighting Farmhouse Pendant



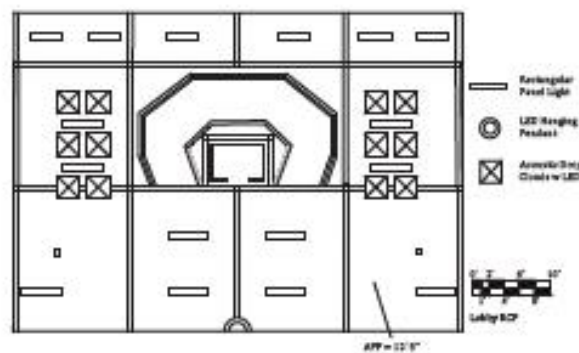
UPLIFT Rectangular Ceiling Cloud

Origin Point Birth Center

Focus Area #2: Lobby Space

The second floor hosts all of the birth center space needs including: 3 birth suites, exam rooms, public restrooms, nurse stations, staff offices, an on call bedroom, and a child play space.

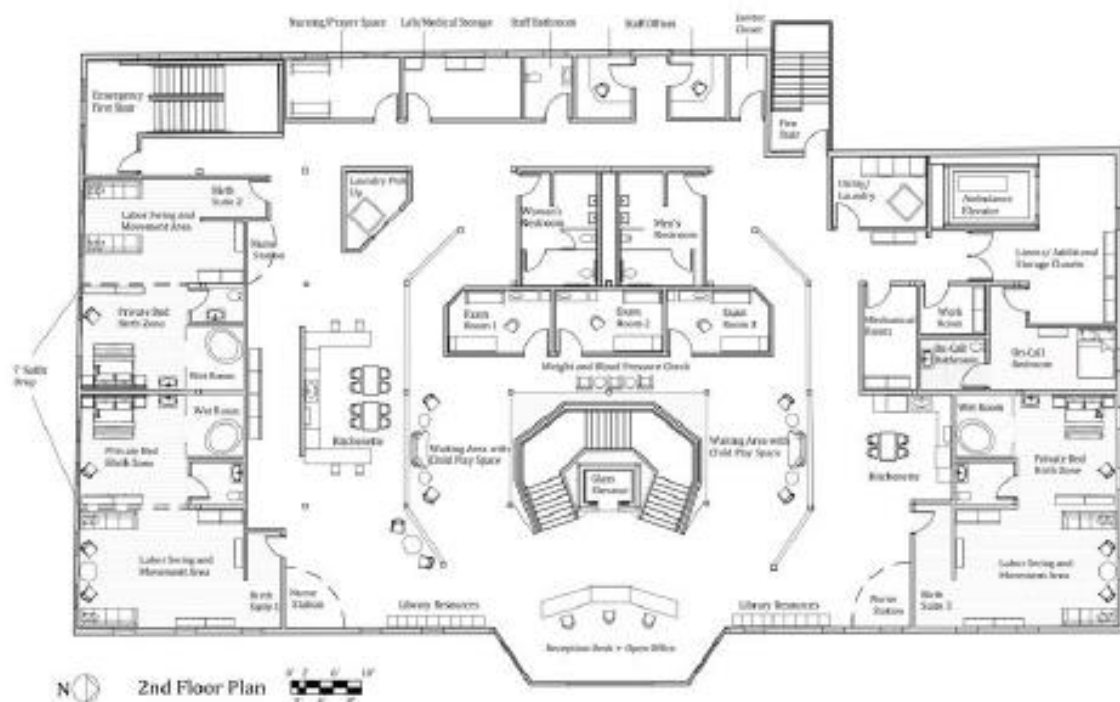
The origin point in the design is the grand vertical circulation that runs from the first floor up through the roof of the birth center. A glass elevator with an angular spiral staircase serves as the center of the public hub on the second floor. To guide circulation from the staircase back to the exam rooms and public restrooms, stained glass wall partitions were designed to frame that region. Vibrant carpeting is also incorporated to assist in wayfinding and the vast amounts of traffic through this region.



Lobby Reflected Ceiling Plan in AutoCAD



Lobby Rendered Floor Plan in Enscape and Revit



Vertical Circulation Section Using Revit



View of Reception Desk Using Revit and Enscape



View of Grand Vertical Circulation and Exam Room Using Revit and Enscape

Origin Point Birth Center

Focus Area #3: Birth Suite

The main focus of this project is the birth suites themselves. These spaces must create a home-like atmosphere that is comforting and relaxing for a mom to delivery her child in.

The birth suite offers completely custom controls for the many different moms who enter. Dimmable lights, individual thermostats, and plenty of space to use many different birthing techniques are all key to creating the perfect birth suite. The Berry Building has a sloped roof, and rooms located on the South end have ceiling heights of 14' high. The design brings half of the ceiling down in the birth suite to divide up the space and also shelter the mother in when she births on the bed or in the birthing tub. High ceilings remain on the family lounge side of the space, and pendant lights are used to make the ceiling feel heavier.

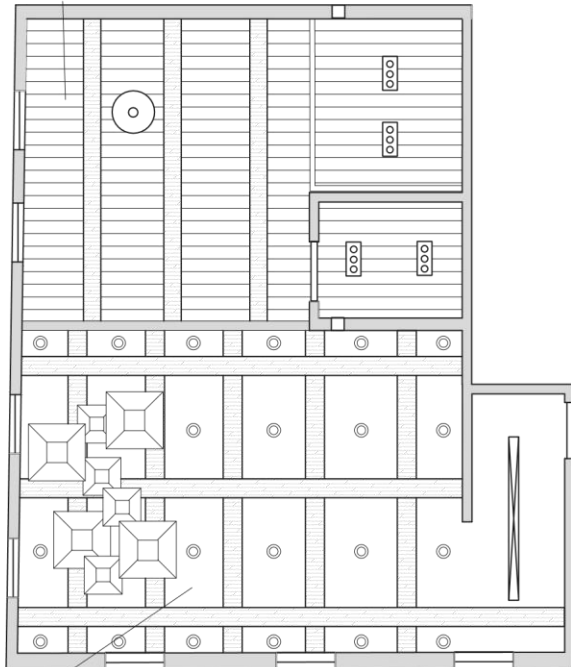
Birth Suite Rendered Floorplan



Birth Suite Section



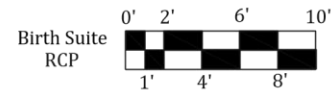
AFF = 8'



AFF = 14'

Birth Suite Reflected Ceiling Plan

- Recessed Light
- ⊠ LED Pendant
- Ceiling Mounted Lamp
- ⊠ Track Light
- ⊠ Rectangular LED Panel



View of Birth Suite at Night Using Revit and Enscape

This navy wall is used to contrast the light grey on the north side of the room. This darker wall is also used to display the handprints and footprints of the many different babies that first entered the world in this birth suite.

View from Birthing Bed Using Revit and Enscape



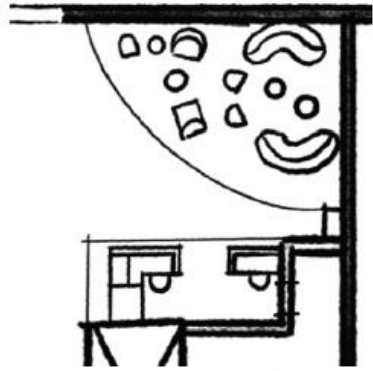
View of Community Wall Using Revit and Enscape, Finalized in Photoshop

Appendix D: Capstone Studio

Capstone Studio Course Schedule

Pre- Hawaiian Trip	
1st Quarter	<p><i>Focus:</i> Hawaiian Culture and Ecological Research</p> <p><i>Topics Covered:</i></p> <ul style="list-style-type: none"> • Landscape & Topography • Culture & History <p><i>Purpose:</i> To familiarize students with the ecological, cultural, and social theoretical issues of the Hawaiian Islands</p> <p><i>Deliverables:</i> Graphic exercises that visually connect topics lectured on to areas students may be less familiar with</p> <ul style="list-style-type: none"> • Design and Social Theory • Urban Design & Interior Design <p><i>Goal:</i> Students will begin to understand who they are designing for and in what context they will be designing through traditional and classroom-based pre-design research methods</p>
Post- Hawaiian Trip	
2nd Quarter	<p><i>Focus:</i> Programming & Conceptual Ideation</p> <p><i>Topics Covered:</i></p> <ul style="list-style-type: none"> • Design for Inclusion • Social Justice & Interior Design <p><i>Purpose:</i> Have students practice applying theory to design solutions through forensic design analysis</p> <p><i>Deliverables:</i> A series of design prompts informed by evidence</p> <ul style="list-style-type: none"> • Issues-based Concept Development • Data-driven Design Narratives <p><i>Goal:</i> Student will begin to make meaningful connections between their individual design decisions and the broader implications for social justice and DEIB as they reconcile inconsistencies between book knowledge and lived experiences</p>

RECEPTION



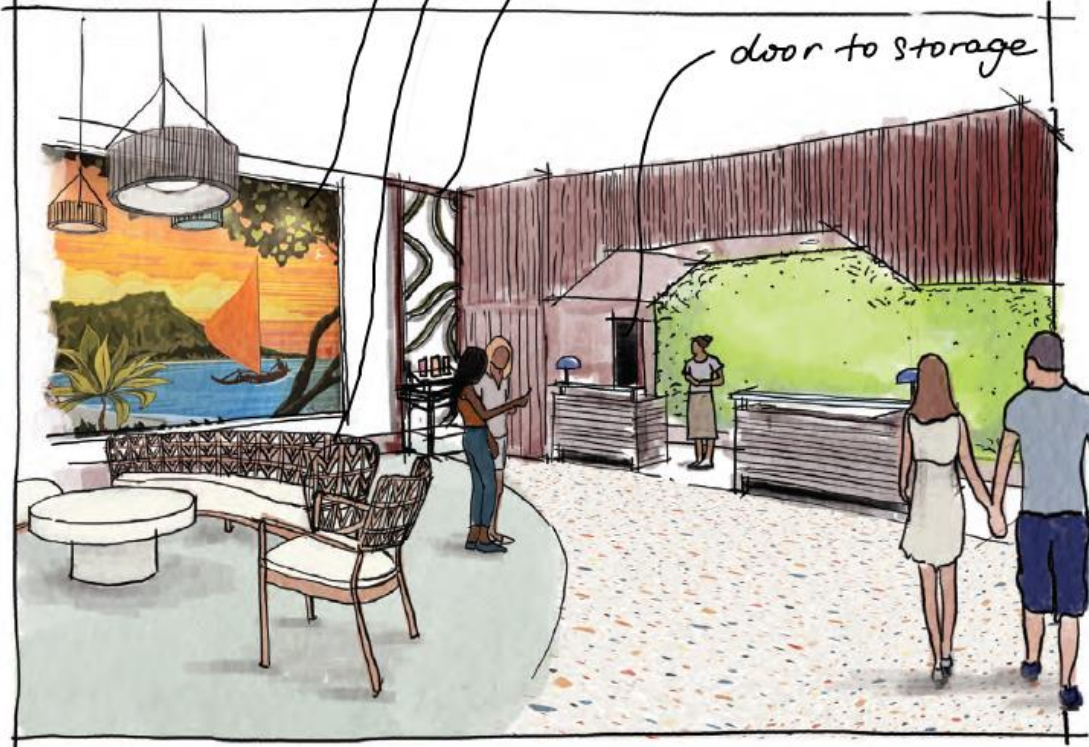
Floor Plan



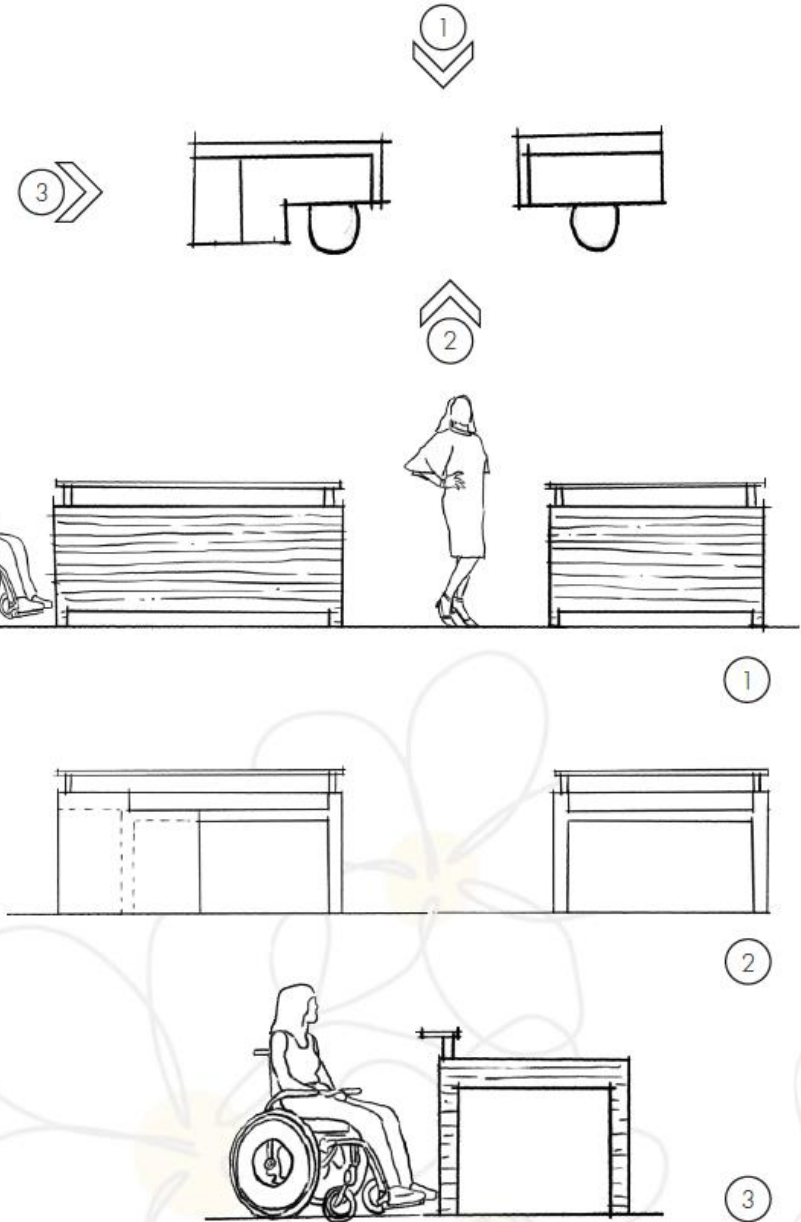
FF&E

local art
custom sofa
design element that mimic hawaiian terrain

door to storage

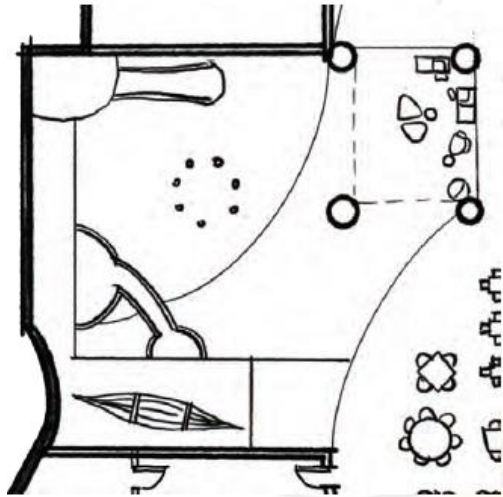


Rendering

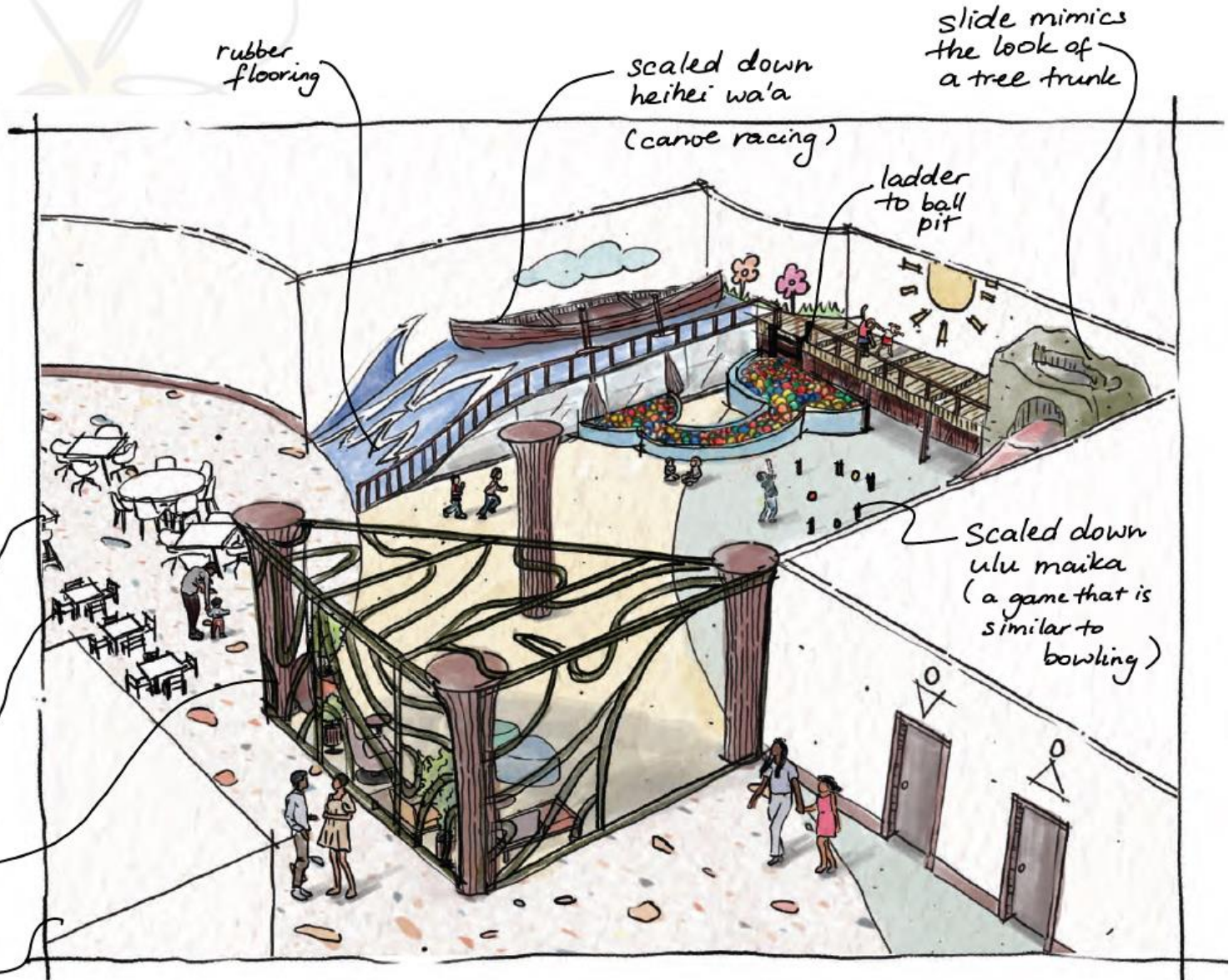


Reception Desk Millwork

PLAYGROUND



Floor Plan



rubber flooring

scaled down heihei wa'a (canoe racing)

slide mimics the look of a tree trunk

ladder to ball pit

scaled down ulu maika (a game that is similar to bowling)

large tables to accommodate large groups of people

dedicated children seating

parental lounge

elevator

Rendering

Scholarship of Teaching and Learning | Panel

Increasing Diversity in the Interior Design Profession with K-12 Education: A Panel Discussion on Recent Activities

Alana Pulay, Washington State University

Keenah Suh, Pratt University

Susie Tibbitts, Utah State University

Stephanie Clemons, Colorado State University

ABSTRACT

There is a lack of ethnic diversity in the interior design profession. The most common ethnicity of interior designers in the United States is White (83%), followed by Hispanic or Latino (7%), Asian (4%) and Black or African American (2%) (Schneider, 2021). This is an immediate problem that requires us to take action. Since design and problem solving are part of our daily lives, it should be taught early in one's life. Exposing youth to interior design creates adults who are more aware about the importance of design on the environment and human behavior. Youth that have exposure to design develop design empathy which allows them the ability to see the contribution of the interior design field into creating more diverse, inclusive, and equitable facilities (Paron, 2020) in addition to seeing themselves as part of the profession.

Another issue with the lack of interior design presence in the K-12 public school system is that the industry is missing many students who would be a perfect fit for the profession because of gender stereotypes (Matthews, Brown, & Brooks, 2021). If interior design was introduced into the K-12 school system when students were at a young age, it would be an opportunity to clarify misconceptions about the profession to attract diverse and first-generation students into the discipline. Clarifying misconceptions helps prepare students both scholastically as well as financially to consider and be successful in this program of study at a post-secondary institution.

The lack of understanding about the interior design profession possibly leaves students unable to identify interior design as a desirable major when entering post-secondary education, contributing to low enrollment rates in collegiate interior design programs in the United States. In addition, some beginning college students are surprised at the technical and applied skills, creativity, and knowledge of building codes, history, contracts, and construction documents that is taught in higher education interior design programs to meet Council for Interior Design Accreditation standards. Which if not

properly prepared or aware of, causes undue stress to the students (Albadi & Zollinger, 2021) and often leads to low attrition rates in higher education interior design programs (Smith and Lilly, 2016). There are numerous benefits to the profession with introducing interior design content to youth in the K-12 school system. The goal of the panel presentation is to share individual research and collaborative initiatives that we've done recently to expose interior design content to youth. This presentation panel consists of four professionals from four different universities and states. Panelists also represent several professional organizations and will be discussing their efforts on this topic as well. The following topics will be discussed in the presentation by each panel member with audience feedback.

1. Discuss interior design K-12 initiatives each panelist is doing independently in addition to collective efforts in this area.
2. Explain the development of a K-12 community inside of IDEC and how we can leverage the group to recruit first generation students and add diversity to the field.
3. Generate ideas about dissemination of ID curriculum content for use in the K-12 public schools.
4. Review the partnerships that each panelist is performing with existing educational programs and organizations.
5. Explore what K-12 involvement is being performed across the nation and collect information by state or region to uncover IDEC members who are working with K-12 communities.
6. Finally, share ideas on how participants can expose younger students to the field in their community.

REFERENCES

- Albadi, N., & Zollinger, S. W. (2021). Dominant learning styles of interior design students in Generation Z. *Journal of Interior Design*, 46(4), 49-65
- Matthews, C., Brown, N., & Brooks, M. (2021). Confronting lack of student diversity in interior design education. *Journal of Interior Design*, 46(4), 3–11. <https://doi.org/10.1111/joid.12207>
- Paron, A. (2020). Design for all needs design empathy. *Journal of Interior Design*, 45(4), 3-9.
- Schneider, A. (2021, August 16). Diversity & inclusion in the interiors industry: The most important issue we'll ever tackle. *Interior Design*. <https://interiordesign.net/designwire/diversity-and-inclusion-in-the-interiors-industry-the-most-important-issue-we-ll-ever-tackle/>

20 | 20

Empowering Women in Design: The Story of Designing Women (DWA)

Nadya Kozinets, University of Louisiana at Lafayette

ABSTRACT

Designing Women of A. (DWA) is a dynamic, nonprofit, community-based organization with a seven-year history of encouraging and supporting women in realizing their full professional and personal potential. DWA's mission is to foster a sense of community, build connections, encourage collaboration, and provide networking opportunities for women in the fields of design and construction. DWA advocates for creative women's empowerment in to broaden the horizons of its members and enhance its influence on social and economic issues within our community.

The connection between the Designing Women organization and interior design education lies in its ability to bridge alumni and faculty with prospective students and the broader community of designers in the area. While initially focusing exclusively on women in architecture and design, the organization is now actively expanding its reach and engaging a growing number of participants from diverse backgrounds who are not only interested in design but also creative individuals. The organization broadened its scope to become more inclusive within the creative community.

DWA takes the lead in local projects and comes up with fresh ideas, nurturing relationships that might otherwise go unexplored. The organization's relaxed structure encourages informal interactions and collaborations, creating meaningful connections among creative women. It also opens up unique opportunities for local women, such as creative fundraising to support local artists, artisans, and women-owned businesses.

Some examples of DWA events include monthly social gatherings, panel discussions, book events, creative mentoring, site and building tours, historical homes tours, visits to local design firms, art walks and spotlights on creative local women and businesses. DWA also participates in initiatives like Habitat for Humanity Women Build and independent Mardi Gras parades.

As an organization DWA is both popular and successful, and its civic creativity could serve as a model for other communities that might be struggling with a lack of creative engagement and community connection. There may be more potential "Designing Women" (and men) out there who can help bridge the gap between creatives! Where Is the Cast of "Designing Women" now? Well... They might be living in your city!

REFERENCES

Note: No references were included with the abstract.

20/20
IDEC 2023
Images









THU, SEP 3, 2020

Rails to Trails Charrette

Going





Immersive Collaboration: Applying Technology to inform Student Engagement

Keir Stuhmiller, Mount Royal University

ABSTRACT

In a post-secondary learning environment, the importance of collaboration and group engagement is foundational to individual preparation for professional design practice. While individual performance and comprehension is a critical metric in professional fields of study, educators continually negotiate the critical balance between students' realizing individual performance metrics and providing the collaborative experience that reflects the professional practice of design. Developing students' perspective on the shared importance of individual skill and engaged, cooperative teamwork is a primary consideration in developing students' professional skillset.

This presentation explores how challenging the traditional classroom structure can refocus students towards a collaborative and consensus driven mindset. A variety of classes and exercises will be presented that take Interior Systems course content and presents it as a group challenge – reflecting the structure of design practice and collaborative, problem solving processes. In a 360 degree, immersive projection environment, students quickly adopt an energized, debate driven approach in which each student celebrates the freedom to take risks, challenge both their own and their peer assumptions, and propose solutions that emerge from the discussion. This Immersion Studio environment will illustrate how students engage the course content primarily as it would be experienced in person, rather than as data. The sequence of group observation, discussion, analysis, and application reflects the habits and skills required in professional practice.

The exercises themselves will be spoken to and outlined in the presentation as they guide the students through precise steps to engage the immersive imagery, diagrams, and even precedent design solutions. The students are provided with a question that requires a phased but direct application of design strategy. Using precise steps of observation, analysis, application, and reflection, each exercise requires a consensus driven approach and report back to the entire class, while leaving opportunity for individual reflection in the final deliverable. The exercises developed to date immerse students in case studies that illustrate lighting, accessibility, and sustainable initiative challenges. Specific environments are projected, whenever possible at a 1:1 scale, for student groups to observe and analyze, with deductive skills required to address the design challenge. This presentation will outline and visualize the steps of the student exercise, and how these steps guide the student debate, collaboration, and conclusion within the immersive environment.

A variety of exercise typologies that are supported by the technology of the Immersion Studio will be presented. The environment can be used to simultaneously present a variety of environments for analysis; or illustrate a complex body of information, drawings, and photographs pertaining to a single

scenario. This flexibility facilitates a wide range of exercises, with a gradient of deliverables and outcomes, and encourages risk taking within the safety of the group environment. As groups share experience and insight, they are more apt to step outside of their comfort zone. Students openly discuss their concerns and thoughts on responding to the design challenge, and gain insight from their peers. Interestingly, this experience of learning from peer insight also informs how students engage their individual work. A proactive interest in challenging their own design methods is observable, and accountability for decisions permeates the studio culture.

REFERENCES

Note: No references were included with the abstract.

Using your studio project, identify two strategies to incorporate in the Farnsworth house from the lecture topics – Passive and Active Sustainable Initiatives (L21 + L23).

Use writing and diagrams with annotations to describe the strategy.

Step 1: Individual Work (20 MINS)

Consider:

- What initiatives would support or challenge your design concept?
- What initiatives would your clients want to participate in or pay for?
- What initiatives are aligned with the original architecture?
- What initiatives are supported by the site features and orientation?
- How do the initiatives work in your project – consider scale, orientation, proportion, size, and impact on views and functions.

Step 2: Collaborate + Reduce (20 MINS)

In groups of four, compare your sustainable initiatives, discuss, and through consensus select two initiatives that support the entire groups conceptual designs.

Consider:

- What kind of flexibility do the initiatives have to support multiple designs/
- What is the impact of initiatives on the variety of design concepts within the group?
- What are your shared influencing factors on this decision?

Step 3: Present Back Findings (20 MINS)

Select a group representative who will provide a 3 minute description of the selected initiative and why.

systems modules

Step 1: Individual Work (20 MINS)

Step 2: Collaborate + Reduce (20 MINS)

Step 3: Present Back Findings (20 MINS)

passive



active

MODULE 08

Using your studio project, identify two strategies to incorporate in the Farnsworth house from the lecture topics – Passive and Active Sustainable Initiatives (L21 + L23).

Use writing and diagrams with annotations to describe the strategy.

Step 1: Individual Work (20 MINS)

Step 2: Collaborate + Edit (20 MINS)

Step 3: Present Back Findings (20 MINS)



IDEC Annual Conference Abstract Submission

Scholarship category: Teaching and Learning in the Round or 20|20 (20|20 PRESENTATION)

Title of abstract Immersive Collaboration: Applying Technology to Inform Student Engagement

IMMERSION STUDIO VIEWS:



IDEC Annual Conference Abstract Submission

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IMMERSION STUDIO VIEWS:



POSTERS

Creative Scholarship | Design as Interior | Poster

Addressing Rural Health Challenges: A Flexible Modular Approach for Resilient Healthcare Services

Pariya Sheykhmaleki, Texas Tech University

Debajyoti Pati, Texas Tech University

ABSTRACT

Rural areas in the United States face numerous challenges in providing quality and assessable primary healthcare services, especially during emergencies such as natural disasters or pandemics. This poster showcases a novel flexible module that aims to overcome these challenges by offering adaptable healthcare facilities, capable of providing comprehensive health services in remote and disaster-prone regions.

According to the Health Resources and Services Administration (HRSA), approximately 62 million Americans, or 1 in 5 individuals, live in areas designated as Health Professional Shortage Areas (HPSAs) for primary care. These areas are characterized by limited access to healthcare facilities, shortage of healthcare professionals, transportation barriers, inadequate healthcare infrastructure, higher rates of chronic diseases, mental health disparities, and limited availability of specialized care, including urgent circumstances like pandemics that can exacerbate this issue. To address these challenges, the literature study began by examining primary health solutions in very remote areas, e.g., spaceships, to identify the state-of-the-art technologies and the methods used to facilitate primary care needs. The literature study on flexibility in architecture and interior design was also conducted to develop a conceptual design for rural areas.

The designed flexible module provides an innovative solution. This module can be prefabricated as all parts are standardized. The flexibility of the module allows the structure to be modified based on local and geographical requirements as well as the ability to expand as required. It has been designed to stand either by itself or work in tandem with public buildings. By utilizing sustainable approaches and flexible spatial configurations, the module optimizes the utilization of limited resources while ensuring efficient and effective healthcare delivery. Furthermore, the poster highlights the key features of this flexible module, including its ability to support telemedicine and telehealth services for all five levels of urgent care conditions, i.e., from facilitating fast tracks to supporting emergency room services, in two divided zones.

The module's versatility enables its deployment in rural areas located far from urban centers and disaster-stricken regions, ensuring access to critical healthcare services in times of need. This module is also capable of responding in urban areas when the need for primary health becomes vastly urgent, e.g.,

during a pandemic. It emphasizes the module's potential to bridge the healthcare gap between rural and urban areas and mitigate the impact of rural health challenges.

REFERENCES

Designated Health Professional Shortage Areas Statistics. (June. 2023). Retrieved from <https://data.hrsa.gov/topics/health-workforce/shortage-areas> on July 2023.

Pati, D., Harvey, T., & Cason, C. (2008). Inpatient unit flexibility: Design characteristics of a successful flexible unit. *Environment and Behavior*, 40(2), 205-232.

Greenwood-Ericksen, M. B., & Kocher, K. (2019). Trends in emergency department use by rural and urban populations in the United States. *JAMA network open*, 2(4), e191919-e191919.

ISS: Bio-Monitor / Bio-Analyzer. (May 21, 2019). eoPortal. <https://www.eoportal.org/other-space-activities/iss-bio-monitor-bio-analyzer#bio-analyzer> Retrieved Oct 15, 2022.

APPENDIX

Addressing Rural Health Challenges: A Flexible Modular Approach for Resilient Healthcare Services

A Modular Design Concept:

Flexibility: To adjust and work in any place/ Possibility of Prefabrication

Expandability: Possibility to expand the module in case of more demands

Independent Module: Stand on its own

Maximum Response: Provide services to a wide spectrum of health situations across the country .

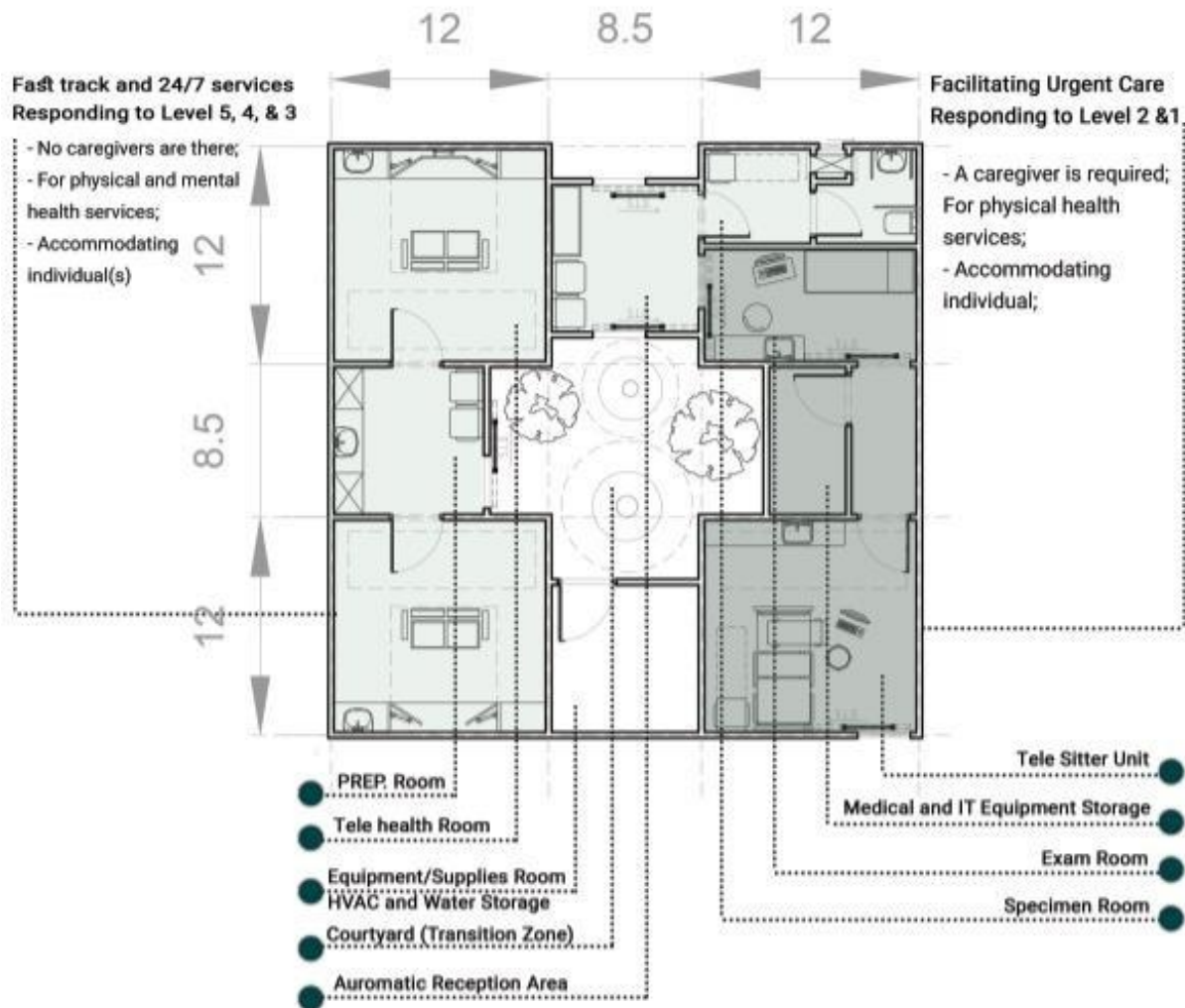


Figure 1. The Architectural Plan of the Module

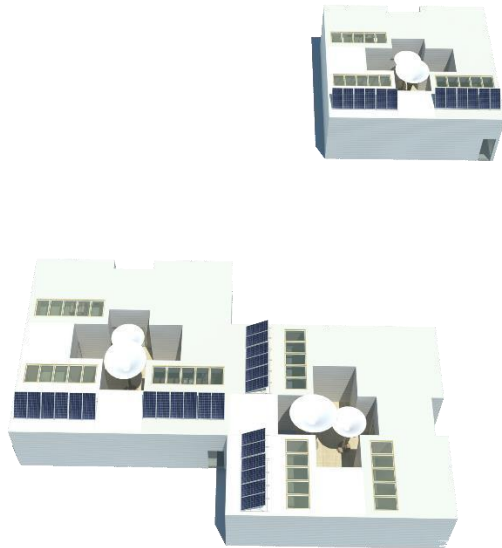


Figure 2. Expandability

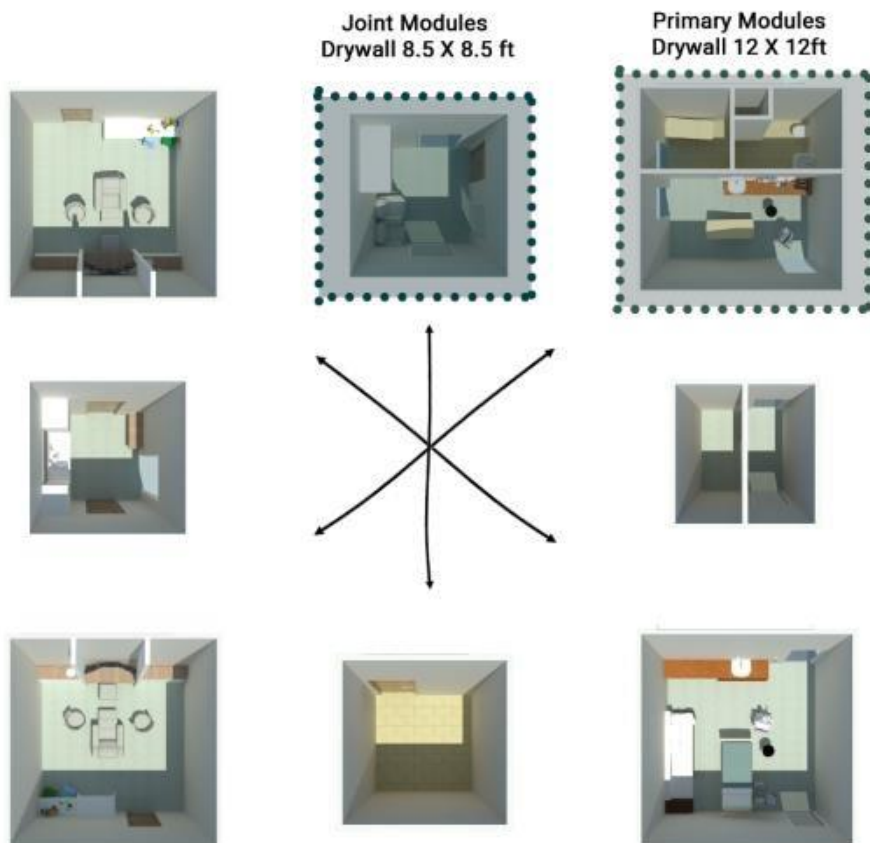


Figure 3. Inner Flexibility: The main module contains 8 sub-modules in two categories, Joint Module and Primary Module and each of them can be removed based on the necessity.

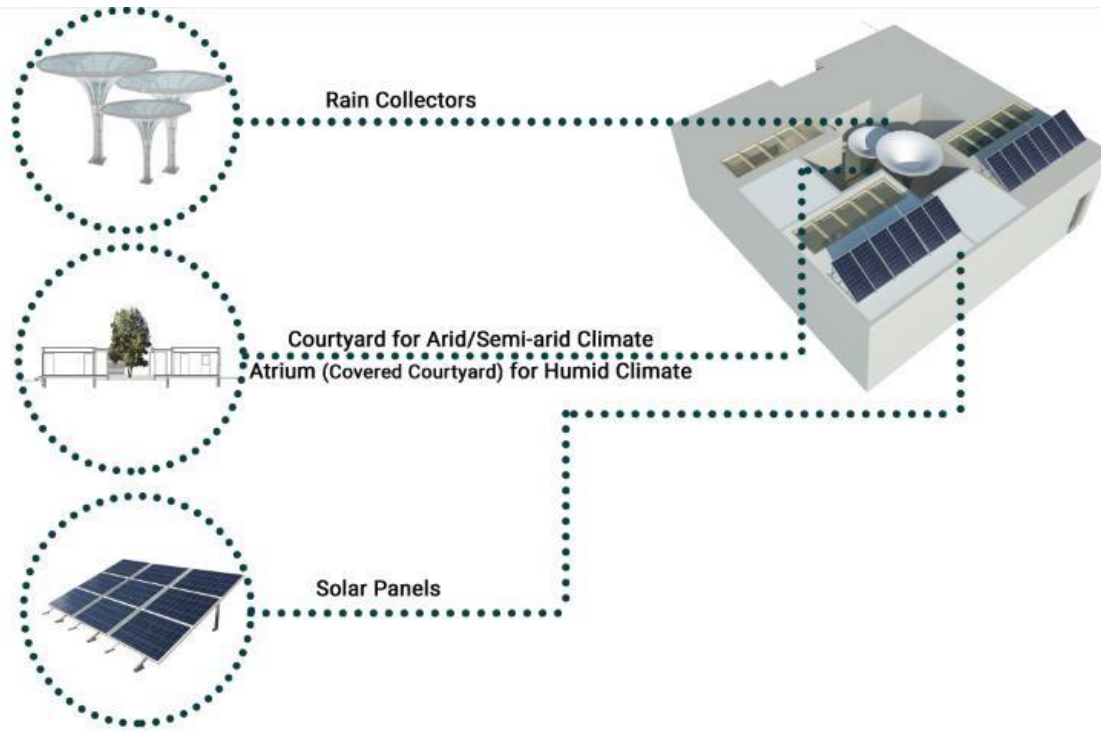


Figure 4. Responding varied geographical locations and different climates



Figure 5. The Reception Area



Figure 6. Courtyard: Transition Zone



Figure 7. Preparation Room



Figure 8. Exam Room with a Caregiver



Figure 9. TeleHealth Room

Creative Scholarship | Design as Interior | Poster

Storytelling through Interior Design: Implementing Narrative Environment Guidelines in a Hotel Main Lobby

Madara Wickremasinghe, Iowa State University

Yongyeon Cho, Iowa State University

ABSTRACT

Narrative Environments refer to designed spaces in experiential design, where users engage with the space's storytelling and narrative, leading to atmospheric shifts. Users can comprehend and empathize with the narratives conveyed by the space, which can evoke various emotions and moods (Keen, 2006). In these designed spaces, users can traverse a multidimensional process involving two-dimensional texts and images, three-dimensional space, and time changes, thereby facilitating critical thinking (Austin, 2020). Particularly, casino hotels are visited by pleasure-seeking visitors (Ritzer & Stillman, 2001), who are affected by the gambling atmosphere to be disengaged from real life (Irazábel, 2007). Such users can benefit from spaces that induce critical thinking to be transformed through spatial narratives. However, narrative environments are primarily utilized in exhibition design, urban design, and virtual spaces (Kossmann et al., 2012). Hence, the study focuses on more permanent spaces, such as hotel main lobbies, that create a bigger impact on the public.

The author analyzed six themed hotel main lobbies in Las Vegas in prior research by applying narrative theories. The case studies and interviews with hotel staff led to the development of eight guidelines for applying narrative environments to hotel lobbies (see Figure 1). In this creative scholarship, the author aims to apply these guidelines to real hotel spaces to explore the applicability and challenges of using these design guidelines.

The designer selected a castle-themed casino hotel in the Midwest to redesign the main lobby using the guidelines. The designer wanted the hotel complex to continue as a themed hotel with a unique theme and story rather than a castle theme, which followed Guideline 8. Figure 2 shows the project site location and hotel complex with other site contexts. Figure 3 shows the floor plan of the proposed design of the hotel main lobby.

Figure 4 to 10 shows the perspectives of the design. The designer applied Guideline 6, subtly portraying a distinctive cultural environment within the space. This proposal highlighted Southeast Asian culture, aiming to blend its nuances with Western societies' modernity. The key theme centered on the contrast between Western society's preference for brightness and Southeast Asian culture's appreciation for shadows and traces of light. The project's core idea was to introduce vibrant colors

into the dark space, experimenting with color combinations to infuse energy. Neon lighting and clean lines added a futuristic cyberpunk element. The designer applied Guideline 1 to 5 for developing the story based on the theme. The designer established a recurrent context along the main axis, shifted the mood dramatically, and incorporated messages inviting guests to explore the narrative space. The journey included rising action, dramatic reveals, and turning points, maintaining the transformative experience until reaching the reception area. The design aimed to be flexible, providing a memorable and continually evolving experience through various elements and technology integration.

The designer encountered several challenges in applying the guidelines. First, the difficulty in balancing the length of narrative messages as longer text impacts signage design and user clarity. Designers chose to spread narrative messages among shorter directional signage and used concise sub-labels to convey the message. Second, the necessity of a large vestibule area, or if guests needed to be introduced to the story world directly. Lastly, the importance of striking the right balance between a brief yet engaging journey for users.

This application and the challenges posed by the evidence-based guidelines will inspire architects, designers, and hotel marketing professionals, encouraging them to strategize the design of future hotel public spaces to influence visitors to make meaningful conclusions through spatial experiences.

REFERENCES

- Austin, T. (2020). *Narrative environments and experience design: Space as a medium of communication*. Routledge.
- Irazábal, C. (2007). Kitsch is dead, Long Live Kitsch: the production of "Hyperkitsch" in Las Vegas. *Journal of architectural and planning research*, 199-223.
- Keen, S. (2006). A theory of narrative empathy. *Narrative*, 14(3), 207-236.
- Kossmann, H., Mulder, S., den Oudsten, F., & de Jonge, P. K. (2012). *Narrative spaces: on the art of exhibiting*. 010 Publishers.

Appendix

GUIDELINES TO DEVELOP THE STORY



Guideline 1:
Is there a recurrent context of the story world that creates a journey on a main axis?



Guideline 2:
Are there a series of messages from the story world (environmental, design or social cues) that invite the audience to come stay in the story world?



Guideline 3:
Are there dramatic reveals at the start, rising action and spectacular turning points that will create a transformative journey for the audience?



Guideline 4:
Does this transformative journey lead through and end at the resolution of reaching a place to accept the invitation to stay at the hotel? (reception)



Guideline 5:
Is the journey thus created short enough to keep the attention of the guest and long enough to interact with characters and features?

GUIDELINES TO DEVELOP THE THEME



Guideline 6:
Is the story world relevant to current times by subtly capturing the essence of a culture, or focusing on a particular situation, rather than imitating a direct place?



Guideline 7:
Is the story world flexible to create novelty for multiple visits?



Guideline 8:
Does the story world differentiate details of the hotel, so as to be remembered for it, instead of being a convenient location?

These guidelines help evaluate the narrative experience in existing themed hotel main lobbies, and provide useful information to hoteliers, architects, designers, educators, and researchers for planning future themed hotel main lobbies to have a maximum impact on their hotel guests.

Figure 1. Narrative environment guidelines for a themed hotel main lobby area

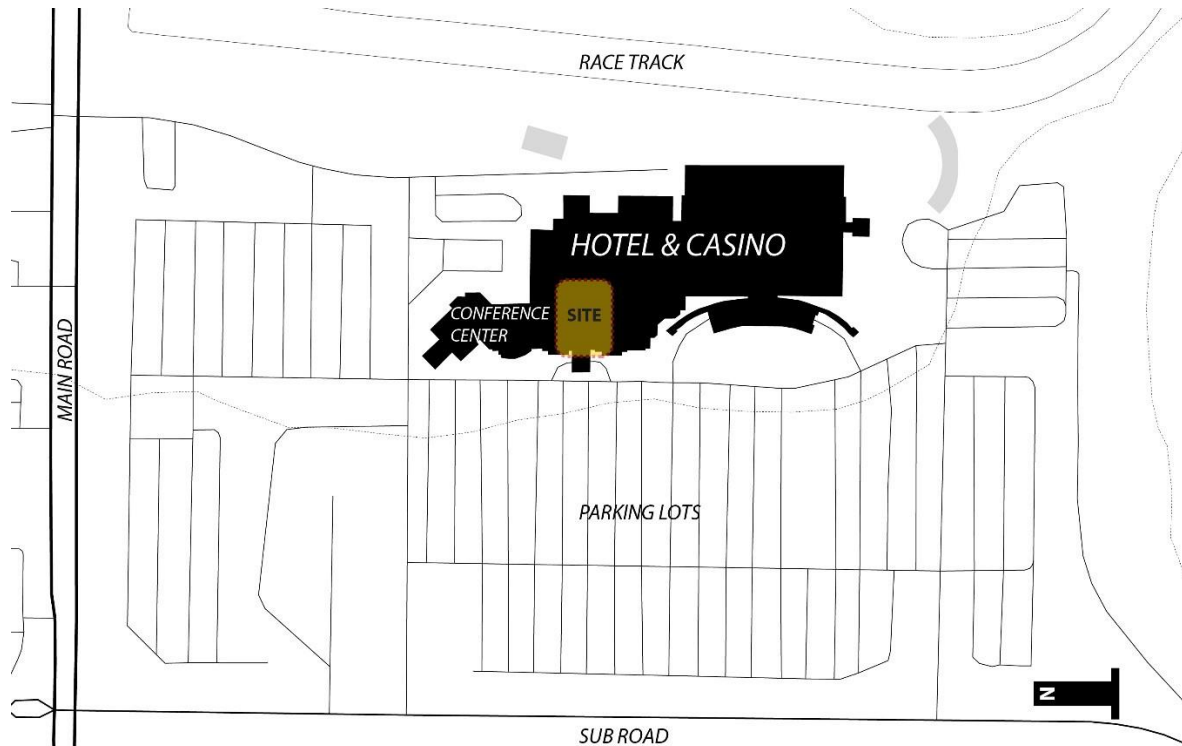


Figure 2. Project site condition and location of the hotel main lobby

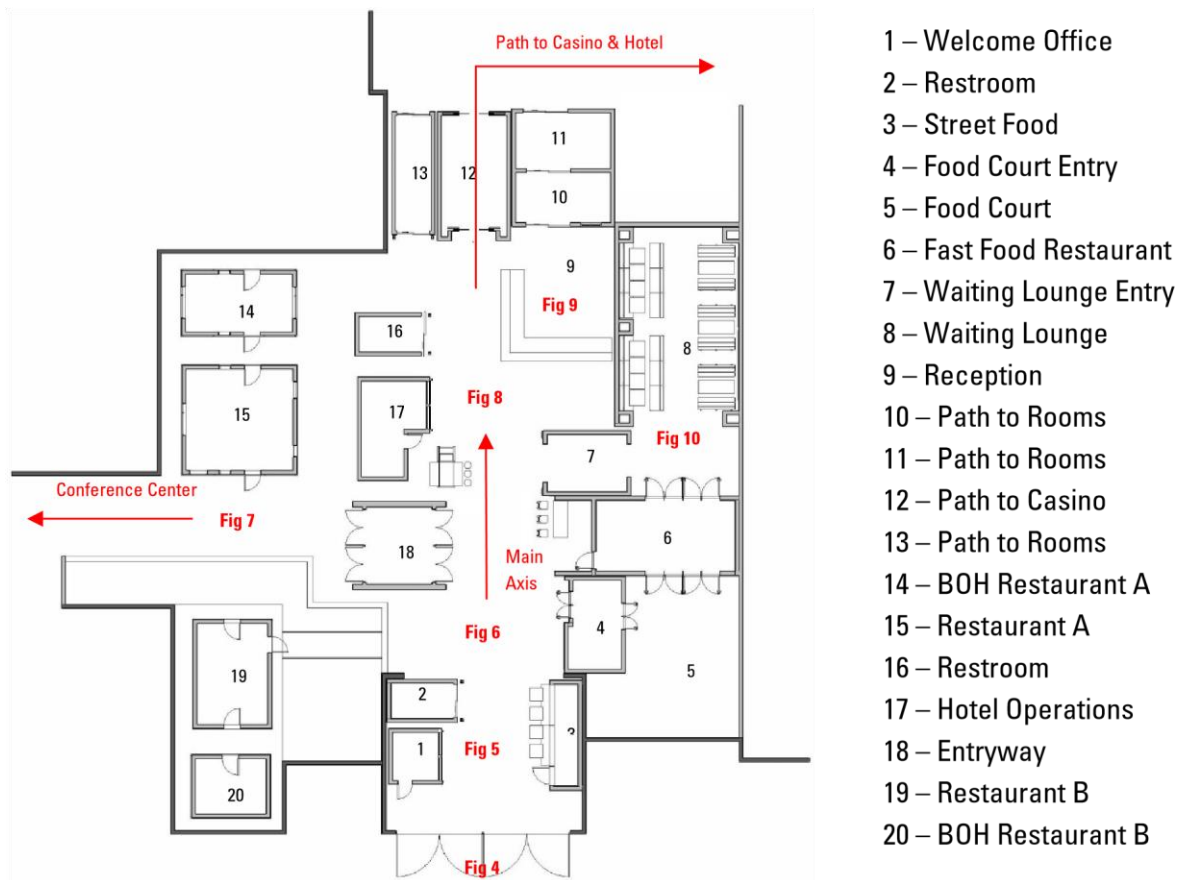


Figure 3. The floor plan of the project and indications of the figures



Figure 4. Hotel entrance to the main lobby area



Figure 5. The first impression of the narrative environment of the hotel lobby on the main axis



Figure 6. Food court area and waiting area on the main axis



Figure 7. The secondary axis from the conference center to the main axis



Figure 8. Entry to the waiting lounge on the main axis



Figure 9. Hotel reception desk and entry to the casino and hotel guest rooms



Figure 10. The view of the waiting lounge behind the reception area

A Case for Evidence-Based, Biophilic Design for Affordable Housing

Chelcey Dunham, Virginia Commonwealth University

ABSTRACT

RELEVANCE

Currently in the US, 4 million families in need of affordable housing are not housed in affordable units and are spending 30-50% of their monthly income toward rent (Aurand, 2023.) Due to this shortage of affordable housing and the trajectory of its growth, advocacy groups and policy makers are making a push to fund more affordable housing projects. What if the designs of these projects were informed in such a way that individual and community mental health and wellness could be addressed in addition to meeting the demand for affordable, safe shelter? In this way, the return on investment for the funding of these projects would be significantly increased, in the form of the ripple effects caused by increased community well being.

ISSUE/PROBLEM

Government standards for affordable housing projects (and thus, funding initiatives) focus solely on the economics of the building and the physical health and safety of residents (HUD.gov, 2023.) Given the growing body of evidence pointing toward the mental health and well-being benefits of biophilic design, this project makes a call to action to amend current HUD building standards to include biophilic design characteristics so that mental health and well-being are also addressed by tax-payer funded building projects.

CONTEXT

Evidence-based design practices within the healthcare and workplace industries have made significant strides in the last few decades, developing and implementing strategies for successfully bridging research and design practices. (Hamilton, 2009) This has resulted in better informed design decisions that positively affect the health of patients and staff (healthcare) and increased productivity and retention (workplace.) With the general goal of an overall increase in community mental health and wellbeing, to what extent could similar evidence-based design efforts be applied within the affordable housing design industry? And what specific benefits could residents and communities realize as a result of this implementation?

METHODS OF INVESTIGATION

Using relevant existing research, precedents of “social housing” projects in Austria, interviews with current residents of affordable housing projects, and an interview with affordable housing designer Kia Weatherspoon, this project will identify and define specific biophilic design methods in the context of affordable housing design which are particularly likely to have a significant beneficial impact on the overall mental health and well-being of residents, and thus surrounding communities.

OUTCOMES

Research around the impact of home environments on its residents indicates that the built environment has a significant impact on overall mental health and well-being (Amerio, 2020.) Analysis and reviews of research in the areas of environmental psychology, restorative environments, and evidence-based design applied in various building types consistently indicates the principles of biophilic design as an effective framework for making design decisions in the built environment (Hamilton, 2009, Peters, 2021.) Biophilic Design principles translate to design characteristics that promote the human-nature relationship via exposure to nature itself, natural light, views of nature, and nature imagery/natural patterns; give a sense of spaciousness within a dwelling; and promote a sense of community connection.

ENGAGEMENT

Specified, evidence-based, biophilic design methods will inform specific suggestions for additions to the current HUD requirements for affordable housing building projects. Additionally, set within the context of a Mid-Atlantic City of 250,000, a proposal of an affordable housing/adaptive reuse design project will demonstrate a prototype of the identified evidence-based, biophilic design methods.

REFERENCES

Amerio, A., Brambilla, A., Morganti, A., Aguglia, A., Bianchi, D., Santi, F., Costantini, L., Odone, A., Costanza, A., Signorelli, C., Serafini, G., Amore, M., & Capolongo, S. (2020). Covid-19 lockdown: Housing built environment’s effects on Mental Health

Aurand, A., Emmanuel, D., Foley, E., Clarke, M., Rafi, I., & Yentel, D. (2023, April 12). Addressing America’s affordable housing crisis. Housing Matters. <https://housingmatters.urban.org/research-summary/addressing-americas-affordable-housing-crisis>

Hamilton, & Watkins, D. H. (David H. (2009). Evidence-based design for multiple building types. John Wiley & Sons, Inc.

Hud.gov / U.S. Department of Housing and Urban Development (HUD). (n.d.). <https://www.hud.gov/>

Adapting to the New Normal: Effects of Workspace Environmental Quality Satisfaction on the Perceptions of Health and Organizational Support across Pre-COVID, Pandemic, and Post- Pandemic Eras

So-Yeon Yoon, Cornell University

Whitney Gray, International WELL Building Institute

Natalie Verdiguél, Cornell University

ABSTRACT

The COVID-19 pandemic prompted an unprecedented shift to work-from-home (WFH), serving as a significant WFH experiment. This session presents longitudinal study findings, exploring how knowledge workers' perceptions of environmental factors evolved during their transition from office settings to remote work, along with the impact of environmental satisfaction on their well-being and organizational support perception.

We employed the WELL Building Standard to assess the impact of building certification on workers, encompassing design, operations, organizational culture, and policy strategies. Before the pandemic, approximately 95% of knowledge workers in the US predominantly worked in office buildings, with extensive research emphasizing the influence of physical office environments on employee well-being and productivity. (Yoon & Chung, 2016). However, the pandemic necessitated universal full-time remote work, making home work environments critical for employee health and organizational well-being.

Perceived organizational support is recognized for its influence on employee well-being, job performance, retention, and overall organizational success by fostering motivation, commitment, and a positive work environment (Li et al., 2022; Eisenberger et al., 2020).

Prior to March 2020, the onset of the COVID-19 pandemic, the predominant mode of work for approx. 95% of knowledge workers in the US were within traditional office settings. Prior research had unequivocally established the significant influence of physical office environments on employee well-being and productivity. However, with the pandemic's advent, organizations mandated a universal shift to remote work, rendering the diverse WFH environments a pivotal determinant of individual employee health and overall organizational performance. While organizations face limitations in

directly shaping their employees' remote work settings, the WELL Building Standards have introduced guidelines to foster health-conscious remote work environments.

This comparative case study investigated the impact of workplace indoor environmental quality (IEQ) satisfaction, perceptions of health, and organizational support among employees of a selected company following their WELL Platinum Certification. We conducted surveys with 189 participants at three time points: before certification (n=53), during the COVID-19 pandemic when employees worked from home (n=64), and after spring 2023 when working from home became optional (n=71), with 42 employees participating in multiple phases. Indoor environmental quality (IEQ) factors, including air quality, thermal comfort, physical comfort, lighting, acoustics, cleanliness, and access to nature, were assessed through satisfaction ratings on a 5-point Likert scale.

Linear mixed regression (LMR) models assessed IEQ's impact on physical and mental health perception and perceived organizational support (POS), with the inclusion of perceived stress as a covariate. Perceived mental and physical health were measured using SF-12v2 (Ware, 1996), while perceived organizational support utilized an abbreviated POS scale (Eisenberger et al., 1986).

Our results suggest that WFH offers advantages in terms of environmental quality. LMR analysis revealed significant impacts of Visual Privacy, Acoustics, and Physical Comfort on POS. While there was no statistically significant difference in PROS across the three phases, we identified highly significant effects of POS on both physical and mental health. Furthermore, when considering the influence of phases, we found that both POS and the phase had significant independent effects on physical health. However, the phase did not have a significant impact on mental health. In the presentation, we will delve into a comprehensive analysis of these findings, providing insights and practical guidelines for optimizing WFH environments and supporting organizations.

REFERENCES

Cohen, S., Kamarck, T., and Mermelstein, R. (1983). A global measure of perceived stress. *Journal of Health and Social Behavior*, 24, 386-396.

Eisenberger, R., Huntington, R., Hutchinson, S., & Sowa, D. (1986). Perceived organizational support. *Journal of Applied Psychology*, 71, 500-507.

Eisenberger, R., Shanock, L., & Wen, X. (2020) Perceived organizational Support: Why Caring about Employees Counts. *Annual Review of Organizational Psychology and Organizational Behavior*. 7. 101-124

Li, M., Jameel, A., Ma, Z., Sun, H., Hussain, A., & Mubeen, S. (2022). Prism of Employee Performance Through the Means of Internal Support: A Study of Perceived Organizational Support. *Psychology research and behavior management*, 15, 965–976.

Scholarship of Design Research | Poster

ASD Children's Safety in Public Primary Schools: A Mixed Methods Study

Riham Hamed, Perkins & Will

Mia Kile, University of Oklahoma

Dawn Loraas, University of Oklahoma

Emily Kuntz, University of Oklahoma

ABSTRACT

Context: It is estimated that 52 million children worldwide are recorded having autism (Metwally et al., 2023). Further statistics revealed that autism is on the rise in the United States with one in 36 children eight years old diagnosed in 2020 up from one in 44 in 2018 (Shaw et al., 2023). This immense growth rate of the children with autism spectrum disorders (ASD), demands an extensive assessment of the facilities meant to serve the children. Evidence indicates that children with ASD encounter many struggles in public education system especially in the developing countries like Egypt, including exposure to problem behavior and limited resources (Meguid, 2021). It can consequently be hypothesized that the school design and space planning can have a considerable impact on enhancing the physical and psychological safety of ASD students through logical school zoning, bullying suppression, and facilitated wayfinding.

Problem: Numerous peer-reviewed studies recommended that more research is needed to investigate the contribution of the schools' physical context on school safety and mitigating violence (Ozer et al., 2017). Prior research focused on classroom settings compatibility with ASD children's needs; however, the rest of the building parts, including circulation and space planning, are limited (Irish, 2022).

Research Questions: 1. What is the relationship between the Built Environment and Autism Spectrum Disorders? 2. What are the opportunities and challenges of inclusive education for ASD children in terms of safety?

Methodology: A mixed method study was conducted to further understand how school design can foster the safety of ASD children. First, the spatial layout of two primary public schools, in Egypt and the United States were analyzed and compared to examine: (1) the schools' zoning and space planning, (2) the natural surveillance provided by the schools' buildings' design through space syntax analysis using DepthmapX software, and (3) the space organization of the schools and how that affects

the wayfinding. Second, a survey (n=312) was conducted to understand the perspectives of teachers, in Egypt and the US, regarding the safety of children with autism in public schools.

Outcomes: The study findings show multiple design elements in the Egyptian school could result in suppressing the natural surveillance and wayfinding of children with autism like (1) concealed nooks, (2) corridors with limited widths, (3) multiple exits, (4) low-transparency classroom windows, and (5) dispersed classrooms zones and restrooms' locations.

Unlike the examined school in the US, the design helped foster natural surveillance and facilitated wayfinding in many ways which consequently would foster the safety of ASD students. Further, the teachers discussed multiple themes when asked to identify affect the safety of ASD children either positively or negatively. Among the identified themes: (1) bullying, (2) elopement, (3) unmonitored Exits, (4) sensory rooms, (5) safe places, (6) wayfinding, and (7) un-educated teachers. Teacher surveys provided unexpected findings which affect the safety of ASD children in public schools including, (1) routine, (2) types of bullying, (3) walking distance, (4) exclusion, (5) communication boards, and (6) shortage of staff. In conclusion, major findings in literature and identified through the study analysis were utilized to suggest implications for practitioners toward designing safer schools for children with ASD.

Significance: The built environment's attributes that can suppress bullying and influence ASD children's physical and perceived psychological safety within public primary schools essential. Interior design plays a critical role by implement evidence-based design strategies to improve ASD children educational experience across all education system. Proposing recommendations that can enhance the safety of ASD children can lift the heavy burden experienced by teachers and families.

REFERENCES

- Irish, J. E. N. (2022). Ten years on: a post-occupancy evaluation of classrooms for pupils with severe autism. *Facilities*, 40(9/10), 656–674. <https://doi.org/10.1108/F-10-2021-0097>
- Meguid, N. A., Nashaat, N. H., Elsaied, A., Peana, M., Elnahry, A., & Bjørklund, G. (2021). Awareness and risk factors of autism spectrum disorder in an Egyptian population. *Research in Autism Spectrum Disorders*, 84. <https://doi.org/10.1016/j.rasd.2021.101781>
- Metwally, A. M., Helmy, M. A., Salah El-Din, E. M., Saleh, R. M., Abdel Raouf, E. R., Abdallah, A. M., Khadr, Z., Elsaied, A., El-Saied, M. M., Bassiouni, R. I., Nagi, D. A., Shehata, M. A., El-Alameey, I. R., El-Hariri, H. M., Salama, S. I., Rabah, T. M.
- Ozer, E. J., Lavi, I., Douglas, L., & Wolf, J. P. (2017). Protective Factors for Youth Exposed to Violence in Their Communities: A Review of Family, School, and Community Moderators. *Journal of Clinical Child and Adolescent Psychology*, 46(3), 353–378.

Appendix:

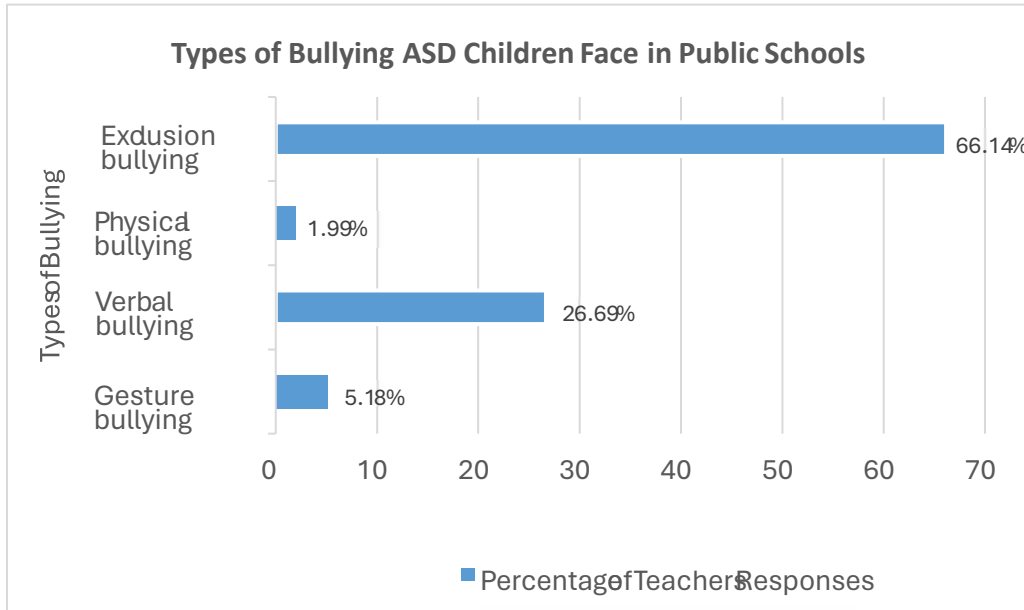


Figure 1. Types of Bullying with the highest prevalence rates according to Teachers

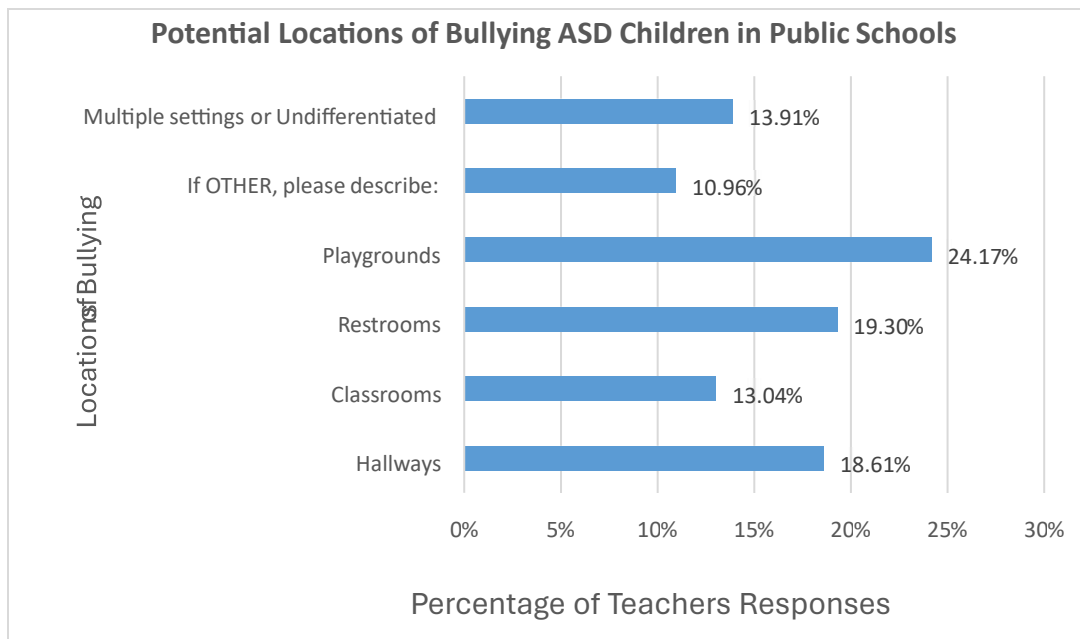


Figure 2. Bullying Locations in Public Schools

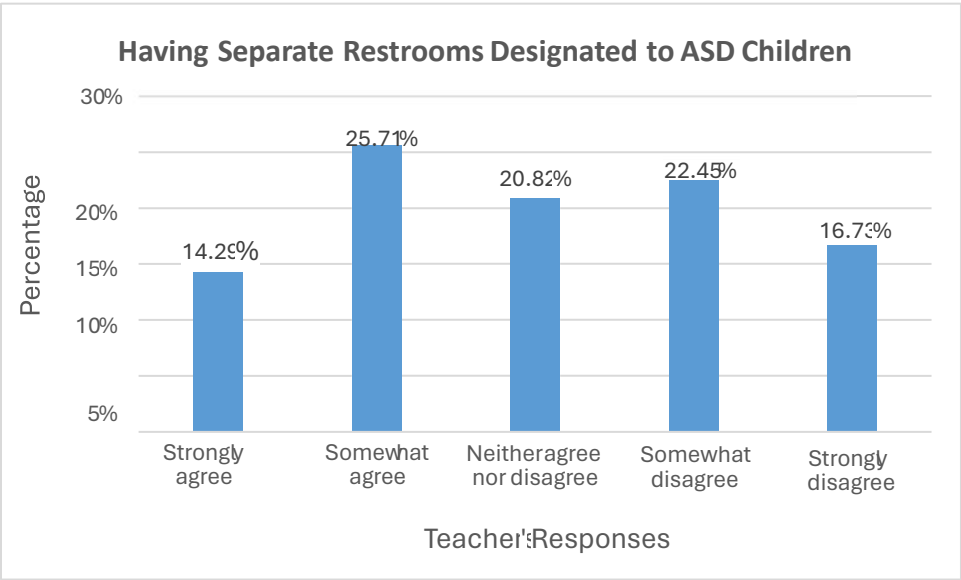


Figure 3. Teachers' perspectives on having separate restrooms for ASD children

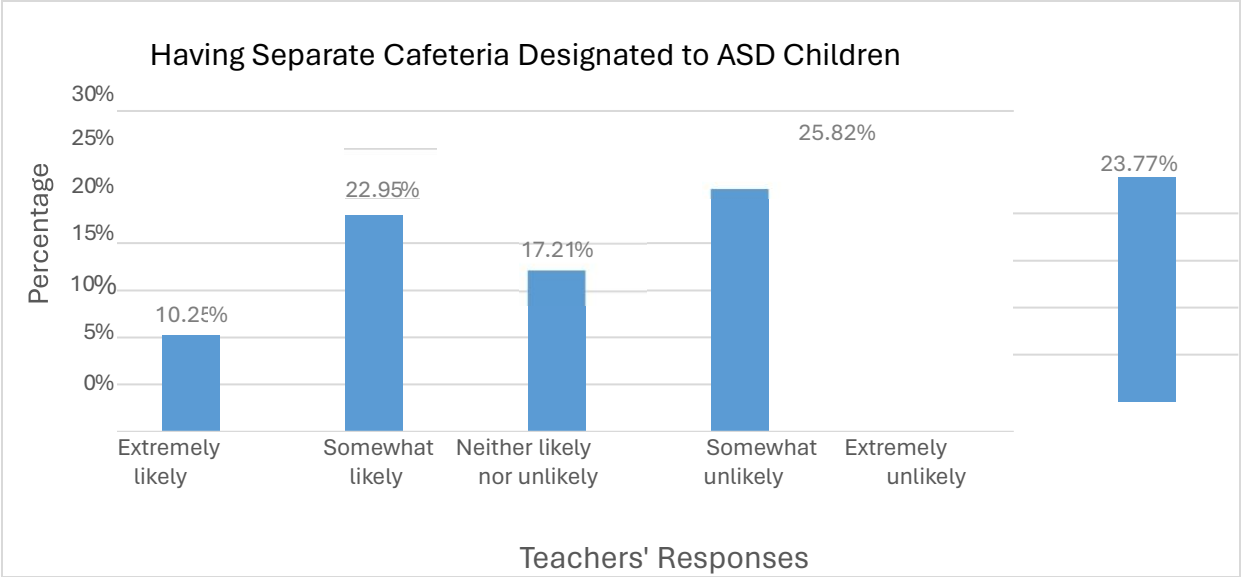


Figure 4. Teachers' perspectives on having separate Cafeteria/Lunchroom for ASD children

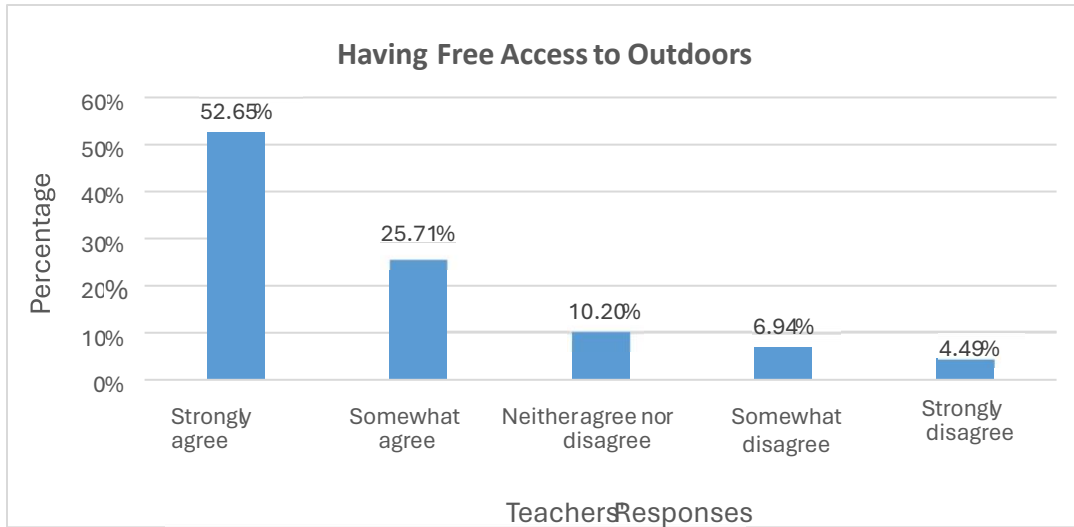


Figure 5. Teachers' perspectives on having a safe free access to outdoors for ASD children

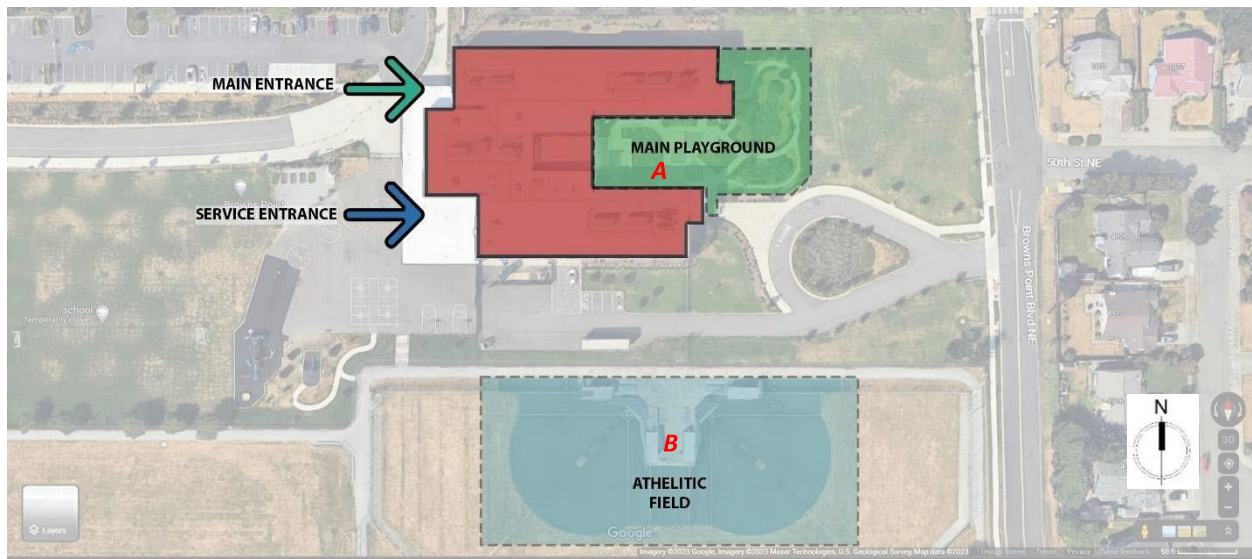


Figure 6. Simplified Site / Building Layout (Source: Google / Visual Analysis by: Author)

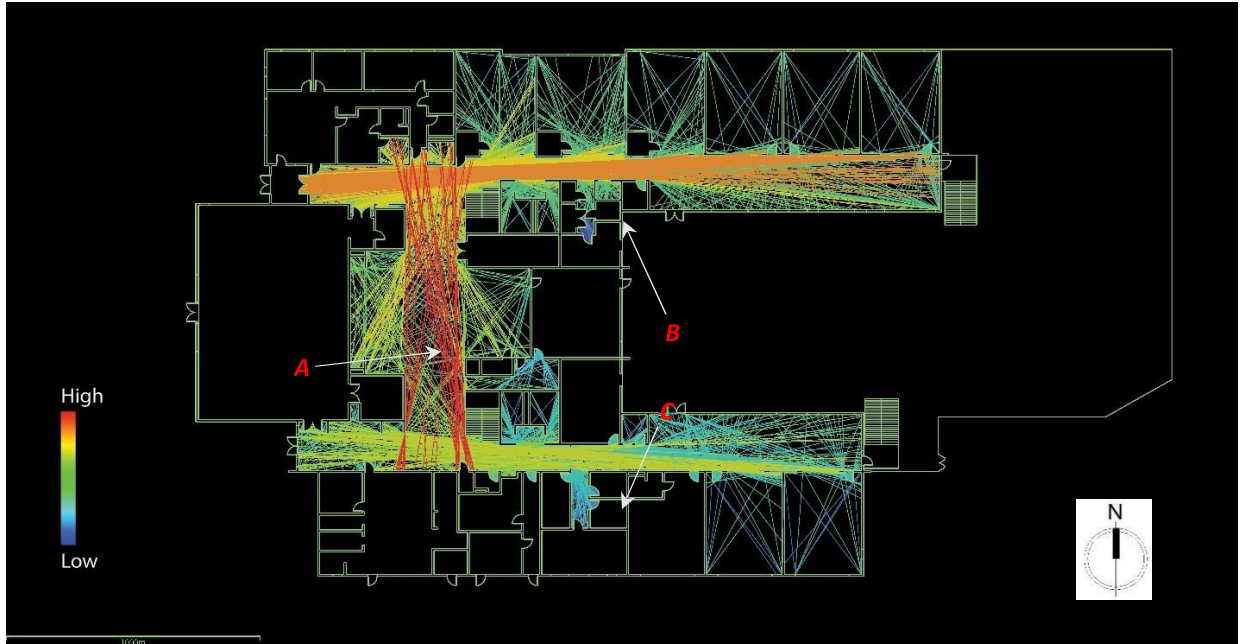


Figure 7. 1st Floor Integration Graph Analysis (By: Author)

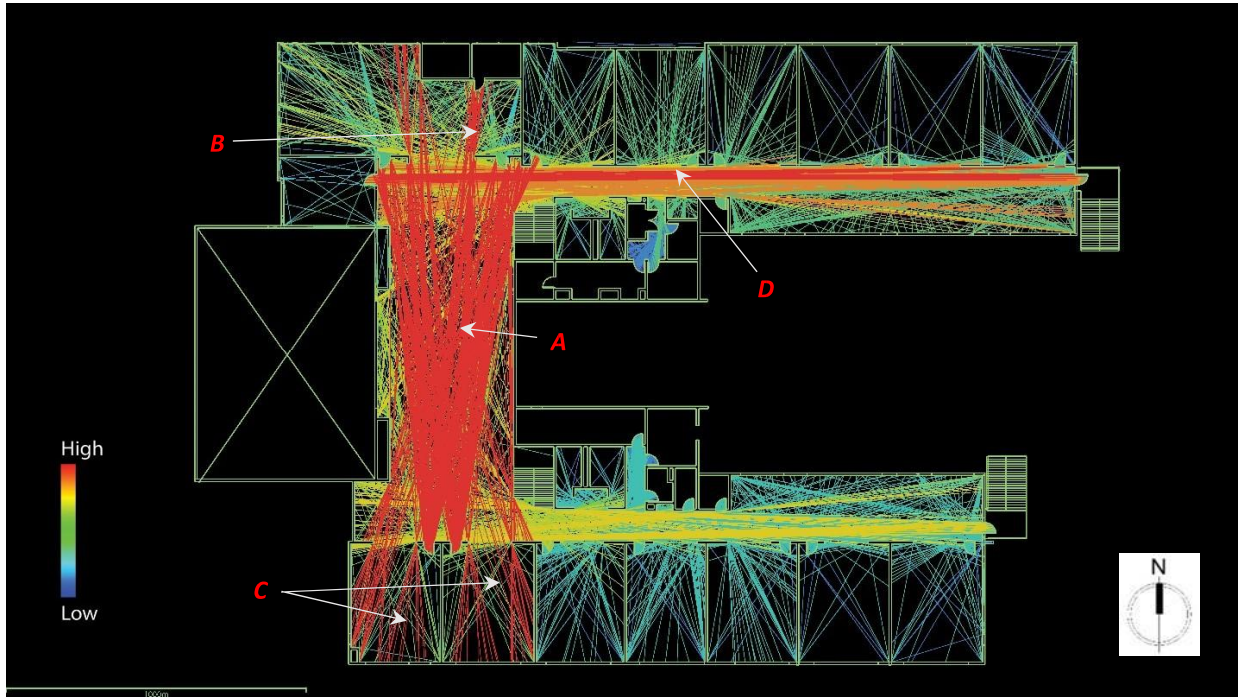


Figure 8. 2nd Floor Integration Graph Analysis (By: Author)

Atmospheric Exhibitions as Design Discourse in Public Interiority

Liz Teston, University of Tennessee, Knoxville

Emmie Barnett, University of Tennessee, Knoxville

ABSTRACT

Human-scaled, short-term, urban “interiorist” interventions and their conceptual grounding are a recent interest in interior architecture discourse (Ionescu 2018, 2). Public Interiority generates ephemeral circumstances and interior-like conditions; these settings often transcend literal building interiors. Non-architectural stimuli like assemblages, proxemics, and phenomenology link to make interiority. To move this theory into praxis, we have participated in two curated exhibitions and an independent installation on atmospheric interiority. These temporary installations intentionally serve as experiments and demonstrate timely issues within contemporary design dialogs. This presentation advocates for installation design as a research methodology to generate new design discourse.

Biennale, exhibitions, and temporary installations often serve as a testing ground for new architectural ideas (Hawthorne 2010, 58). They deliberately provoke—they possess an agency and curatorial authority at the pulse of contemporary design. They promote exchange in two ways—through low-cost (and low-stakes) experimental interventions and by nature of being a temporary spectacle, encouraging designers to visit and absorb before the exhibition closes (Desert 2019, 47). This contrasts with fixed interior architectural forms prioritizing equilibrium, solidity, and a long-term connection with a particular site. After visiting exhibitions, designers often continue the virtual conversation with related ideas in their own projects.

Our atmospheric interventions were installed in Manhattan, exhibited in Venice during the 2023 Biennale, and in Tennessee. Like the familiar remix aesthetic in popular culture, these three installations speak to each other and their temporal contexts (Navas 2015, 1). All parts of the triptych deploy reflective mylar blankets to articulate atmospheric public interiority. The mylar differently engages the microclimate at each site—a Venetian palazzo, a university gallery, and an urban plaza. Each installation asks how ambiance, perception, usage, and the public domain shape our interactions. How do afternoon rains at Manhattan’s Quisqueya Plaza aid the beholder in contemplating the material qualities of the quilted mylar? How do the micro-thin blankets of the open-air gallery installation interact with the solid mylar, also in the group show? How does the interplay of Mediterranean light and dichroic gallery lighting impact our perception of enclosure in Venice? By restricting material variation and installation

methods at each installation site, we increase our understanding of localized meteorological design and deploy the concept of interiority in multiple global contexts.

This presentation has three main purposes:

1. To evaluate the interplay between these three design installations, their theories, and contexts.
2. To establish the relationship between notable temporary design installations and their subsequent related architectural projects—to reinforce the connection between exhibitions and architectural ideas.
3. To tease out microclimates and atmospheres as a significant “interiorizing” force in spatial design—whether interior or exterior, temporary or permanent (Sloane 2014, 300).

These installations serve as laboratories for atmospheric interiorist studies—as part of a larger disciplinary movement to develop a more expansive definition of architecture and design. Interior designers sometimes seek greater legitimacy by circumscribing hard lines between disciplinary boundaries—interior, exterior, building form, and psychologies. But, we see this work as instrumentalizing the experiences of the beholder and the designer—and a form of advocacy for disciplinary expansion (and advancement). It elevates experiential design by drawing on its often-overlooked aspects—a much-needed approach in a field where we continually renegotiate what it means to be an interiorist.

REFERENCES

Ionescu, Vlad. “The Interior as Interiority.” *Palgrave Commun* 4, no. 33 (2018): 1–5. Accessed September 18, 2023. <https://doi.org/10.1057/s41599-018-0088-6>

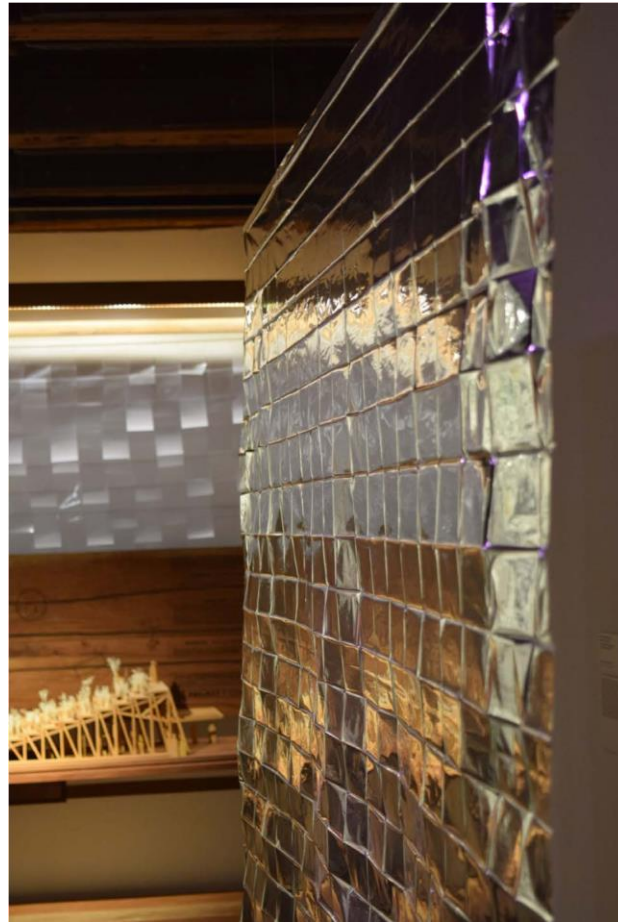
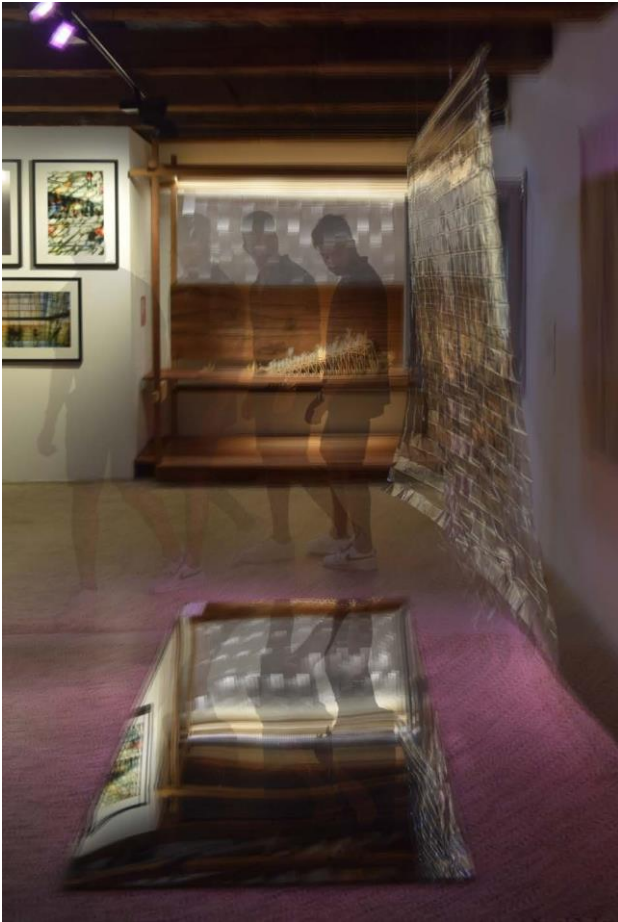
Hawthorne, Christopher. “What Makes a Venice Architecture Biennale Good (like This Year’s)?” *Harvard Design Magazine* 33, Fall/Winter 2010: 58–163.

Desert, Delphine. “Architectural Exhibition: The Aesthetics of Discourse.” *Villardjournal* 01.018 *Investigate* 47, no. 1 (2019): 47–58.

Navas, Eduardo, Owen Gallagher, and Xtine Burrough. “Introduction.” In *The Routledge Companion to Remix Studies*, edited by Eduardo Navas, Owen Gallagher, and Xtine Burrough, 1–12. New York: Routledge, 2015. <https://doi-org.utk.idm.oclc.org/10.4324/9781315879994>

Atmospheric Exhibitions

as Design Discourse in Public Interiority



“Public Interiority: Atmospheres and Temporal Microclimates” installation at the Palazzo Mora for The European Cultural Centre’s Time, Space, Existence Exhibition at the Venice Biennale, 2023

How does the interplay of Mediterranean light and dichroic gallery lighting impact perceived enclosures?

Atmospheric Exhibitions

as Design Discourse in Public Interiority

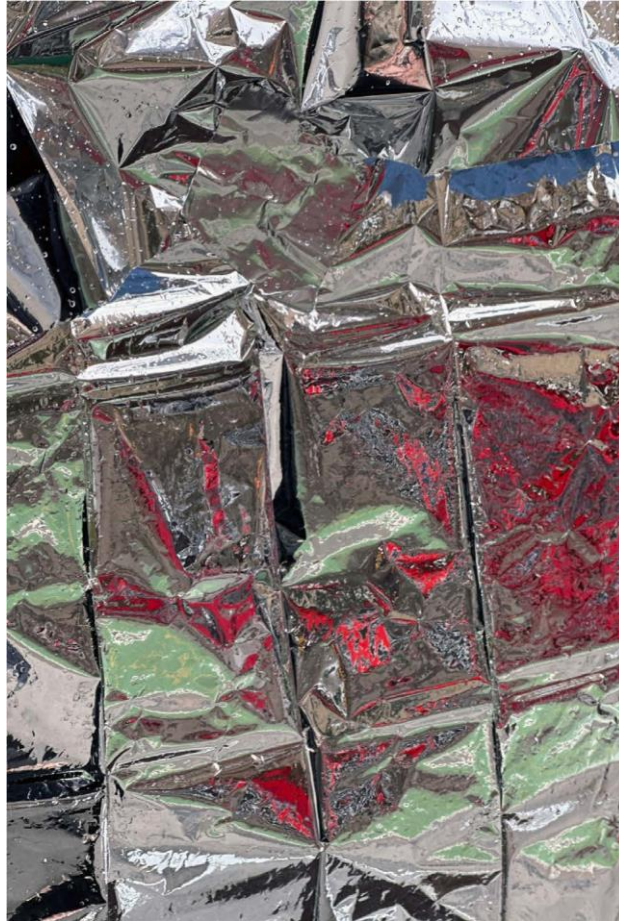


Public Interiority Exhibition, Tennessee, January-February, 2023, name of gallery withheld for blind peer review.

How do the micro-thin blankets of the open-air gallery installation interact with the nearby old mylar?

Atmospheric Exhibitions

as Design Discourse in Public Interiority



Temporary Atmospheric Public Interiority Installation, Manhattan, New York, March 2023, Quisqueya Plaza.

How do afternoon rains reveal to the beholder the contemplative material qualities and microclimates of the quilted mylar?

Biomimicry in the Built Environment: The Potential of Polar Bear-Inspired Window System in Reducing Energy Consumption

Dr. Juntae Jake Son, Ball State University

ABSTRACT

Calculating energy consumption plays an important role in the built environment and affects interior design. In the U.S., residential and commercial buildings accounted for 40% of national energy use in 2017, and educational institutions consumed substantial portions of the commercial sector's electricity and natural gas (EIA, 2020). Biomimicry, an emerging field, seeks to mimic nature's complex models to solve human challenges, such as the leaf-inspired solar cell (Shahda, Elmokadem, & Abd Elhafeez, 2014). The term "biomimetic," introduced by Otto H. Schmitt in 1969, emphasized utilizing biological knowledge for sustainability in architecture and design, and its applications span various sectors (Yetkin, 2021). Within this context, previous research introduced a novel biomimetic window system (Son, 2020), designed to cut down building energy usage.

This research investigated a biomimetic window system aimed at enhancing light penetration and energy savings in educational structures, particularly where is limited natural daylight access. The study simulated energy consumption for a university building in Indiana. This multifunctional building accommodates students and faculty, including offices and lecture rooms. Interestingly, many offices and lecture rooms are designed without windows due to their interior positioning. Given the building's heavy daytime usage during academic semesters and its unique spatial layout, it serves as an optimal choice for examining disparities in energy consumption. Measurement and verification guidelines, including IPMVP, FEMP, and ASHRAE Guideline 14, advocate for a predetermined base model to accurately measure energy savings in building energy management projects. As directly measuring energy savings can be challenging, the base model should closely mirror actual energy consumption, with acceptable margins of error. Two key statistical indices assess this accuracy: the mean bias error (MBE) and the coefficient of variation of the root mean squared error (CV(RMSE)). MBE calculates the percentage error between actual and simulated energy consumption, while CV(RMSE) evaluates how well the base model matches the actual data, with a lower value indicating superior calibration. For example, an MBE for a building with actual energy consumption of 100,000 kWh and a simulated consumption of 80,000 kWh would be 20%. Simulations compared energy consumption data with and without the proposed window system. By comparing these findings, the research quantified not only the energy savings but also the associated financial benefits, utilizing 2023's average electricity costs in Indiana.

The author validated the base model by deriving the MBE and CV(RMSE) values, contrasting simulation outcomes with the actual energy usage of a building powered by electricity, natural gas,

and geothermal energy. Accordingly, when using monthly data for simulation, the 3D model is considered appropriate if the MBE is within $\pm 5\%$ and the CV(RMSE) is within 15%. Some differences naturally appeared between the simulation and actual data, with the MBE within $\pm 5.2\%$ and the CV(RMSE) at 11.87% which are the acceptable range based on ASHRAE Guideline 14 (ASHRAE, 2002). Such differences indicate the base model's reliability.

The biomimetic window system was integrated into the base model, and recalculated the energy consumption and compared with the energy consumption of the base model. To determine the system's effectiveness, two calculations were made. The first calculation was a comparison between the actual and the simulated energy usage, estimating a potential annual savings of 55,433 kWh when implementing the window system. The second method was applying Indiana's average electricity cost. This approach showed an annual savings of \$6,663.13, signifying energy-saving percentages of 14.61%. While comparisons between simulations and reality may not be wholly accurate, the data underscores the proposed system's potential benefits.

REFERENCES

ASHRAE. (2002). ASHRAE guideline 14-2002 Measurement of energy and demand savings. ASHRAE Standards Committee.

EIA. (2020). US Energy Information Administration Annual Energy Outlook 2020. US Department of Energy: Washington, DC, USA.

Shahda, M., Elmokadem, A., & Abd Elhafeez, M. M. (2014). Biomimicry levels as an approach to the architectural sustainability. Port said engineering research journal, 18(2), 117-125.

Son, J. (2020). Impact of Biomimetic Window System on Building Energy Consumption and Occupants' Perception in the Educational Environment. Michigan State University.

Appendix: Tables for comparative analysis of energy consumptions and cost saving

Table 1. Comparative analysis of actual data and data simulated from the 3D model.

Actual Energy Consumption Data (kWh)	Month	Heating	Cooling	Total	Simulated Energy Consumption Data (kWh)	Heating	Cooling	Total
	January	13,306.13	2,452.78	15,758.91		14,457.01	2,711.02	17,168.03
February	11,110.99	3,532.10	14,643.09	11,773.84	3,660.61	15,434.45		
March	9,772.86	7,399.97	17,172.83	8,240.72	8,209.26	16,449.98		
April	6,931.21	23,948.98	30,880.19	4,631.89	25,731.24	30,363.13		
May	4,360.20	44,694.23	49,054.43	2,392.63	42,746.19	45,138.82		
June	3,014.55	53,496.81	56,511.36	1,806.57	56,200.18	58,006.74		
July	2,819.09	53,310.13	56,129.22	1,728.51	51,502.05	53,230.56		
August	2,608.60	52,217.80	54,826.40	1,772.86	45,495.31	47,268.17		
September	3,916.66	37,859.89	41,776.55	2,384.92	30,896.83	33,281.75		
October	5,111.96	15,050.71	20,162.67	4,616.84	13,390.97	18,007.82		
November	9,043.65	2,010.76	11,054.41	8,303.15	3,203.40	11,506.55		
December	10,629.87	883.63	11,513.50	12,959.36	934.20	13,893.56		
Total	82,625.78	296,857.79	379,483.57	75,068.29	284,681.27	359,749.56		

Table 2. Comparative analysis of simulated data sets between the current condition (without window) and the new condition (with the Biomimetic Window System).

Simulated Energy Consumption in current condition (without window)	kWh	Month	Heating	Cooling	Total	Simulated Energy Consumption with the Biomimetic Window Sys.	Heating	Cooling	Total
	January	14,457.01	2,711.02	17,168.03	13,300.45		2,494.14	15,794.59	
February	11,773.84	3,660.61	15,434.45	10,714.19	3,404.37	14,118.56			
March	8,240.72	8,209.26	16,449.98	7,499.05	7,552.52	15,051.57			
April	4,631.89	25,731.24	30,363.13	4,168.70	23,415.43	27,584.13			
May	2,392.63	42,746.19	45,138.82	2,153.37	38,471.57	40,624.94			
June	1,806.57	56,200.18	58,006.74	1,625.91	50,580.16	52,206.07			
July	1,728.51	51,502.05	53,230.56	1,555.66	45,836.83	47,392.48			
August	1,772.86	45,495.31	47,268.17	1,595.57	40,035.87	41,631.45			
September	2,384.92	30,896.83	33,281.75	2,170.27	27,498.18	29,668.46			
October	4,616.84	13,390.97	18,007.82	4,247.50	12,051.88	16,299.37			
November	8,303.15	3,203.40	11,506.55	7,721.93	2,915.09	10,637.02			
December	12,959.36	934.20	13,893.56	12,181.80	859.47	13,041.26			
Total	75,068.29	284,681.27	359,749.56	68,934.40	255,115.50	324,049.90			

Table 3. Energy saving data in comparison to the energy consumption results with the biomimetic window system installed, and the corresponding cost.

Month	Actual Energy Consumption (kWh) ①	Current Condition (kWh) ②	with the Window System (kWh) ③	Reduction (kWh) ③-①	Cost	Reduction (kWh) ③-②	Cost
January	15,758.91	17,168.03	15,794.59	+35.68	+\$4.29	-1,373.44	-\$165.09
February	14,643.09	15,434.45	14,118.56	-524.53	-\$63.05	-1,315.89	-\$158.17
March	17,172.83	16,449.98	15,051.57	-2,121.26	-\$254.97	-1,398.41	-\$168.09
April	30,880.19	30,363.13	27,584.13	-3,296.06	-\$396.19	-2,779.00	-\$334.04
May	49,054.43	45,138.82	40,624.94	-8,429.49	-\$1,013.22	-4,513.88	-\$542.57
June	56,511.36	58,006.74	52,206.07	-4,305.30	-\$517.50	-5,800.67	-\$697.24
July	56,129.22	53,230.56	47,392.48	-8,736.74	-\$1,050.16	-5,838.08	-\$701.74
August	54,826.40	47,268.17	41,631.45	-13,194.96	-\$1,586.03	-5,636.72	-\$677.53
September	41,776.55	33,281.75	29,668.46	-12,108.09	-\$1,455.39	-3,613.29	-\$434.32
October	20,162.67	18,007.82	16,299.37	-3,863.30	-\$464.37	-1,708.44	-\$205.36
November	11,054.41	11,506.55	10,637.02	-417.39	-\$50.17	-869.53	-\$104.52
December	11,513.50	13,893.56	13,041.26	+1,527.76	+\$183.64	-852.30	-\$102.45
Total	379,483.57	359,749.56	324,049.90	-55,433.66	-\$6,663.13	-35,699.66	-\$4,291.10

Deepening the Pool: Blogs and Their Potential to Diversify Interior Design Precedents

Roberto Ventura, Virginia Commonwealth University

ABSTRACT

RELEVANCE

Expanding the pool of precedents is critical to positioning interior design as a study of all humans and how we relate to space.

Traditional precedents emphasized Europeans and North Americans, but CIDA Standards 4 (Global Context) and 6-1 (diversity, inclusion and equity in workplace) reinforce the value of inclusion. Designers are “influenced by what has gone before...and...draw inspiration and learning from leaders past and present in (their) own identity development” (Sealy & Singh, p. 208, 2008). More diverse precedents could foster a more inclusive profession.

PROBLEM

Westerners—particularly American (59%)—dominated Interior Design magazine’s Best of the Year (BoY) Awards in 2020. Only one South American firm was recognized; no African ones were. Expanding the canon through this source is problematic.

Design blogs are accessible sources of new projects. Provided a critical research framework is used with them, might design blogs provide ways to discover new interior design projects that also diversify a precedent pool?

CONTEXT

Roudbari (2018) notes that blogs afford young, diverse practices symbolic capital. This democratizes the traditional channels for promotion and recognition, and potentially presents role models and inspiration for underrepresented interior designers.

The volume of blog posts dwarfs the capacity of a print publication. The October 2022 issue of Interior Design published twelve projects; multiplying by twelve months yields 144 projects. ArchDaily may publish forty projects daily, amounting to over 14,500 posts yearly.

Some library scientists dismiss blogs due to risks of mis-/disinformation (Beckerle, et al, 2021); others note that critical frameworks can be provide the rigor and skill necessary to navigate this medium. Three of these tools—CRAAP (Currency, Relevance, Authority, Accuracy, and Purpose) assessments, BEAM (Background, Exhibit, Argument, Method) categorizations, and Journalistic analyses—provide imperfect bulwarks against bad information, but researchers using a

hybrid approach of them can engage blogs with rigor (Roach-Freiman, 2021).

METHOD OF INVESTIGATION

This study surveyed the fifty most recent projects posted to the blogs ArchDaily, Architizer, and Dezeen. These were compared with the 267 winners from Interior Design magazine's 2020 BoY program.

For each project, its hero image—the large introductory image on the page—was cataloged as an interior or exterior. The design firm's location was also recorded.

Firm locations were grouped by country and the percentage of each demonstrated their geographic spread.

OUTCOMES

Examining hero images reveals an architectural bias in blogs. Of the BoY awardees, 83% depicted an interior; of the 150 blog posts, just over 17% did.

Blogs demonstrated a greater geographic distribution (Figure 1). The BoY award winners were primarily American (60%) and Chinese firms (15%); North American and Western European firms amounted to 73% of the winners, with New York City contributing 23%. American (17%) and Chinese (8%) firms were also represented most in blogs, but in far lower percentages. The smaller blog sample size presented a wider range of countries (38 across 150) than did the BoY program (18 across 267). North American and Western Europe were represented most (50% in total) in blogs, but this was skewed by Dezeen (63%). Blog posts represented every continent, and presented almost as much work from Ho Chi Minh City (4) as it did New York City (6 projects, or 4%).

SIGNIFICANCE OF PRESENTATION

Design blogs promise the critical researcher a route to grow a more diverse and inclusive interior design canon. Blog posts skew heavily towards architecture, but their volume indicates an invaluable interior design resource. The critical parsing of blogs enables students to connect with exceptional design from cultures across the globe and provides them opportunities to develop practices vital to functioning within the context of contemporary media.

REFERENCES

- Beckerle, H., Finston, R., & Sussman, B. (2021). Social Media Debate position 1: Against the use of social media as a credible source of information. *Internet Reference Services Quarterly*, 25(1-2), 25–35. <https://doi.org/10.1080/10875301.2021.1937438>
- Roach-Freiman, A. (2021). Beam me up: Teaching rhetorical methods for source use and synthesis. *Communications in Information Literacy*. <https://doi.org/10.15760/comminfolit.2021.15.2.5>
- Roudbari, S. (2017). Crowdsourced and crowd-pleasing: The New Architectural Awards and the city. *Journal of Urban Design*, 23(2), 206–222. <https://doi.org/10.1080/13574809.2017.1340799>
- Sealy, R., & Singh, V. (2008). The importance of role models in the development of leaders' professional identities. *Leadership Perspectives*, 208–222. https://doi.org/10.1057/9780230584068_15

Deepening the Pool: Critical Methods for Diversifying Precedents Through Blogs

FIGURE 1

Comparing Representation of countries in the 2020 Interior Design Best of the Year Awards and a random sample of 50 projects from three design blogs: ArchDaily, Architizer, and Dezeen.

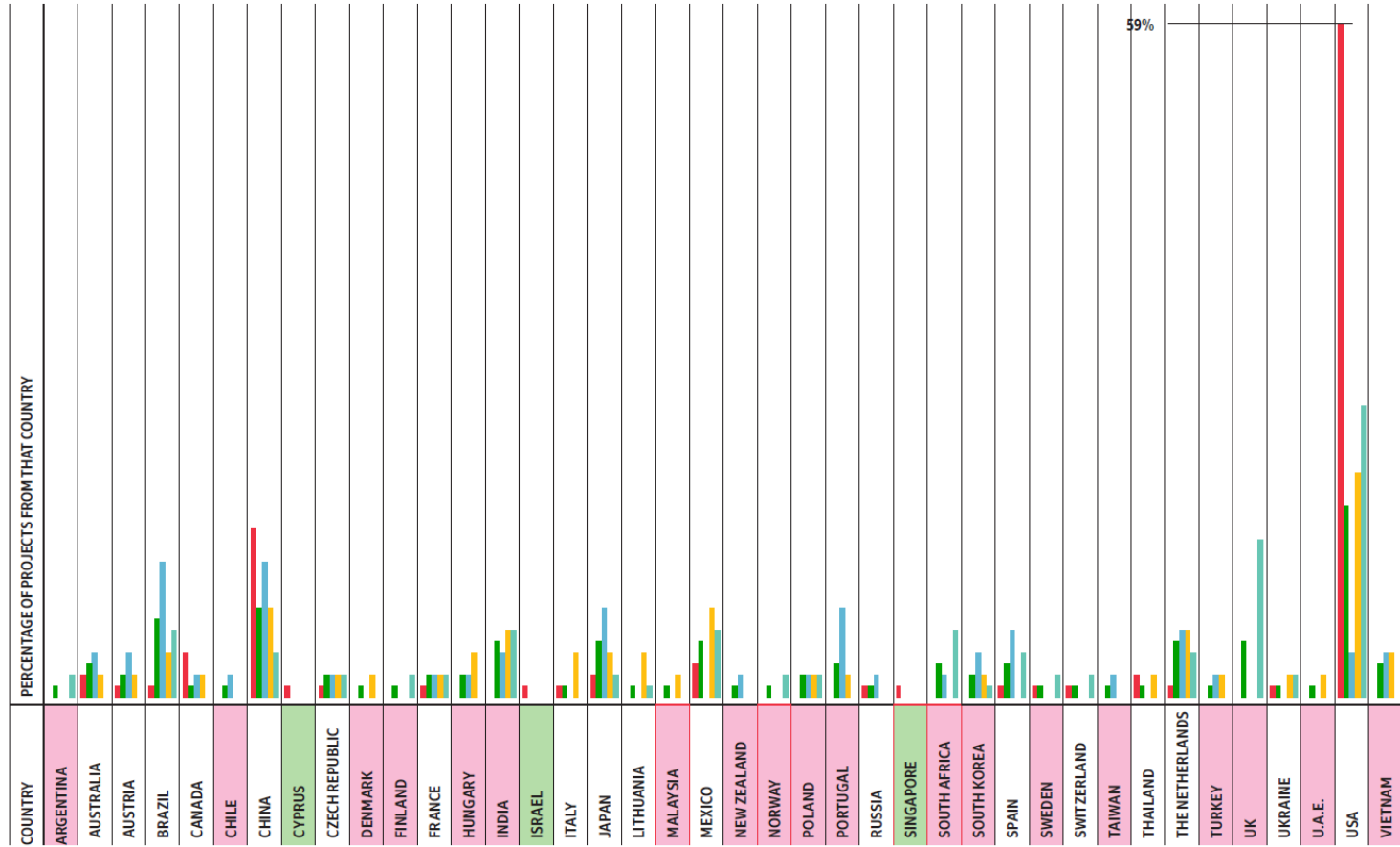
LEGEND

	I.D. BoY
	TOTAL BLOGS
	ARCHDAILY
	ARCHITIZER
	DEZEEN

note:

countries in **pink** were not represented in the I.D. BOY program for 2020.

countries noted in **light green** were not represented in any blog in the sample.



Scholarship of Design Research | Poster

Design for Change: The Role of Design in Combating Food Insecurity

Lauren Hughes, Mississippi State University

ABSTRACT

How can design play a supporting role in providing access to healthy food options in low-income communities? Food insecurity is a prevalent problem across the United States, and is more common in low-income, rural communities.

Compared to the U.S., where 11.6% of its population live in poverty, almost 20% of a rural state's occupants are considered poor (US Census Bureau, 2023). The percentages of persons living in poverty within key counties of the state targeted in this study range from 16.5% up to 43.9%, well above the national average. Along with poverty and food insecurity, comes health problems such as obesity and diabetes. Food pantries help to combat food insecurity, but some research has attempted to connect design interventions such as in food pantries to improved health conditions in their clients (An, et al, 2019). Many rural pantries are housed in faith-based or not-for profit organizations (Long et al, 2019) and therefore lack the financial resources to hire a design consultant when opening a new food pantry. These pantries rely on donations and grant awards to procure food to stock the pantry. Research by Bush-Kaufman et al (2019) concluded that environmental interventions in food pantries can encourage pantry clients to select healthier food items and lead to positive health effects. This research project aims to use evidence-based design to help food pantries optimize their space and systems for storing both fresh, frozen, and shelf-stable foods, and then sharing that information to aid in the formation of new pantries across the state.

The purpose of this research is to provide the public with a prototypical, evidence-based community food pantry design that will support choice-based, healthy food distribution in low-income communities. This pilot project will contain a design for a single, typical-sized food pantry along with a list of furniture, fixtures, and equipment to build the design, similar to a kit of parts. This will allow organizations within low-income communities to utilize existing spaces within churches, community centers or other facilities to start a food pantry in communities with a need.

Qualitative research methods were utilized in this pilot study. The researcher conducted interviews (n=4) and observational studies (n=4) with food pantry managers to identify key issues to address in the prototypical design. See Appendix A for interview instrument. The researcher observed the screening and bagging processes in order to develop an understanding of the functional needs of the pantries, and documented processes via behavioral mapping. After data collection was complete, the information was coded manually to identify key themes such as the need for flexibility, sorting space, organization system, and access to durable and cost-effective equipment. The researcher utilized Building Information

Modeling (BIM) software, Revit, to model a floor plan and three-dimensional axonometric view of a single room size, with a variety of food storage and refrigeration components to best utilize space, maximize flexibility, and compliment workflow. A detailed list of equipment was developed to aide pantry managers during the planning process and allow them to procure equipment from the recommended prototypical design kit.

The poster will exhibit a graphic representation of data, charts and imagery to identify key issues driving the need for this study. Research questions will be presented which guided the interview instrument development. Photographs of observational study sites will be included for reference. Numerous charts will exhibit data collected that has implications in the study. Sketches showing the evolution of the design will be included. Conclusions derived from the data will be shown on the poster. A prototypical design will be illustrated and annotations provided to encourage discussion between the presenter and the audience.

REFERENCES

- An, R., Wang, J., Liu, J., Shen, J., Loehmer, E., & McCaffrey, J. (2019). A systematic review of food pantry-based interventions in the USA. *Public health nutrition*, 22(9), 1704–1716. <https://doi.org/10.1017/S1368980019000144>
- Bush-Kaufman, A., Barale, K., Walsh, M., & Sero, R. (2019). In-Depth Qualitative Interviews to Explore Healthy Environment Strategies in Food Pantries in the Western United States. *Journal of the Academy of Nutrition and Dietetics*, 119(10), 1632–1643. <https://doi.org/10.1016/j.jand.2019.05.010>
- Long, C. R., Rowland, B., Steelman, S. C., & McElfish, P. A. (2019). Outcomes of disease prevention and management interventions in food pantries and food banks: a scoping review. *BMJ open*, 9(8), e029236. <https://doi.org/10.1136/bmjopen-2019-029236>
- U.S. Census Bureau. QuickFacts. <https://www.census.gov/quickfacts/fact/table/MS,US/PST045221> Accessed March 10, 2023.

APPENDIX A- INTERVIEW INSTRUMENT

1. Observation Site: _____

2. Study Site Dimensions: _____

3. Programs Served:

4. Open Shelving Dimensions: _____

5. Open Shelving description of items stored:

6. Closed storage Dimensions: _____

7. Closed storage description of items stored:

8. Refrigerated storage dimensions: _____

9. Refrigerated storage description of items stored:

10. Food package vessel description: _____

11. Food package assembly area dimension: _____

12. Food packing process description:

13. Food Distribution process description:

APPENDIX A- INTERVIEW INSTRUMENT

14. Draw Floorplan below:

15. Behavior Mapping:

16. Notes from Observations:

a. Theme 1:

b. Theme 2:

c. Theme 3:

d. Theme 4:

17. Open-ended comments:

Design issues for learning productivity: Student's ergonomics in university study areas

Sheema Nemati, Iowa State University

Yongyeon Cho, Iowa State University

ABSTRACT

University's study spaces provide students with a place to stay between classes. Students prepare for their next classes, eat meals, and discuss assignments, classes, and life with peers or instructors in this space. There has been substantial growth in awareness of the necessity and challenges of designing 'non-traditional' study spaces (Mäkitalo-Siegl et al., 2010; Campbell et al., 2013). Supportive study space design can enhance student's learning ability and provide users with a healthier, more productive, and successful college life (Ibrahim et al., 2013; Lau et al., 2014; Hegde, 2018). Study spaces also have a significant role in facilitating social learning activities. Since indoor study spaces on university campuses allow students to engage in individual or group study activities, communicate with other students, faculty, and staff, or use learning materials, these spaces should meet students' needs and expectations to improve their academic outcomes. However, past studies have focused on classrooms or libraries, and academia needs studies on indoor study spaces in higher education, i.e., atrium, corridor, and commons. Based on the literature review, the researcher identified five environmental factors and thirteen significant factors (Table 1) to improve students' productivity.

This study aims to identify the impact of indoor study space design elements on college students' ergonomics. Therefore, this project asks two research questions. 1) What environmental factors in university study spaces can increase students' learning productivity? 2) What kind of study space do college students prefer, and how do students experience the design elements?

This study employs a mixed-methods approach; two phases of sequential explanatory design, quantitative and qualitative, were used to evaluate the impact of environmental elements in study spaces on the campus (Table 2).

The researcher investigated 23 study spaces at a university in the Midwest of the United States as a case study and received 199 valid responses from an online survey asking about their visiting patterns, design experiences, self-reported learning productivity in the university's study space, and demographic information. Through this survey under Internal Review Board supervision, the researcher identified that students tend to use the open study spaces individually over the group, and they use 3-4 times per week (38%) and 1-2 hours per their visits (41%) (Figure 1 to 3). The researcher found that furniture and lighting design were the two most important factors in increasing students' learning

productivity in study space among these five factors and accessibility to other spaces and technology were the two least influential factors (Figure 4).

The researcher analyzed the data thoroughly and identified the three most preferred open study areas. The researcher identified there are some common grounds among the three areas. All three areas provided a cafeteria and visitor parking nearby and were easily accessible to various classrooms and faculty offices. Each of these spaces had large windows that allowed students to see outside, but indoor plants were less noticeable. They provide sufficient natural and artificial light (304 to 500 lux) without glare control devices like shades. All three spaces offered a variety of tables and chairs to support users' postures. However, users did not consider the color and textile of the furniture to be an important factor. Lastly, all three spaces are well-equipped with outlets for charging electronic devices, printers, scanners, and TV screens, although the TV screens were considered less important than other technologies. (Tables 3 & 4)

Through this study, the researcher learned what elements of study space students prefer and how to develop the spaces for better ergonomics. The findings of this study will be helpful to architects, designers, and facility managers who desire to design student-centered study spaces.

REFERENCES

Campbell, M., Saltmarsh, S., Chapman, A., & Drew, C. (2013). Issues of teacher professional learning within 'non-traditional' classroom environments. *Improving schools*, 16(3), 209-222.

Hegde, A. L., Boucher, T. M., & Lavelle, A. D. (2018). How do you work? Understanding user needs for responsive study space design.

Ibrahim, N., Fadzil, N. H., & Saruwono, M. (2013). Learning outside classrooms on campus ground: Malaysia. *Asian Journal of Environment-Behaviour Studies*, 4(13), 97-110.

Mäkitalo-Siegl, K., Zottmann, J., Kaplan, F., & Fischer, F. (2010). Classroom of the future: Orchestrating collaborative spaces (Vol. 3). BRILL

Appendix

Table 1. Five Environmental Elements and their 13 Significant Factors

Environmental Elements	Significant Factors
Spatial proximity	Proximity to other spaces (cafe/ home/ classroom/ library)
Lighting design	Natural light Artificial light Color temperature Daylight management system for glare control
Furniture design	Flexibility and personalization of the furniture Comfortableness of the furniture for your posture The complexity of the furniture textile patterns and dynamic color
Access to nature	View and access to outdoor nature elements View and access to indoor nature elements
Access to technology	Accessibility of plug-ins or chargers Accessibility of TV screens for sharing information Accessibility of printers and/or scanners

Table 2. Visual model of the proposed mixed methods - Sequential Explanatory design

Phase	Procedure	Product
1. Quantitative Data Collection	<ul style="list-style-type: none"> ● Online survey (Participant number=395) 	<ul style="list-style-type: none"> ● Numeric data ● Descriptive Inputs
2. Quantitative Data Analysis	<ul style="list-style-type: none"> ● Data S\screening (Qualified participant number=199) ● Exploratory data analysis 	Descriptive statistics, missing data, outliers Charts, visualizations, tabular reports
3. Connecting Quantitative and Qualitative Phases	<ul style="list-style-type: none"> ● Selecting the best study spaces based on the participants' responses ● Developing the case study procedure 	<ul style="list-style-type: none"> ● Cases (n=3) ● Case study protocol
4. Qualitative Data Collection	<ul style="list-style-type: none"> ● Site Measurements ● Site Observation 	<ul style="list-style-type: none"> ● Numerical numbers, space sizes, light lux ● Documents and photos
5. Qualitative Data Analysis	<ul style="list-style-type: none"> ● Site Analysis ● Within-case and across-case theme development 	<ul style="list-style-type: none"> ● Plots, diagrams, design concepts, materials ● Themes

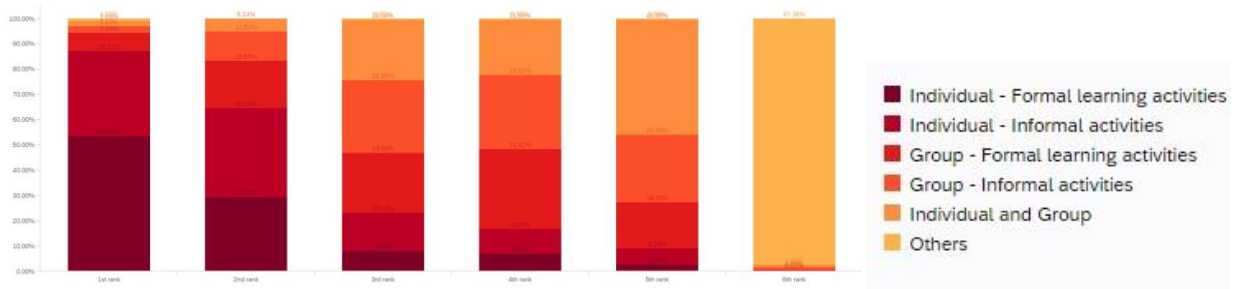


Figure 1. Individual activities vs. group activities in your most frequently visited common area seating



Figure 2. Visiting pattern - the frequency of visits to your most frequently visited common area seating

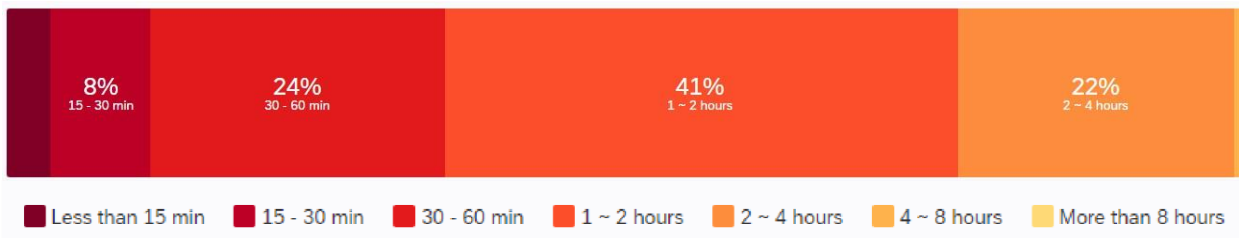


Figure 3. Visiting pattern – hours per visit to your most frequently visited common area seating

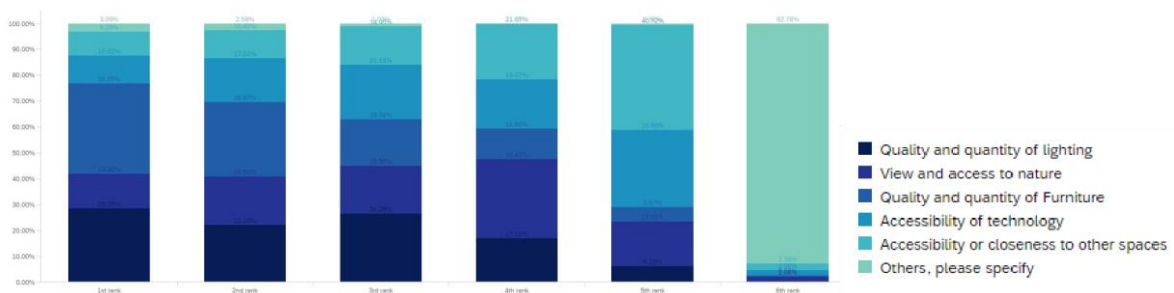





Figure 4. Rank the design features that make participants choose the most frequently visited common area seating

Table 3. Influence of the Significant Factors in the most frequently visited common area seating on individual's overall learning productivity (1=Not at all influential, 5=Extremely influential, n=199)

	Mean	Std Deviation
Daylight management systems for glare control	3.58	1.37
View and access to outdoor green landscape	3.64	1.2
View and access to indoor green elements	3.37	1.39
Flexibility and personalization of the furniture	3.48	0.98
Comfort of the furniture for your posture	3.84	0.96
Complexity of the furniture, textile patterns, and dynamic color	2.79	1.38
Accessibility of plug-ins or chargers for your devices	4.16	1.07
Accessibility of TV screens for sharing information	2.94	1.72
Accessibility of printers and/or scanners	3.52	1.44

Table 4. Existing environmental elements in the three most popular study spaces

	Case A	Case B	Case C
Image			
Proximity	Cafeteria Visitor parking spaces Classrooms	Cafeteria Visitor parking spaces Classrooms	Cafeteria Visitor parking spaces Classrooms
Lighting	247 Lux 298 Lux 471 Lux	145 Lux 605 Lux 759 Lux	247 Lux 375 Lux 759 Lux
Access to Nature	Ceiling height = 25'- 5" Overall area: 2744 SQFT	Ceiling height = 13' Overall area: 1176 SQFT	Ceiling height = Overall area: 1536 SQFT
Furniture	10 high tables 8 stool chairs 7 regular-size tables 4 conference chairs	2 high tables 4 stool chairs 7 regular height tables 4 conference chairs	12 regular-size tables 3 conference chairs 2 high tables 3 stool chairs 6 booths.
Access to Technology	Printers Scanners TV screen Adjustable light switch	Printers Scanners TV screen Boards Adjustable light switch	Printers Scanners TV screen

Examining the relationships between indigenous identity, cultural reclamation, and the built environment

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ABSTRACT

Indigenous languages are cultural cornerstones of traditional knowledge, and a vital topic in Indigenous communities. Now critically endangered, these languages are inextricably tied to the values and ways of knowing that make up aspects of these cultures. Customary classroom settings can be less than ideal for the acquisition of Indigenous knowledge; curriculum design, social climate and pedagogical philosophy often define these spaces. However, the perception of one's learning environment is as important as content (Könings, et al., 2005). Because of government-imposed assimilation, Indigenous communities can experience isolation from the objects and environments that provide context, leading to a disconnect in the conceptualization of language and preventing true fluency and understanding.

Recent technology advances such as virtual reality (VR) offer new possibilities in language revitalization. The creation of an immersive, culturally-relevant environment allows learners to experience language intuitively, in a way that naturally supports the process of language acquisition. The applicability of the space to the language is expected to aid in retention and eventual competency.

To understand the effect of culturally relevant design on language acquisition three virtual environments were developed: (Say what these three are). 60 participants were randomly assigned to these three environments. The three groups were provided with the ability to interact with everyday objects, receiving both verbal and auditory feedback in Bodwéwadmimwen, the Potawatomi language. Pre-post tests were conducted to assess the language acquisition efficacy. Participants' heart rates and skin conductance were measured to calculate the cognitive load in each environment. All participants completed a NASA TLX survey to corroborate the heart rate and skin conductance data. The findings suggest that language acquisition was more efficient in the teaching lodge environment. This environment also posed the lowest cognitive load. This study proposes culturally relevant VR environments as powerful tools for Indigenous language acquisition, by reducing cognitive load.

REFERENCES

Blue Spruce, D., Hill, R., & Nahwooksy, F. (1994). Architecture As A Way Of Life. *Native Americas*, XXI(3), 47. <http://argo.library.okstate.edu/login?url=https://www.proquest.com/scholarly-journals/architecture-as-way-life/docview/224761038/se-2>

Guney, A., & Al, S. (2012). Effective learning environments in relation to different learning theories. *Procedia - Social and Behavioral Sciences*, 46, 2334–2338. <https://doi.org/10.1016/j.sbspro.2012.05.480>

Hadjiyanni, T. (2013). Rethinking culture in interior design pedagogy: The potential beyond CIDA Standard 2g. *Journal of Interior Design*, 38(3), 5–12. <https://doi.org/10.1111/joid.12013>

van Merriënboer, J.J.G. and Sweller, J. (2010), Cognitive load theory in health professional education: design principles and strategies. *Medical Education*, 44: 85-93. <https://doi.org/10.1111/j.1365-2923.2009.03498.x>

APPENDICES

Appendix A: PAD Scale

Pleasure items (measured on a 7-point semantic differential scale):

Depressed - Contented
Unhappy - Happy
Unsatisfied - Satisfied
Annoyed - Pleased
Bored - Relaxed
Despairing - Hopeful

Arousal items (measured on a 7-point semantic differential scale):

Relaxed - Stimulated
Calm - Excited
Sluggish - Frenzied
Dull - Jittery
Sleepy - Wide-awake
Unaroused - Aroused

Dominance items (measured on a 7-point semantic differential scale):

Controlled - Controlling
Influenced - Influential
Cared for - In Control
Awed - Important
Submissive - Dominant
Guided - Autonomous

Appendix B: NASA TLX

Read each statement and select the appropriate response to indicate how you feel right now, that is, at this very moment. There are no right or wrong answers. Do not spend too much time on any one statement but give the answer which seems to describe your present feelings best.

1. Mental Demand -
How mentally demanding were the tasks?

Very Low Very High

2. Temporal Demand -
How much time pressure did you feel due to the rate or pace at which the tasks or task elements occurred? Was the pace slow and leisurely or rapid and frantic?

Very Low Very High

3. Performance -
How successful were you in accomplishing what you were asked to do?

Very Low Very High

4. Effort -
How hard did you have to work (mentally and physically) to accomplish your level of performance?

Very Low Very High

5. Frustration Levels -
How insecure, discouraged, irritated, stressed, and annoyed versus secure, gratified, content, relaxed, and complacent did you feel during the task?

Very Low Very High

Appendix C: Pre-Survey & Consent

Choose one or more races you consider yourself to be.

American Indian or Alaska Native or First Nations - A person having origins in any of the original peoples of North and South America (including Central America) AND *who maintains tribal affiliation or community attachment.*

Asian - A person having origins in any of the original peoples of the Far East, Southeast Asia, or the Indian subcontinent.

Black or African American - A person having origins in any of the Black racial groups of Africa.

Native Hawaiian or Pacific Islander - A person having origins in any of the original peoples of Hawaii, Guam, Samoa, or other Pacific Islands.

White - A person having origins in any of the original peoples of Europe, the Middle East, or North Africa.

Other:

How do you describe yourself?

Female

Male

Non-Binary

Third Gender

Other:

Do you speak a language other than English?

Yes

No

Do you understand or speak *Bodwewadmimwen* (the Potawatomi language) or *Objiwemowin* (the Ojibwe language)?

e.g. answer "yes" if you can do more than introduce yourself or have a very simple exchange of well-known sentences.

Yes

No

Appendix D: Post- Survey

Do you believe that you gained knowledge of *Bodwéwadmimen* (the Potawatomi language) while participating in the module?

Yes

No

How difficult did you find learning the words provided to be in relation to the environment?

Not difficult at all

Very difficult

Match the image to the correct word to the best of your ability:



Wabgon
Jigde`gen
Gokpenagen
Agemek

Match the image to the correct word to the best of your ability:



Wigwas
Jigde`gen
Gokpenagen
Agemek

Match the image to the correct word to the best of your ability



Wabgon
Jigde`gen
Gokpenagen
Agemek

Match the image to the correct word to the best of your ability



Wabgon

Jigde'gen

Gokpenagen

Agemek

How responsive was the environment to actions that you initiated (or performed)?

Not responsive

Completely responsive

How involved were you in the environment experience?

Not involved

Completely engrossed

How much were you able to control events?

Not at all

Completely

How natural did your interactions with the environment seem?

Extremely artificial

Completely natural

How much did the auditory aspects of the environment involve you?

Not at all

Completely

How much did the visual aspects of the environment involve you?

Not at all

Completely

How closely were you able to examine objects?

Not at all

Very closely

How quickly did you adjust to the environmental experience?

Not at all

Less than one minute

How natural was the mechanism which controlled movement through the environment?

Extremely artificial

Completely natural

How well could you concentrate on the assigned tasks or required activities rather than on the mechanisms used to perform those tasks or activities?

Not at all

Interfered greatly

How physically demanding was the task?

Very low

Very high

How hurried or rushed was the pace of the task?

Very low

Very high

How insecure, discouraged, irritated, stressed, and annoyed were you?

Very low

Very high

How mentally demanding was the task?

Very low

Very high

How hard did you have to work to accomplish your level of performance?

Very low

Very high

How successful in accomplishing what you were asked to do?

Very low

Very high

In this space I feel...

Relaxed

Stimulated

In this space I feel...

Annoyed

Pleased

In this space I feel...

Guided
Autonomous

In this space I feel...

Calm
Excited

In this space I feel...

Depressed
Contented

In this space I feel...

Unhappy
Happy

In this space I feel...

Cared For
In Control

In this space I feel...

Sleepy
Wide Awake

Interior Design 3D Printing Mistakes and Best Practices: A Case Study of a Retail Shop

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Yongyeon Cho, Iowa State University

ABSTRACT

In the realm of interior and architectural design, the significance of three-dimensional awareness is undeniable. However, this industry's demand for physical modeling has notably declined. This shift has reshaped design education, placing a greater emphasis on screen-based visualization techniques. 3D printing has emerged as an important tool for communicating design ideas across all phases of the creative process in the design industry (Ford & Minshall, 2019; Hu & Jiang, 2017). The inherent value of a tangible 3D model lies in its capacity to foster enhanced dialogue with clients, enabling them to gain a deeper understanding of design that they can both see and touch. 3D printing also offers a faster, more accessible, and simplified alternative. Thus, this study was initiated to explore the role of 3D printing in enhancing communication within interior design. Prior research has delved into 3D printing in interior and furniture design, often drawing comparisons with CNC technology (Mahran, 2019). Some studies have focused on the materials employed in 3D printing for interior and furniture design (Saad, 2016). Another study by Greenhalgh (2016) examined the impact of 3D printing on the design process by comparing handcrafted models to 3D printed ones, specifically in the context of interior design students. However, these studies predominantly centered on furniture prototypes, neglecting interior design layouts. The absence of tested steps for 3D printing interior spaces could potentially dissuade students and designers from utilizing this technology in their spatial projects.

The objectives of this study are twofold: 1) to systematically identify and document prevalent errors encountered in 3D printing for interior design and 2) to formulate a robust set of guidelines to facilitate the future integration of 3D printing within the field of interior design.

The study used a case study of a retail shop to experiment with 3D printing. The researcher first identified the necessary modifications of the digital 3D interior models for 3D printing models. Second, the researcher determined scales for 3D printing and established suitable settings for 3D printing interior models (see Figure 1). Lastly, the digital 3D model was 3D printed in three different scales (see Table 1) to observe potential mistakes and errors (see Figure 2). The study employed various software and hardware components, including Autodesk 3ds Max 2023 for 3D modeling software, Ultimaker

Cura 5.1.1 for 3D printing software, Ultimaker S5, 3D printer, and PLA 2.85mm 1Kg Silver as the 3D printing material.

Based on the outcomes of this experiment, the study recommends a scale of 1:150 as the most suitable for 3D printing of the retail shop design (see Figure 3). This determination is primarily founded on balancing the model quality and the printing process's convenience and time efficiency. At 1:150, the size remains sufficiently large for effective presentation, with clear details and recognizable representations of the human figures and furniture.

We also found some challenges that, in all cases, removing supporting structures may necessitate additional effort and tools. Smaller models would pose greater challenges for achieving a refined finish. Additionally, in all instances, there were minor alignment issues between the top and bottom components of the model, which could potentially stem from the original design and may require iterative adjustments. We also recommend that designers pay more attention to some accessories, such as clothing and shoes, which will likely need to be extracted from the primary model and reprinted at a larger scale to achieve greater detail. The study could also delve into printing interior feature walls on a larger scale, adjusting print quality to Fine or Extra-fine, and quantifying the associated time and material requirements.

Using different colored PLA materials for design details is another intriguing avenue for experimentation.

REFERENCES

Ford, S., & Minshall, T. (2019). Invited review article: Where and how 3D printing is used in teaching and education. *Additive Manufacturing*, 25, 131-150.

Greenhalgh, S. (2016). The effects of 3D printing in design thinking and design education. *Journal of Engineering, Design and Technology*, 14(4), 752-769.

Hu, L., & Jiang, G. (2017). 3D printing techniques in environmental science and engineering will bring new innovation.

Mahran, S. (2019). Application of 3D Printing in Interior Design and Furniture. *Journal of Architecture, Arts and Humanistic Sciences*, 4(15), 327-348.

Appendix

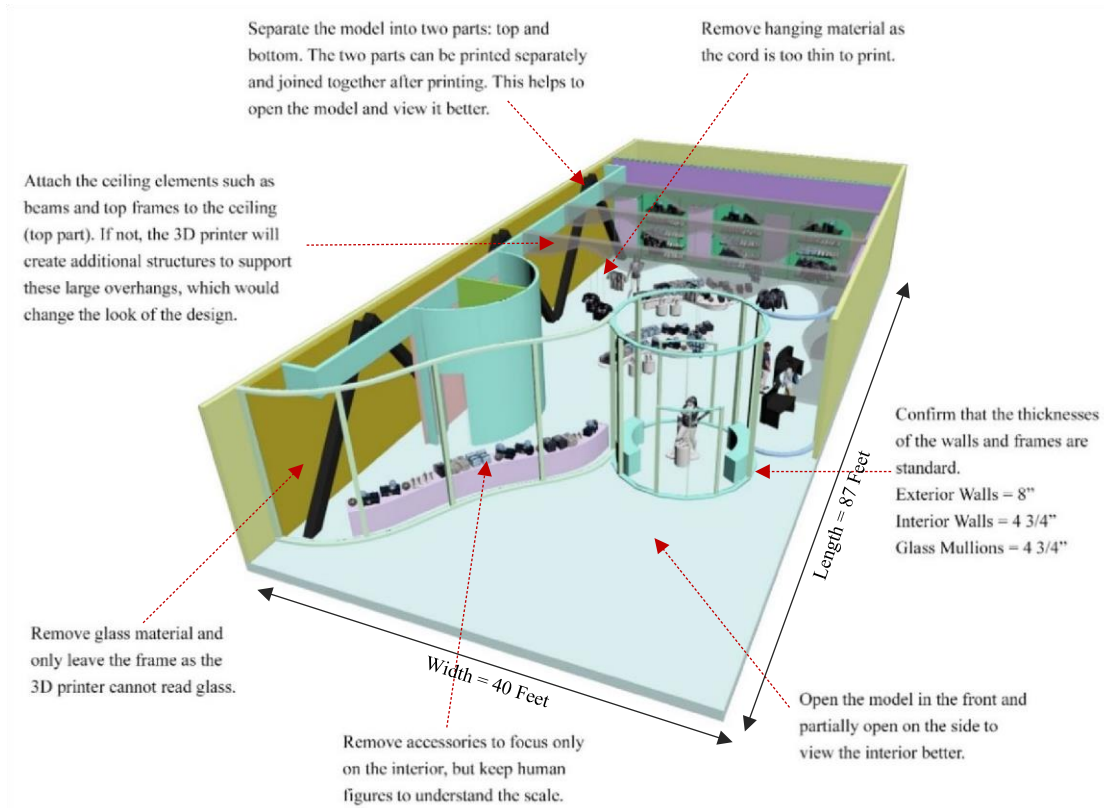


Figure 1. Online survey result - mean values of 20 design features and the three categories

Table 1. Comparison chart of large, medium, and small-scale models

	Large Scale Model	Medium Scale Model	Small Scale Model
Metric Scale	1: 100	1: 150	1: 200
Profile	0.15mm	0.15mm	0.15mm
Infill	20%	20%	20%
Support	Everywhere	Everywhere	Everywhere
Adhesion	Skirt (Bottom) Brim (Top)	Brim	Brim
Cura Scale	1%	0.75%	0.5%
Time Taken	1d 4h (Bottom) 12h 38min (Top)	19h 42min	6h 49min
Material Used	189g / 23.91m (Bottom) 91g / 11.45m (Top)	122g / 15.45m	35g / 4.40m
Size	Very large	Adequately Large	Too Small
Quality	Very good	Adequately Good	Poor



Figure 2. Large (1:100), Medium (1:150) and Small-scale (1:200) Models

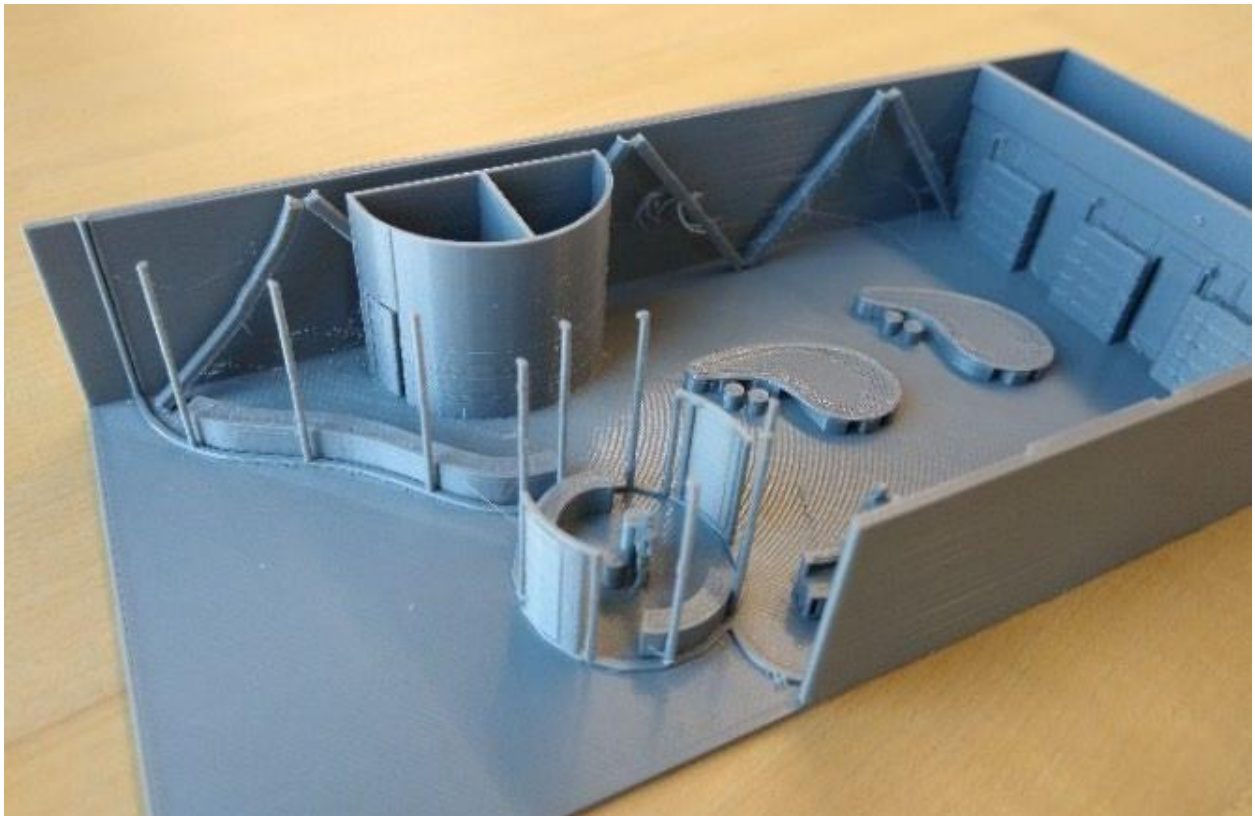


Figure 3. Interior Detail of Medium size model (1:150)

Learning through Nature: Design Strategies to Improve Learning Environments for All Learners

Kristi Gaines, Texas Tech University

Armin Piriyaeei, Texas Tech University

ABSTRACT

One of the interior design departments in a midwestern university is embarking on a pioneering journey to redefine its approach to teaching interior design. This transformational shift involves transitioning the Graphics for Interior Design I class from traditional manual drawing techniques to a fully digital format, harnessing the power of digital design and illustration applications on iPads while using an illustrative app such as Procreate. This move signifies a significant milestone in the department's commitment to staying in step with industry trends and providing students with more relevant and practical learning experiences. To assess the impact of this digital transition, researchers will administer a comprehensive survey inspired by the Technology Acceptance Model (TAM) questionnaire (Davis, 1989) by the end of Fall 2023 semester. This survey evaluates user acceptance of technology through perceived usefulness and perceived ease of use factors. It also includes open-ended questions that seek participants' experiences, feedback, and insights regarding this transition. The survey will be distributed to 55 students enrolled in the Graphics for Interior Design I class. The goal is to capture students' attitudes, perceptions, and experiences related to the integration of digital technology into the course. Research team also aim to gather feedback on any challenges encountered during this transition. The expectations are that students will recognize the benefits of using Procreate over traditional manual drafting techniques and materials. Procreate not only aligns education with industry trends but also accelerates the production of design work. Additionally, the shift from manual drafting to digital applications offers economic advantages by replacing multiple drawing materials with a single iPad. Through the adoption of Procreate applications and iPads, students will be exposed to a more dynamic and contemporary learning environment. This transformation ensures that students are not only better prepared to meet the evolving demands of the interior design profession but also encourages resourcefulness and adaptability. Furthermore, this initiative addresses sustainability concerns by reducing the need for physical drawing materials, which are often single-use and disposable. A single iPad serves as a versatile tool that can be employed across various courses, promoting an eco-friendly approach to education. In conclusion, the transition to a completely digital format in the Graphics for Interior Design I class represents a forward-looking approach to education. By integrating digital design and illustration applications on iPads, this initiative aligns the curriculum with industry trends, enhances the learning experience, and promotes resourceful, sustainable practices.

REFERENCES

Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS quarterly*, 319-340.

Davis, F. D., Bagozzi, R. P., & Warshaw, P. R. (1989). User acceptance of computer technology: A comparison of two theoretical models. *Management science*, 35(8), 982-1003.

Cho, Y. (2022). iPad & Procreate. *Tutorials of Visual Graphic Communication Programs for Interior Design 2*.

Eren, E. T., & Yilmaz, S. (2022). The student attitudes towards digital and conventional drawing methods in environmental design studios and the impact of these techniques on academic achievement in the course. *International Journal of Technology and Design Education*, 32(1), 617-644.

Adapting Art Education from Paper to Pixels: Assessing the Transition to Digital Graphics

1. 1.) Age (in years)

2. 2.) Gender

Mark only one oval.

- Male
- Female
- Prefer not to answer
- Other: _____

3. 3.) What is your ethnicity?

Mark only one oval.

- Caucasian
- African-American
- Latino or Hispanic
- Asian
- Native American
- Native Hawaiian or Pacific Islander
- Two or More
- Prefer not to answer
- Other: _____

4. 4.) Academic year

Mark only one oval.

Freshman

Sophomore

Junior

Senior

5. 5.) Have you previously used an iPad?

Mark only one oval.

Yes

No

6. 6.) If you answered "yes" to the previous question, have you ever used an iPad for sketching?

Mark only one oval.

Yes

No

7. 7.) Have you previously used the Procreate application?

Mark only one oval.

Yes

No

8. 8.) In your opinion, which best describes your level of proficiency using the Procreate application?

Mark only one oval.

- Beginner
- Intermediate
- Advanced

Trust in the Application Result

9. 9.) I think Procreate digital design app will provide a reliable and accurate visualizations of my design.

Mark only one oval.

Strongly Disagree

1

2

3

4

5

6

7

Strongly Agree

10. 10.) It seems that Procreate digital design app excel in producing precise design work compared to drawing manually.

Mark only one oval.

Strongly Disagree

1

2

3

4

5

6

7

Strongly Agree

11. 11.) I am confident in the ability of the Procreate digital design app and I feel that it works well.

Mark only one oval.

Strongly Disagree

1

2

3

4

5

6

7

Strongly Agree

Easy to Use/Learn

12. 12.) Learning to work with Procreate digital design app is easy for me.

Mark only one oval.

Strongly Disagree

1

2

3

4

5

6

7

Strongly Agree

13. 13.) It is easy for me to become skillful at using Procreate digital illustration app .

Mark only one oval.

Strongly Disagree

1

2

3

4

5

6

7

Strongly Agree

14. 14.) I find Procreate digital illustration app easy to use.

Mark only one oval.

Strongly Disagree

1

2

3

4

5

6

7

Strongly Agree

15. 15.) My interaction with Procreate digital illustration app is clear and understandable.

Mark only one oval.

Strongly Disagree

1

2

3

4

5

6

7

Strongly Agree

Perceived Usefulness

16. 16.) Using Procreate digital illustration app will improve my job performance.

Mark only one oval.

Strongly Disagree

1

2

3

4

5

6

7

Strongly Agree

17. 17.) Using Procreate digital illustration app will increase my productivity as an Interior designer.

Mark only one oval.

Strongly Disagree

1

2

3

4

5

6

7

Strongly Agree

18. 18.) I think it is fast to develop design solutions using Procreate digital illustration app than using conventional methods.

Mark only one oval.

Strongly Disagree

1

2

3

4

5

6

7

Strongly Agree

19. 19.) Using Procreate digital illustration app in my job will help me to accomplish tasks more quickly.

Mark *only one* oval.

Strongly Disagree

1

2

3

4

5

6

7

Strongly Agree

Intention to Use

20. 20.) I intent to use Procreate digital illustration app frequently for my coursework.

Mark only one oval.

Strongly Disagree

1

2

3

4

5

6

7

Strongly Agree

21. 21.) I will use Procreate digital illustration app often.

Mark only one oval.

Strongly Disagree

1

2

3

4

5

6

7

Strongly Agree

22. 22.) I intend to use Procreate digital illustration app in the future in my Interior Design practice.

Mark only one oval.

Strongly Disagree

1

2

3

4

5

6

7

Strongly Agree

Attitude toward Using

23. 23.) All things considered, using Procreate digital illustration app in Interior Design is:

Mark only one oval.

Extremely Unbeneficial

1

2

3

4

5

6

7

Extremely Beneficial

24. 24.) All things considered, using Procreate digital illustration app in Interior Design is:

Mark only one oval.

Unfavorable

1

2

3

4

5

6

7

Favorable

25. 25.) All things considered, using Procreate digital illustration app in Interior Design is:

Mark only one oval.

Negative

- 1
- 2
- 3
- 4
- 5
- 6
- 7

Positive

Comment & Feedback

26. 26.) What aspects of the application (Procreate) do you like the most?

27. 27.) What aspects of the application (Procreate) do you find challenging or dislike?

28. 28.) Do you feel that your creativity and skills have improved through its use?

Mark *only one oval.*

Strongly Disagree

1

2

3

4

5

6

7

Strongly Agree

29. 29.) What suggestions do you have for improving the way content is taught by Procreate application?

This content is neither created nor endorsed by Google.

Google Forms

Motivating interior design students toward professional creativity

Farah AlZenki, Iowa State University

Jae Hwa Lee, Iowa State University

ABSTRACT

Engaging interior design students in their creative journey is essential for their growth and development. Effective strategies to build and provide an engaging learning environment that fosters creativity and innovation are much needed. Since interior design studio cultures include various levels of social interactions, such as between instructor and students, among student cohorts, or connecting to practitioners, students may benefit from supportive feedback systems for creative performance. Drawing on Amabile's componential theory of creativity, the current study examined relationships between intrinsic and extrinsic motivational factors, feedback preferences, and interior design students' creativity. This research particularly explored the role of instructor feedback during studio learning in interior design to strengthen students' creative confidence and divergent thinking. Research questions posed: (1) How do levels of creative confidence relate to their divergent thinking, motivation, and the perception of instructor feedback among interior design students? (2) In what ways can interior design instructors build supportive feedback systems for students' creative performance in studios?

The study employed the Torrance Tests of Creative Thinking (TTCT), the most widely used test for divergent thinking, and an online survey with three measurements: Short Scale of Creative Self (SSCS), Work Preference Inventory (WPI), and feedback preferences on a five-point scale. The SSCS includes 11 items for Creative Self Efficacy and Creative Personal Identity, gauging students' confidence and integration of creativity into their self-concept. The WPI evaluates students' motivation orientation, including intrinsic and extrinsic motivations, and their alignment with work styles through 30 items. Finally, the researchers developed 13 items of the feedback preferences questionnaire based on previous studies (Ellis & Meneely, 2015). Example questions include "Getting praise from the instructor motivates me to be more creative" or "When an instructor gives me negative feedback, I tend to work harder to fix my design" to rate for preferences. From second- and fourth-year interior design studios at one public university in the mid-west area of the United States, 31 students completed both the standardized test and surveys.

The findings revealed that general divergent thinking abilities and creative confidence levels among the interior design students in this study were significantly correlated ($r=.367$, $p=.042$). The creative

confidence levels were associated with intrinsic motivation ($r=.484$, $p=.006$) and extrinsic motivation ($r=.500$, $p=.004$), both at a statistically significant level. The perception of feedback was significantly related to intrinsic motivation ($r=.377$, $p=.037$) and extrinsic motivation ($r=.411$, $p=.022$). Despite the limited number of participants and homogeneous cohort from one program, the significant correlations provided cohesive perspectives to view students' cognitive skills with emotional/psychological conditions and interpersonal preferences. As students with higher creative confidence are willing to push their boundaries and accept criticism, educators can tailor the studio culture to cultivate creativity with a supportive system. These results suggest important implications for interior design education to foster creative confidence, align motivation orientation with creative identity, and adapt feedback strategies to inspire interior design students to embark on a creative journey with enthusiasm and purpose.

REFERENCES

- Ellis, N., & Meneely, J. (2015). Springboards and barriers to creative risk-taking and resolve in undergraduate interior design students. *Journal of Interior Design*, 40(4), 17–40.
- Lee, J.H. (2022). Building creative confidence through an interdisciplinary creativity course: Changes in creative challenges and creative personal identity. *Innovations in Education and Teaching International*, 59(3), 316–325.
- Amabile, T.M. (1985). Motivation and creativity: Effects of motivational orientation on creative writers. *Journal of Personality and Social Psychology*, 48(2), 393–399.
- Vo, H., & Asojo, A. (2021). Feedback in interior design studio and students' creativity. *Journal of Creativity*, 31, 100009.

Scholarship of Design Research | Poster

New Chasm in the Quality of Care: Care Configuration for Staff Safety and Satisfaction in American Rural Health Clinics

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ABSTRACT

While a fifth of the USA population is considered rural by the US Census Bureau, around 60% of all primary care provider shortages fall within this demographic (Hirsch, 2019), which is a condition that only augmented exponentially after the 2020 pandemic when healthcare shortages became universal. Therefore, the issues that plague the healthcare system are felt disproportionately in rural areas, which have long suffered from fragmented care models, less insurance coverage, and lower funding or staff retention in the first place (U.S. Government Accountability Office, 2023). These are issues that have been documented for the past 30 years, but funding more Rural Health Clinics is not the only answer as the issues continue to expand. Previous research shows very few studies conducted on the design of Rural Health Clinics in the USA. This gap results not only in a detrimental effect on Rural Health Clinic design but also demonstrates a legacy of historical inequalities in access to health. While our relationship to health directly relates to our community and zip code (Kemp, 2019), the design strategies used in urban areas cannot be applied universally without first being conscious of the people designers are serving. From a design standpoint, the evidence gap can be addressed by performing qualitative research on care configuration to understand the impact this has on staff satisfaction of certified Rural Health Clinics and inform future design. This research is a qualitative study, following evidence-based design principles.

Literature reviews show that more research needs to be conducted for staff well-being overall, not just in rural areas, but design decisions that have an impact on staff can be taken from the review. In addition, precedents are analyzed for rural healthcare facilities that were both well-received by communities and thoughtfully planned by architects. Lastly, a case study (including interviews and observations) in a certified Rural Health Clinic will supplement which design decisions are most impactful. Findings suggest that some of the most valuable assets to increasing staff satisfaction include access to support spaces for staff. Furthermore, interviews help establish more broadly what staff need to thrive in the clinic or how the clinics attract future medical residents to the area. Changing the perspective of healthcare facilities and recognizing the impact of design not only on immediate health outcomes but also on long-term healthcare network success can only be done with more data on

current rural healthcare needs. Supplemental to building the body of knowledge, an approach from a community perspective through careful site analysis and an emphasis on staff retention through safety and satisfaction for growth in rural areas go hand-in-hand to address the increasing amount of healthcare deserts, where access to healthcare is lacking (Lee et al., 2023). By finding out what specific current needs exist for rural clinics in the USA, a proposal for the future of rural healthcare can start to emerge. Emerging evidence shifts the conversation of rural healthcare from solely a policy matter to also a design issue so that more concrete solutions can be discussed and implemented.

REFERENCES

Hirsch, S. (2019). Rural America by the Numbers. *Generations: Journal of the American Society on Aging*, 43(2), 9–16.

<https://www.jstor.org/stable/26760109>

Lee, C., Zhong, S., Lee, S., & Ndubisi, F. (2023). Designing for Health in Healthcare Deserts: A Medical City Master Planning Project in Nigeria. *HERD: Health Environments Research & Design Journal*, 19375867231181344. <https://doi.org/10.1177/19375867231181344>

Kemp, J. (2019, March 22). The Role of Community Design in Promoting Our Health. Center for Planning Excellence. <https://www.cpex.org/blog/the-role-of-community-design-in-promoting-our-health>

U. S. Government Accountability Office. (2023, May 16). Health Care Capsule: Accessing Health Care in Rural America | U.S. GAO. <https://www.gao.gov/products/gao-23-106651>

Nurturing Wellbeing for Mothers: Design for Mental Health and Community Support

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ABSTRACT

Motherhood is an experience that comes with many challenges. Worldwide, 85% of mothers struggle with changes in mood and emotional wellness after having a child (Evagoru et. al, 2015). For instance, the prevalence of Post Partum Depression (PPD) in new mothers ranges from 10-12%, but despite its severity and impacts, up to 80% of cases worldwide go undiagnosed and untreated (Evagorou et al., 2015). Current treatment approaches, including one-on-one consultations with psychotherapists, fail to achieve lasting outcomes for mothers and their mental health. This approach is widely practiced despite rates of PPD having a direct correlation with the support and social services women are offered in conjunction with medical care throughout their pregnancy and postpartum phase (Skurzak et al., 2015).

Although there are online and in-person support groups and programs in place for mothers, they are sporadic, poorly advertised, and rarely connected directly to formal healthcare treatment. Additionally, there is a lack of infrastructure designed specifically for these services to effectively provide for mothers' social and emotional needs. A proposed solution is the design of a center for both individual treatment and community support and learning for mothers. The provision of communal spaces for women to receive social support throughout their pregnancy has been found to positively impact stress levels and overall wellbeing (Hostetter & Klein, 2019). Studies have implicated the importance of socialization for mothers in their success and wellbeing during the postpartum period in terms of "building confidence and ensuring self-efficacy" (Ollivier et al., 2021, p. 1). A physical space designed for these services catered to the women's needs and focused on promoting mental health and well-being for all users is vital to the support of mothers and their children.

This research aims to answer the question: "How does design for a center focused on social support impact the mental health and wellbeing of mothers by promoting community connection and belonging?".

Evidence-Based Design is used to critically interpret relevant evidence to achieve the best possible design outcome. This study utilizes Literature Reviews and Precedent Analysis to obtain data. This allows for in-depth insight into existing support for mothers and identifying gaps in services and spaces for mental health. Additionally, Precedent Analysis identifies specific design elements that promote mental health and wellbeing within a community space.

According to evidence reviewed thus far, expected findings include improved mental health for mothers due to community support groups and specific design elements that promote a sense of belonging.

There is ample evidence pointing to the overall prevalence of PPD, and significant correlations exist between social support and the overall wellbeing of mothers. Still, there is a lack of consistent infrastructure to assist services that provide community-based mental health care to mothers. A community center designed for healing and fostering connections that facilitate a greater support system and sense of belonging can be a vital resource for the needs of all mothers. This community center design aims to promote emotional wellbeing and healing through calming space design, balanced public and private spaces, and connections to nature. The center also fosters connections and a sense of belonging through comfortable spaces for socialization and relaxation, flexible spaces that allow for gathering, and comforting visual cues within the space. Finally, the design of a community center strives to provide a holistic approach to mental health for mothers through programs for individual and group therapy, educational and resource spaces, and customized design meant to support women at each stage of motherhood.

REFERENCES

Evagorou, O., Arvaniti, A., & Samakouri, M. (2015). Cross-Cultural Approach of Postpartum Depression: Manifestation, Practices Applied, Risk Factors and Therapeutic Interventions. *Psychiatric Quarterly*, 87(1), 129–154. <https://doi.org/10.1007/s11126-015-9>

Hostetter, M., Klein, S., Improving health for women by better supporting them through pregnancy and beyond. (2019, October 1). [www.commonwealthfund.org](https://www.commonwealthfund.org/publications/2019/oct/improving-health-women-bettersupporting-them-through-pregnancy-and-beyond).<https://www.commonwealthfund.org/publications/2019/oct/improving-health-women-bettersupporting-them-through-pregnancy-and-beyond>

Ollivier, R., Aston, Dr. M., Price, Dr. S., Sim, Dr. M., Benoit, Dr. B., Joy, Dr. P., Iduye, D., & Nassaji, N. A. (2021). Mental Health & Parental Concerns during COVID-19: The Experiences of New Mothers Amidst Social Isolation. *Midwifery*, 94, 102902. [ht](https://doi.org/10.1016/j.midw.2021.102902)

Skurzak, A., Kicia, M., Wiktor, K., Iwanowicz-Palus, G., & Wiktor, H. (2015). Social support for pregnant women. *Polish Journal of Public Health*, 125(3), 169–172. <https://doi.org/10.1515/pjph-2015-0048>

Organic Functionalism: Mycelium-Based Innovations in Interior Architecture and Design

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ABSTRACT

At its current state, furniture design and construction practices significantly contribute to the negative environmental and social impacts of our age. Aiming to enhance environmentally responsive and socially just practices, this abstract presents a proposal for hybridized approaches that combine nature with technology – a venture to cultivate grown furniture using mycelium.

Mycelium, a natural and versatile biomaterial, has gained prominent attention in contemporary architecture and furniture design for its zero-waste, sustainable, and carbon sequestration qualities (Jones et al. 2). There have been some explorations into the structural capabilities of the material as well as its use in contemporary interiors, such as Estonia-based Myceen's (Fig.1) creation of lamp shades, stools and pedestals. These case studies, however, do not go far beyond simple forms and masses. This proposal aims to test the limitations of the material itself, creating design iterations that are both aesthetically pleasing and functionally viable as end products.

Central to this research and furniture design exploration is the development of formed molds that can house the bio-waste that the mycelium feeds on. Drawing inspiration from the timeless form of Hans Wegner's CH07 Shell Chair as an initial prototype, the proposal aims to use the well-documented case study as a proof of concept (Fig.2) for mold making explorations of structure & rigidity. The molds will reproduce the classic forms of the Shell Chair once filled with curated biomass - a mix of specific fungal cultures and widely available bio-waste such as sawdust or wood shavings - which the mycelium can then digest and transform into a solid, functional structure (Attias et al. 1649). These tests are in their fundamental stages, with the Shell Chair itself being accurately modeled using 3D software and prepared for the subsequent mold-making and CNC fabrication processes.

Working with a select team of 15 students enrolled in a directed study research, design, and fabrication course in the spring of 2024, we aim to further develop and test iterations of unique designs, where the subsequent data will be generated for research and design development. Once established, this research proposal will employ the use of parametric design to generate a multitude of design iterations, facilitating the ability to rapidly prototype mycelium-based concepts that build upon the information learned from each prior iteration. Primary consideration at these stages will still be given to structural and ergonomic factors, further testing the ability of the mycelium and the need for potential reinforcement that might be required. Some initial explorations at this current stage include the use of biopolymer materials that can provide rigidity while simultaneously avoiding deterioration by the mycelium feed cycles, as well as reusable molds which will allow for multiple uses without waste. This

approach allows for exploring aesthetic and structural possibilities offered by mycelium as the primary structural component while using a material with a fully sustainable life cycle, questioning ideals of inherent social & environmental responsiveness and equity in the process.

Individual and teamwork will be facilitated as elements in creative and reflective practice, were we can have an ongoing narrative on the betterment of our interior spaces through biophilic, non-plastic furniture creations.

Growing furniture using mycelium through an iterative, engaged, and interdependent cyclical process of research-design- production enables a renewed hands-on commitment to environmental and social responsibility. This journey will allow for an honoring of the past while shaping a regenerative and innovative future, where mycelium redefines the boundaries of interior space by promoting a symbiotic relationship between tradition, sustainability, and computational creativity with the furniture we use.

REFERENCES

Jones, M, Mautner, A., Luenco, S., Bismarck, A., John, S. "Engineered mycelium composite construction materials from fungal biorefineries: A critical review." *Materials & Design*, vol. 187, 2020, p. 108397, <https://doi.org/10.1016/j.matdes.2019.108397>.

Attias, N, Danai, O., Tarazi, E., Pereman, I., Grobman, Y. "Implementing bio-design tools to develop mycelium-based products." *The Design Journal*, vol. 22, no. sup1, 2019, pp. 1647–1657, <https://doi.org/10.1080/14606925.2019.1594997>.

Appendix for “Organic Functionalism: Mycelium-Based Innovations in Interior Architecture and Design”

Project Outline:

Fall 2023: Select students are participants in a directed study where they are researching and exploring the structural capabilities of mycelium when applied to furniture concepts. Students are also receiving hands-on training in specific digital modeling tools such as SubD modeling and parametric design through Grasshopper, all within the Rhinoceros 3D software. We will also plan for initial mycelium block tests that will allow for an initial understanding of how the material handles itself given specific regional conditions and biomass types for feeding.

Spring 2024: 15 students will be selected to begin explorations on ‘grown’ furniture design through the use of mycelium. Concurrently, we will be recreating a mold of the CH07 Shell Chair by Hans Wegner to fabricate our initial ‘proof of concept’ prototype. The intent is that we will have one full-sized prototype to showcase & document by late February or early March.

Student Outcomes:

The expectation is that students will be participating in this research project by carefully testing out the balances between structural stability & design iteration. Students will be able to greatly enhance their skills in computer modeling and digital fabrication, while also learning and applying functional furniture design principles such as ergonomics and anthropometrics. There is also a lot of richness in student-led ideas, and the benefit of running this research project within an institution of higher learning allows for the students to take risks with their ideas without the worry of having to create a definitively successful outcome.

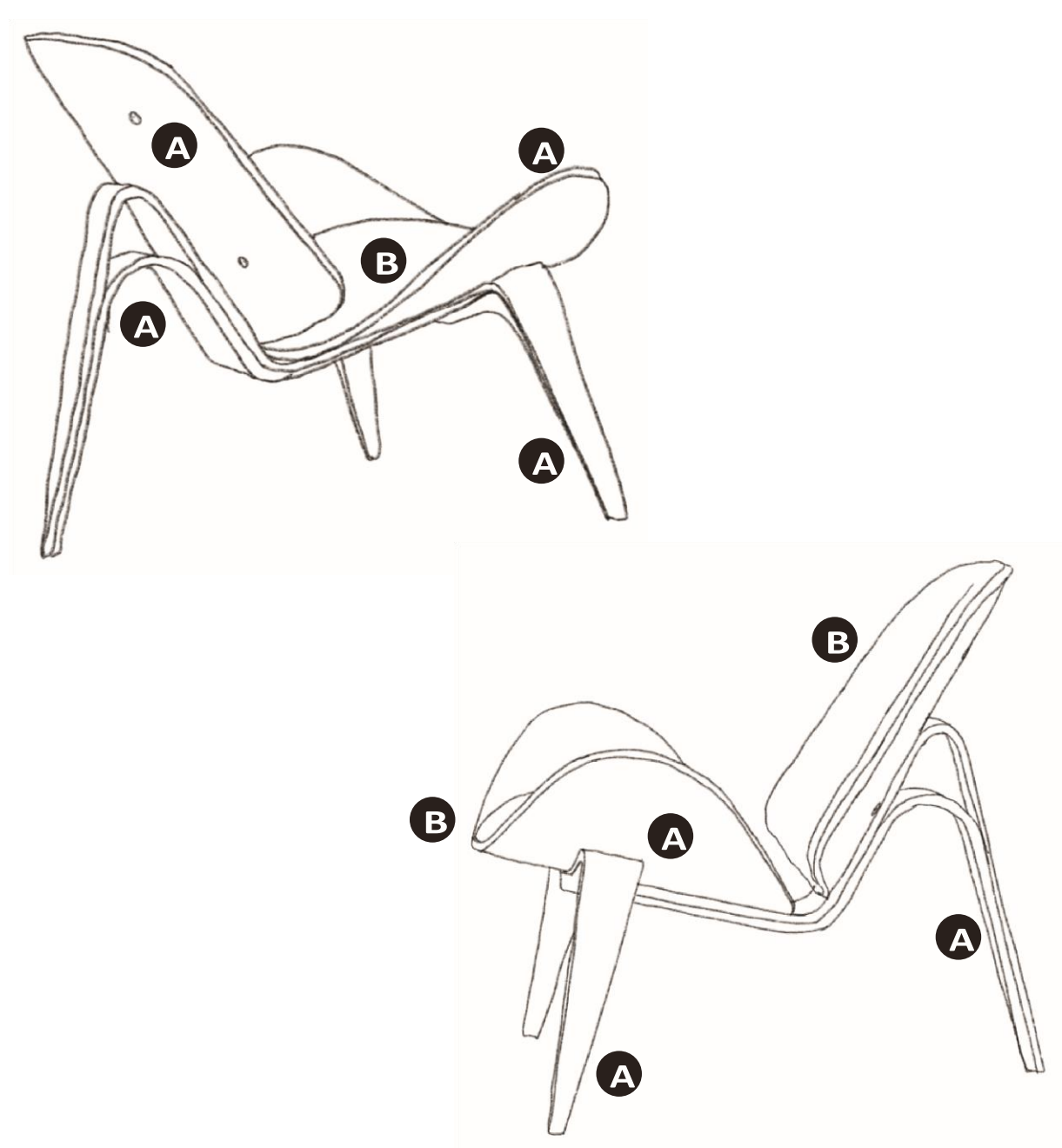
FIGURE 1:

Showcased below are reference image examples from the company Myceen, which makes products using mycelium grown within molds. These images serve to provide visual information on potential endproducts from this research project. As mentioned in the abstract, our specific goal is to push the limits of the mycelium growth product beyond masses, and to create more delicate and intentional structures that truly push the boundaries of what can be possible. All images showcased below are property of Myceen, and have been appropriated from their website (<https://myceen.com/>) for display here.



FIGURE 2:

Sketches of the well recognized CH07 Shell Chair by Hans Wegner are shown below. The ‘shell’ components of the chair that are typically fabricated from wood (labeled ‘A’ in the diagrams below) are the parts that we will be recreating out of mycelium for our initial explorations. These include the seat and backrest, as well as the multi-layered leg pieces. This will allow us to test the strength of the raw mycelium byproduct, providing further tests into how its load bearing capabilities will hold up in a bent & curved form. At the same time, we will be exploring use-cases for sustainable and natural cushioning materials that we can also fabricate using our mold-making techniques (labeled ‘B’ in the diagrams below).



Tailored for trust: A mixed method examination of the influence of waiting environments on medical trust

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ABSTRACT

Estimates suggest that patients wait approximately 24 minutes for healthcare appointments (Gulwadi et al., 2009). While these wait times optimize provider efficiency, they can also contribute to patient anxiety (Waltz, 2017). This anxiety, coupled with the trend of U.S. adults moving away from having a primary care physician (Levine et al., 2020), can be particularly detrimental to women from minority groups, who are less apt to seek healthcare services, have a usual healthcare provider, and report higher levels of physician distrust, and waiting room anxiety (Levine et al., 2020; Rosenthal & Lobel, 2020). However, existing literature predominantly focuses on universal perceptions of waiting rooms, often overlooking this environment's influence on diverse perceptions of provider trust, which includes theoretical constructs of communication competency, fidelity, and fairness (Richmond et al., 2022). Consequently, little is known about which waiting room characteristics foster medical trust among different demographic groups.

Purpose

This explanatory sequential mixed methods research employed surveys and interviews to examine factors within ambulatory waiting rooms that shape patients' perceptions of provider trust. It also investigated the universality of these perceptions by comparing insights from the three largest demographic groups of women in the U.S. (i.e., African American (AA), Latina, and White, non-Hispanic), aged 18-40, the age range when they are most likely to bear children.

Findings

A total of 622 qualifying women completed Qualtrics surveys, and 25 were interviewed (see Tables 1 & 2).

Participants encompassed a wide spectrum of income levels and educational backgrounds and reported varying levels of medical trust and perceptions of prior experiences in healthcare encounters. Survey responses revealed that the highest-scoring trust-eliciting feature was a calming, followed by a welcoming atmosphere, which scored significantly higher than the other features in the instrument, such as signage, staff credentials, and seating options (see Table 3). Yet, a Tukey post hoc test revealed that AA women scored features that may offer affiliation via representation and reduce their uncertainty, such as patient ethnic/racial similarity, an image-based provider directory, images of ethnically/racially

similar providers, local art, and views into the clinic as statistically more important than Hispanic/Latina and non-Hispanic, White participants. Interviewees compared features of trustworthy/untrustworthy, calming/stressful, and welcoming/unwelcoming waiting environments, which were inductively coded into superordinate themes of spatial, person-centered, and logistical characteristics. Qualitative findings underscored the role of informative spatial cues and signage, visible provider information, and positive distractions in building trust. Conversely, participants mentioned that sterile, crowded, and poorly maintained spaces eroded provider trust. The findings also unveiled that favorable attitudes towards patient-centered amenities, positive distractions, and pleasing aesthetics are pivotal in establishing calming and welcoming environments, whereas acoustic and visual clutter can have the opposite effect (see Tables 4-6).

Implications

This study's findings on the determinants of medical trust in waiting rooms help distinguish between inherent environmental preferences and culturally influenced factors among women from the three largest demographic groups in the U.S. The results illuminate both common and contrasting perceptions regarding trust-building features within waiting rooms, emphasizing the importance of representation and uncertainty reduction among those from minority groups. These insights can inform healthcare environment design, potentially creating more inclusive medical waiting areas that positively influencing women's healthcare-seeking behaviors and, in turn, health outcomes.

REFERENCES

- Gulwadi, G. B., Joseph, A., & Keller, A. B. (2009). Exploring the impact of the physical environment on patient outcomes in ambulatory care settings. *HERD: Health Environments Research & Design Journal*, 2(2), 21–41. <https://doi.org/10.1177/193758670900200>
- Levine, D. M., Linder, J. A., & Landon, B. E. (2020). Characteristics of Americans with primary care and changes over time, 2002-2015. *JAMA Internal Medicine*, 180(3), 463. <https://doi.org/10.1001/jamainternmed.2019.6282>
- Richmond, J., Boynton, M. H., Ozawa, S., Muessig, K. E., Cykert, S., & Ribisl, K. M. (2022). Development and validation of the trust in my doctor, trust in doctors in general, and trust in the health care team scales. *Social Science & Medicine*, 114827. <https://doi.org/10.1016/j.socscimed.2022.114827>
- Rosenthal, L., & Lobel, M. (2020). Gendered racism and the sexual and reproductive health of Black and Latina Women. *Ethnicity & Health*, 25(3), 367–392. <https://doi.org/10.1080/13557858.2018.1439896>

Table 1

Survey Participant Characteristics

Race/Ethnicity N = 622			Income N = 600		
	Freq	%		Freq	%
Black/African American	124	19.9	\$0 - 19,999	76	12.7
Hispanic/Latina	120	19.3	\$20,000-29,999	35	5.8
White, non-Hispanic	357	57.4	\$30,000-39,999	35	5.8
Other	3	.5	\$40,000-49,999	40	6.7
Prefer not to answer	18	2.8	\$50,000-59,999	42	7.0
<hr/>			\$60,000-69,999	30	5.0
Age Range N = 622			\$70,000-79,999	31	5.2
<20	116	18.6	\$80,000-89,999	28	4.7
20-25	259	41.6	\$90,000-99,999	23	3.8
26-30	80	12.9	\$100,000-159,999	117	19.5
31-35	86	13.8	over \$160,000	78	13.0
36-40	57	9.2	Prefer not to say	65	10.8
Prefer not to answer	24	3.9	<hr/>		
<hr/>			Number of Children N = 605		
Education Level N = 605			0	459	75.9
Some high school	1	.2	1	67	11.1
High School	77	12.7	2	60	9.9
Trade School/Associates Deg.	51	8.4	3	12	2.0
Some college	232	38.3	4	5	.8
Bachelor's Degree	145	24.0	5	1	.2
Master's Degree	80	13.2	> 5	1	.2
Ph.D. or higher	19	3.1	<hr/>		
<hr/>			Perceptions of Previous Medical Experiences ¹		
N = 292					
Very Bad	7	2.4			
Bad	33	11.3			
Neutral	83	28.4			
Good	105	36.0			
Very Good	64	21.9			

¹Note not all participants indicated they had experienced a medical event in the last five years

Table 2

Interviewee Participant Characteristics

Race/Ethnicity N = 25			Income N = 25		
	Freq	%		Freq	%
Black/African American	11	44	\$0 - 19,999	2	8.0
Hispanic/Latina	10	40	\$20,000-29,999	2	8.0
White, non-Hispanic	4	16	\$30,000-39,999	0	-
<hr/>			\$40,000-49,999	2	8.0
Age Range N = 25			\$50,000-59,999	6	24.0
<26	8	32	\$60,000-69,999	1	4.0
26-32	7	28	\$70,000-79,999	3	12.0
> 32	10	40	\$80,000-89,999	1	4.0
<hr/>			\$90,000-99,999	2	8.0
Education Level N = 25			\$100,000-159,999	2	8.0
Some high school	1	4.0	over \$160,000	2	8.0
High School	1	4.0	Prefer not to say	2	8.0
Trade School/Associates Deg.	1	4.0	<hr/>		
Some college	2	8.0	Number of Children N = 25		
Bachelor's Degree	13	52.0	0	1	76.0
Master's Degree	7	28		9	
Ph.D. or higher	0	-	1	2	8.0
<hr/>			2	1	4.0
Perceptions of Previous Medical Experiences ¹			3	3	12.0
N = 17			>4	0	-
Very Bad	0	-	<hr/>		
Bad	3	17.6	Medical Trust ² N = 25		
Neutral	4	-	Low	5	20
Good	7	41.2	Mid	1	44
Very Good	3	17.6		1	
<hr/>			High	9	36
¹ Note not all participants indicated they had experienced a medical event in the last five years			² Ascertained from survey scores		

Table 3

Trust Eliciting Features, Means and Standard Deviations by Demographic Cohort (N = 622)

	AA Mean	AA SD	Hisp. Mean	Hisp. SD	White Mean	White SD
A welcoming space	5.98	1.32	5.98	1.25	5.79	1.54
A calming space	6.10	1.20	5.84	1.48	5.78	1.53
Clear directional signage	5.82	1.39	5.42	1.63	5.44	1.72
Doctor/staff credentials (e.g., license)	5.24	1.86	5.44	1.68	5.53	1.73
*Different seating options	5.02	1.73	3.94	2.05	3.84	1.91
*Images of the doctors/staff	4.92	1.71	4.27	1.92	4.37	1.89
*Things to do/look at while (i.e., positive distractions)	5.10	1.77	3.94	1.98	3.82	1.94
*A space with other patients like me	5.24	1.66	4.09	1.90	3.71	1.90
*Views into the clinic	4.80	1.84	3.57	1.78	3.79	1.93
*Images of the doctors/staff like me	4.81	1.92	3.69	1.93	3.43	1.93
*Community photos or local art	4.63	1.80	3.63	1.93	3.42	1.85
Things to entertain my guests	4.69	1.81	3.52	2.01	3.17	1.85
A seating layout that helps people talk	4.50	1.99	2.72	1.71	2.83	1.82

*statistically significant difference at $p < .05$

Table 4

Qualitative Themes in Perceptions of Trustworthy and Untrustworthy Waiting Environments

<i>Themes from...</i>	Trustworthy	Untrustworthy
African American Interviewees (n= 11)		
Spatial Characteristics & Amenities 16 trustworthy comments 11 untrustworthy comments	Provider Images/Directory (6) Images that allow patients to get familiar with providers, including: <ul style="list-style-type: none"> • Image-based directory (4) • Scrolling, on-screen provider directory • Videos of the providers welcoming patients 	Poor Maintenance, Dirty, Low-Level Upkeep (8) Characteristics that can create an unhygienic and unprofessional impression, including: <ul style="list-style-type: none"> • Dirty (3) • Dull/Run down (2) • Unemptied trash • Poor bathroom cleanliness • Mismatched aesthetics Ambiguity (2) Ambiguity may prompt stress, including themes of: <ul style="list-style-type: none"> • <i>Lack of information</i> • <i>No wayfinding</i> Lack of Positive Distractions Sterile environments may lead to people being distracted by each other, which may create a sense of discomfort or unease.
	Displaying Provider Credentials (3) Including education, years of experience, achievements	
	Signs/Information (2) Providing indicators/information, including: <ul style="list-style-type: none"> • Sign/indicators of inclusive practice that caters to all, including those marginalized • Educational materials 	
	Well-Maintained, High-Level Upkeep (2) Characteristics that can create a hygienic & professional impression	
	Positive Distractions <ul style="list-style-type: none"> • Retreat-like artwork 	
Person-Centered Characteristics 6 trustworthy comments 4 untrustworthy comments	Provider Descriptions/Personal Anecdotes Information that allows patients to get familiar with providers	
	Providing Snacks/Water	
	Staff interacts respectfully with patients (3) Cohesive staff uniforms (2) Staff nametags	Inattentive staff (2) Unkept staff Indicators of patient stress
Logistical Issues	n/a	n/a

Table 4, con't

Themes from...	Trustworthy	Untrustworthy
<p>Hispanic/Latina Interviewees (n= 10)</p> <p>Spatial Characteristics & Amenities <i>32 trustworthy comments</i> <i>20 untrustworthy comments</i></p>	<p>Signs/information (10) Providing indicators/information, including:</p> <ul style="list-style-type: none"> • Brochures (2) • Clear signage • Clinic signs • Business cards • Contact information & a sense they want feedback • Building information/updates • Learning opportunities • Navigation signs • Reading materials about services <p>Well-maintained, high-level upkeep (9) Characteristics that can create a hygienic and professional impression, including themes of:</p> <ul style="list-style-type: none"> • Organized/Tidy (5) • Clean (3) • High upkeep <p>Displaying provider credentials (5) Including education, years of experience, achievements, including themes of:</p> <ul style="list-style-type: none"> • Education, degrees, qualifications (4) • Certifications of instruments/procedures (1) <p>Aesthetics (4)</p> <ul style="list-style-type: none"> • Professional settings (3) • Thoughtfully designed spaces suggest they care about the patients <p>Provider images/directory (3) Images that allow patients to get familiar with providers, including:</p> <ul style="list-style-type: none"> • Photo directory <p>Representation on materials BIPOC and other diverse individuals are represented in art and reading materials</p>	<p>Poor Maintenance, Dirty, Low-Level Upkeep (7) Characteristics that can create an unhygienic and unprofessional impression, including:</p> <ul style="list-style-type: none"> • Dirty (3) • Disorganized (3) • Unkept <p>Ambiguity/Misinformation (4) Ambiguity may prompt stress, including:</p> <ul style="list-style-type: none"> • Irrelevant information/Information clutter (2) • Lack of contact information • No evidence of provider credentials <p>Marketing (3) Marketing materials may make customers feel as though they are being 'sold' rather than treated, including:</p> <ul style="list-style-type: none"> • Prescription drug advertisements • General advertisements • Discount cards <p>Lack of (or inappropriate) positive distractions (2) Lack of engaging or entertaining features aimed to alleviate anxiety, boredom, or stress, including themes of:</p> <ul style="list-style-type: none"> • News (acts as a stressor) (2) <p>Atmospherics (2) Characteristics that may seem as though the providers do not care about the patient experience, including:</p> <ul style="list-style-type: none"> • Barren walls • Lack of identifiers <p>Layout Spatial attributes that hinder patient use or perceptions:</p> <ul style="list-style-type: none"> • No sightlines to staff <p>No BIPOC representation in art/literature Only white cisgender individuals in the art and reading materials.</p>

<p>Person-Centered Characteristics <i>6 trustworthy comments</i> <i>4 untrustworthy comments</i></p>	<p>Cohesive staff uniforms (3) Welcoming receptionists (2) Other patients seem relaxed Representative staff</p>	<p>Incompetent staff (2) Rude staff Lack of representation in the space Only white cisgender individuals in the space</p>
	<p>BIPOC and other diverse individuals are in the space Consistent communication</p>	
<p>Logistical Issues <i>6 trustworthy comments</i> <i>4 untrustworthy comments</i></p>	<p>Seamless patient flow (2) Clear logistics (2) Unhurried communication (2)</p>	<p>Disorganized patient flow Long waiting time Visible patient files Unclear procedures</p>

Table 4, con't.

Themes from...	Trustworthy	Untrustworthy
White, non-Hispanic Interviewees (n = 4)	<p>Signs/information (4) Providing indicators/information, including:</p> <ul style="list-style-type: none"> • Patient rights • Patient empowering messages • Informative Pamphlets <p>Provider images/directory (3) Images that allow patients to get familiar with providers, including:</p> <ul style="list-style-type: none"> • Image-based staff directory • Scrolling screen with personal anecdotes about staff • Information about relevant events <p>Displaying provider credentials (2) Including education, years of experience, achievements</p> <p>Provider descriptions/personal anecdotes Information that allows patients to get familiar with providers, including:</p> <ul style="list-style-type: none"> • Staff volunteerism, hobbies (2) 	<p>Poor maintenance, dirty, low-level upkeep (4) Characteristics that can create an unhygienic and unprofessional impression, including:</p> <ul style="list-style-type: none"> • Unkept (2) • Poorly maintained building • Messy <p>Ambiguity/misinformation (3) Ambiguity may prompt stress, including themes of:</p> <ul style="list-style-type: none"> • Missing provider information • Missing provider images • Missing contact information
<p>Person-Centered Characteristics <i>1 untrustworthy comment</i></p>	n/a	Stressed staff
<p>Logistical Issues</p>	n/a	n/a

Table 5

Qualitative Themes in Perceptions of Calming and Stressful Waiting Environments

Themes from...	Calming	Stressful
African American Interviewees (n= 11)		
	<p>Atmospherics/aesthetics (19) Characteristics that create a pleasant environment for patients with:</p> <ul style="list-style-type: none"> • Quiet (5) • Spaciousness (3) • Muted colors (2) • Peaceful/soothing music (2) • Nature-based materials and patterns (2) • Uncrowded (2) • Cool colors (2) • Pleasant experiences • Homey • Nurturing • Bright colors • Fresh air • Relaxing atmosphere 	<p>Atmospherics/aesthetics (24) Characteristics that create an unpleasant environment for patient with:</p> <ul style="list-style-type: none"> • Crowded (6) • Small (4) • Noisy (3) • Empty, sterile environment (3) • Lack of privacy • Little personal space • Multiple TVs (different programming) • Dark • No daylight light • Tight areas • Hot/humid or too cold • Saturated
<p>Spatial Characteristics & Amenities <i>38 calming comments</i> <i>38 stressful comments</i></p>	<p>Patient-centered amenities (10) Patient-oriented features that exemplify dedication to patients, including:</p> <ul style="list-style-type: none"> • Flowers (3) • Plants (2) • Seating options, including larger seats (2) • Reading materials • Comfortable seating for a variety of body styles • Designated children’s space that keeps them positively distracted 	<p>No positive distractions (5)</p> <ul style="list-style-type: none"> • Absence of positive distractions (4) • Intense medical scenery
	<p>Positive distractions (4) Engaging or entertaining features aimed to alleviate anxiety, boredom, or stress, including:</p> <ul style="list-style-type: none"> • Magazines • Art • Soft TV programming • Access to views 	<p>Layout (5)</p> <ul style="list-style-type: none"> • Insufficient seating • Divided • Confusing (multiple points of ingress/egress) • Multiple zones • Multiple lines
	<p>Upkeep/maintenance (3)</p> <ul style="list-style-type: none"> • Upkeep, well cared for (2) • Modern 	<p>Maintenance/upkeep (4)</p> <ul style="list-style-type: none"> • Disorganized/scattered (3) • Clutter

Layout/functionality

- Sufficient seating

Relevant information

- Appropriate information
-

Person-Centered Characteristics

1 calming comments

1 stressful comments

Representation patients

Incompetent staff

**Logistical
Issues**

n/a

n/a

Table 5, con't.

Themes from...	Calming	Stressful
Hispanic/Latina Interviewees (n= 10)	<p>Atmospherics/aesthetics (23) Characteristics that create a pleasant environment for patients:</p> <ul style="list-style-type: none"> • Soft peaceful, nonabrasive, low-key, easy-going or classical music, (5) • Soft, bright colors (3) • Cool colors (2) • Neutral colors/earth tones (2) • Quiet (2) • Phone-free or very little phone use (2) • Delineated waiting area • Natural colors • Warm colors • Calming colors- pastels • Uncrowded • Welcoming atmosphere • Personal protection/hygiene <p>Spatial Characteristics & Amenities <i>49 calming comments</i> <i>42 stressful comments</i></p> <p>Positive distractions (17) Engaging or entertaining features aimed to alleviate anxiety, boredom, or stress, including:</p> <ul style="list-style-type: none"> • Nature photos/scenes (5) • Art (2) • Water features • No overt medical information/posters • Not news • Happy people photos • Calming pictures • Soft lighting • Natural lighting • Fish tanks • Magazines • Interactive games <p>Patient-centered amenities (6) Patient-oriented features that exemplify dedication to patients, including:</p>	<p>Atmospherics/aesthetics (28) Characteristics that create an unpleasant environment for patients:</p> <ul style="list-style-type: none"> • Auditory issues (11), <ul style="list-style-type: none"> ○ Loud people (2), ○ Loud music (2), ○ Phones (2) ○ Beeping sounds, intercoms, ○ TV, ○ TV news programming, ○ rattling • Crowded (4) • Sterile/blank/barren (3) • Uncomfortable seating (2) • Bright colors (2) • Little personal space between patients • Little personal space between patients and reception • Blinking lights • Busy • Dark • Warm colors <p>Maintenance/upkeep (11)</p> <ul style="list-style-type: none"> • Unkept (5) • Unorganized • Dated • Dirty • Trash • Clutter • Temperature issues <p>No positive Distractions (2)</p> <ul style="list-style-type: none"> • No credentials • Irrelevant information <p>Layout</p> <ul style="list-style-type: none"> • Insufficient seating (2)

- Plants (2)
- Comfortable chairs (2)

- Water dispenser
- Flowers

Upkeep/maintenance (2)

Clean (2)

Provider credentials

Person-Centered Characteristics

4 calming comments
3 stressful comments

Other patients are calm (2)

Attentive, friendly receptionists (2)

Confused patients or staff

Impatient, rude, inattentive staff
Hearing ailments of others

Logistical Issues

1 calming comments
3 stressful comments

Clear instructions

Long lines (2)

Slow check-in

Table 5, con't.

Themes from...	Calming	Stressful
White, non-Hispanic Interviewees (n = 4)	<p>Positive distractions (8) Engaging or entertaining features aimed to alleviate anxiety, boredom, or stress, including:</p> <ul style="list-style-type: none"> • TV (2) • Art (2) • Fireplace • Soft music • Aromatherapy • Aquarium <p>Atmospherics/aesthetics (2) Characteristics that create a pleasant environment for patients with:</p> <ul style="list-style-type: none"> • Little ambient noise/Quiet (2) <p>Patient-centered amenities (2) Patient-oriented features that exemplify dedication to patients, including:</p> <ul style="list-style-type: none"> • Spacious • Plants <p>Layout/functionality Spatial attributes that support patient use or perceptions:</p> <ul style="list-style-type: none"> • Sufficient personal space <p>Relevant information</p> <ul style="list-style-type: none"> • Tv with provider information/staff anecdotes 	<p>Atmospherics/aesthetics (11) Characteristics that create an unpleasant environment for patients:</p> <ul style="list-style-type: none"> • Crowded (4) • TV with sounds • Sterile • Bright colors • Uncomfortable seating • Noisy • News programming • Busy <p>Layout (4) Spatial attributes that hinder patient use or perceptions, such as:</p> <ul style="list-style-type: none"> • Confusing to navigate (2) • Overly large • Insufficient seating <p>Maintenance/upkeep (3) Characteristics that can create an unhygienic and unprofessional impression, include:</p> <ul style="list-style-type: none"> • Dated atmosphere • Clutter • Disorganization <p>No positive distractions Lack of engaging or entertaining features aimed to alleviate anxiety, boredom, or stress</p>
<p>Person-Centered Characteristics <i>1 calming comment</i> <i>2 stressful comments</i></p>	<p>Few people waiting</p>	<p>Slow, unfriendly staff, Rowdy patients</p>
<p>Logistical Issues <i>1 stressful comment</i></p>		<p>Slow check-in</p>

Table 6

Qualitative Themes in Perceptions of Welcoming and Unwelcoming Waiting Environments

Themes from...	Welcoming	Unwelcoming
<p>African American Interviewees (n= 11)</p> <p>Spatial Characteristics & Amenities <i>27 welcoming comments</i> <i>19 unwelcoming comments</i></p>	<p>Patient-centered amenities (8) Features that exemplify dedication to patients with:</p> <ul style="list-style-type: none"> • Candy/snacks/hospitality (4) • Flowers (2) • Comfortable seating • Seating Options <p>Signage, navigation, & information (5) Features that greet patients, reduce uncertainty, and enhance patient navigation, such as:</p> <ul style="list-style-type: none"> • Welcome sign (3) • Navigational signage • Information about the practice <p>Welcoming distractions (4) Engaging or entertaining features aimed to alleviate anxiety, boredom, or stress, including:</p> <ul style="list-style-type: none"> • TV • Art • Plants • Educational Materials <p>Cleanliness/maintenance (3) Well-kept and clean spaces</p> <p>Atmospherics/aesthetics (3) Characteristics that create a pleasant environment for patients with:</p> <ul style="list-style-type: none"> • Soft music • Pleasant smell • Bright lighting <p>Colors (3)</p> <ul style="list-style-type: none"> • Bright (2) • Warm <p>Layout/functionality Spatial attributes that support patient use or perceptions:</p> <ul style="list-style-type: none"> • Intuitive layout that is easy to navigate 	<p>Atmospherics/aesthetics (6) Characteristics that create an unpleasant environment for patients:</p> <ul style="list-style-type: none"> • Noisy (2) • Crowded • Overstimulating/inappropriate design • Dim lighting <p>Signage/navigation & information (3) Lack of features to greet patients, reduce uncertainty, or enhance patient navigation, such as:</p> <ul style="list-style-type: none"> • No navigational signs (2) • Little/no information <p>Poor cleanliness/maintenance (3) Unkept or dirty</p> <p>Absence of positive distractions (2) Lack of engaging or entertaining features aimed to alleviate anxiety, boredom, or stress, including:</p> <ul style="list-style-type: none"> • No art • Lack of entertainment <p>Layout/functionality (2) Spatial attributes that hinder patient use or perceptions:</p> <ul style="list-style-type: none"> • Concealed features or necessary items • Long walking distance <p>Physical barriers Features that reduce mobility or impede use, including:</p> <ul style="list-style-type: none"> • Stairs <p>Triggering/inappropriate messaging Healthcare messages that target individuals for health issues, such as being overweight</p>

Person-Centered Characteristics <i>5 welcoming comments</i> <i>6 unwelcoming comments</i>	Friendly and responsive staff (4) Having a welcoming, responsive, and friendly receptionist clearly visible, who is easy to find to provide guidance, and offer options on what to do while waiting	Rude, unhelpful, inattentive staff (5) Unresponsive, inattentive, unhelpful, or incompetent staff
Logistical Considerations <i>2 unwelcoming comments</i>	Friendly patients <hr/> n/a	Sick patients Long lines/long waits (2)

Table 6, con't.

Themes from...	Welcoming	Unwelcoming
<p>Hispanic/Latina Interviewees (n= 10)</p> <p>Spatial Characteristics & Amenities <i>25 welcoming comments</i> <i>20 unwelcoming comments</i></p> <p>Person-Centered Characteristics <i>17 welcoming comments</i> <i>10 unwelcoming comments</i></p>	<p>Patient-centered amenities (10) Patient-oriented features that exemplify dedication to patients with:</p> <ul style="list-style-type: none"> • Comfortable seating (2) • Ample seating • Flowers • Hospitality • Drinking water • Choices in where to sit, • Hand sanitizer or tissues • Items that make it feel they care about patients, <p>Atmospherics/aesthetics (6) Creating a pleasant environment for patients with:</p> <ul style="list-style-type: none"> • Calming Qualities (3) • Comforting • Home-like environment • Music <p>Signage, navigation, & information (5) Features that greet patients, solicit feedback, or enhance patient navigation, such as:</p> <ul style="list-style-type: none"> • Welcome sign (2) • “We value your business” • Feedback sign • Intuitive navigational sign <p>Positive distractions (2) Creating a pleasant environment for patients with:</p> <ul style="list-style-type: none"> • Artwork • Décor <p>Representation (1) Representative artwork, pamphlets that seemingly show that they advocate for all patients</p> <p>Colors Bright colors</p>	<p>Atmospherics/aesthetics (8) Characteristics that create an unpleasant environment for patients:</p> <ul style="list-style-type: none"> • Dated (2) • Erratic/frazzled (2) • Uncomfortable • Barren • Busy patterns • Poor lighting <p>Patient-centered amenities (6) Lack of patient-oriented features that exemplify dedication, including:</p> <ul style="list-style-type: none"> • Personal protection/hygiene • Drinking water • Nearby restrooms • Amenities (non-specific) • Reading materials <p>Poor cleanliness/maintenance (4) Unkept or dirty, including themes of:</p> <ul style="list-style-type: none"> • Disorganized/cluttered (3) • Dirty <p>Absence of positive distractions Lack of engaging or entertaining features aimed to alleviate anxiety, boredom, or stress</p> <p>Representation</p> <ul style="list-style-type: none"> • Unrepresentative artwork & materials <p>Layout/functionality Spatial attributes that hinder patient use or perceptions:</p> <ul style="list-style-type: none"> • In sufficient seating
	<p>Friendly and responsive staff (15) Having a welcoming, responsive, and friendly receptionist, with themes of:</p>	<p>Rude, unhelpful, inattentive staff (8) Unresponsive, inattentive, unhelpful, or incompetent staff, with themes of:</p>

-
- Greeting from receptionists (6)
 - Responsive and eager to help (3)
 - Cordial friendly attitude (2)
 - Provides explanations/reduces uncertainty (2)
 - Human connection
 - Courteous of preferences & political orientations

Representative staff

- BIPOC patients at front desk

Friendly patients

Logistical Considerations

1 welcoming comment
4 unwelcoming comments

Quick Check-in

-
- Inattentive unresponsive receptionists (4)
 - Unhelpful, uninformed (2)
 - Poor attitude, curt, inpatient staff (2)

Unruly patients

Loud disruptive patients

People moving

Miscommunication/Misunderstanding

(3) Long lines

Table 6, con't.

Themes from...	Welcoming	Unwelcoming
White, non-Hispanic Interviewees (n = 4)	<p>Patient-centered amenities (5) Patient-oriented features that exemplify dedication to patients with:</p> <ul style="list-style-type: none"> • Accessible, gender-neutral restroom(s) (2) • Little personal touches • Hospitality/beverage • Tissues <p>Positive distractions Creating a pleasant environment for patients with:</p> <ul style="list-style-type: none"> • Magazines/items to read <p>Cleanliness/maintenance Well-kept environment</p> <p>Signage, navigation, & information (3) Features that greet patients, solicit feedback, or enhance patient navigation, such as:</p> <ul style="list-style-type: none"> • Directory with staff images & anecdotes • Information on local events • Navigation signs <p>Layout/functionality Spatial attributes that support patient use or perceptions:</p> <ul style="list-style-type: none"> • Easy to locate reception desk 	<p>Atmospherics/aesthetics (4) Characteristics that create an unpleasant environment for patients:</p> <ul style="list-style-type: none"> • Bland • Sterile • Empty • Unbranded/non-descript space <p>Poor cleanliness/maintenance (4) Unkept or dirty, which make it seem as though the clinic does not care about its patients, including themes of:</p> <ul style="list-style-type: none"> • Empty magazine racks • Clutter • Unkept items/furnishings • Disorganized <p>Absence of positive distractions (4) Lack of engaging or entertaining features aimed to alleviate anxiety, boredom, or stress, including themes of:</p> <ul style="list-style-type: none"> • Magazines • TVs • Nothing to distract • Little to look out <p>Patient-centered amenities Lack of patient-oriented features that exemplify dedication, including:</p> <ul style="list-style-type: none"> • Little effort put into the patient experience <p>Layout/Functionality Spatial attributes that hinder patient use or perceptions:</p> <ul style="list-style-type: none"> • Confusing to navigate
Spatial Characteristics & Amenities <i>11 welcoming comments</i> <i>14 unwelcoming comments</i>		
Person-Centered Characteristics <i>2 welcoming comments</i> <i>2 unwelcoming comments</i>	<p>Friendly and responsive staff (2) Having a welcoming, responsive, and friendly receptionist, with themes of:</p> <ul style="list-style-type: none"> • Greeted by receptionists in the sightline of entrance (2) 	<p>No or inaccessible staff (2) Including themes of:</p> <ul style="list-style-type: none"> • No receptionist • Hard to locate receptionist
Logistical Considerations	n/a	n/a

Scholarship of Design Research | Poster

Under Pressure: Examining the Evolving Influences on a 4-Year Interior Design Education

Amy Roehl, Texas Christian University

Barbara Anderson, Kansas State University

Rene King, Columbia College Chicago

Patrick Lee Lucas, University of Kentucky

Bryan Orthel, Indiana University Bloomington

Milagros Zingoni Phielipp, University of Tennessee Knoxville

ABSTRACT

This poster presentation examines evolving expectations of the Interior Design discipline and the resulting pressures placed on delivering those requirements within the 4-years of the typical undergraduate education. The 4-year bachelor's degree in the United States was established in the 1800s (Goldin & Katz, 1999) and persists today. Considering the undergraduate education for Interior Design, this period for a student to complete their studies does not account for the disciplinary evolution and rapidly shifting technologies occurring over the past century. Furthermore, with the prohibitive cost of higher education in the U.S. today, students strategize to shorten the bachelor's degree to 3 years by applying AP high school credits (Powell, 2018).

This presentation provides a visual history of key influences on Interior Design education in North America. The authors question how evolving subject matter requirements will be managed to address the continuous and ever-expanding disciplinary content. A graphic overview of the past century highlights many key issues and moments impacting built environment studies and practice (Appendix, Table 1).

From the late 1800s through the early decades of the 1900s formal study of interior decoration advanced from individual course offerings to dedicated curricula (May, 2016). Curricula continued to develop through and past the mid-century focusing upon formal, pragmatic, and historical aspects of the discipline. The 1980s marked the start of significant and rapid changes to the profession. Curriculum responded reflecting the multiplicity of issues facing the industry including the technological transition from hand drafting to new media used for visualization and documentation. The 1980s brought the first Title Act (Alabama) as well as the ARIDO Act in Canada. Globalization of design firms started in the 1980s

and rapidly expanded in the 1990s requiring cultural agility. The ADA was passed. ASID was founded in the mid- 1970s followed by consolidation of several interior design professional organizations that formed the IIDA. In the 1980s the USGBC was created, and LEED established. The AIA passed legislation to restrict use of the title “Interior Architect”. Mass use of technology rapidly increased in the 1990s and evolves at a dizzying pace. The swift advancement of technologies today challenges faculty to keep up both with industry practices and with how we teach and learn.

The demands on the academic discipline of Interior Design are compounded by the assault on higher education marked by corporatization of the academy. Upper administration implements stark management practices and deep budget cuts as the enrollment cliff looms (Mills, 2012). With the median full-time faculty size at 2 per programs with less than 100 students and 3 per programs with 100-200 students (CIDA, 2021) Interior Design program leadership and faculty find themselves in a crisis for finding a sustainable model for Interior Design education. Success in producing industry-ready graduates, meeting standards from multiple accrediting bodies, managing expanding institutional expectations of faculty for scholarship production as well as increased service to the institution, these points represent the tip of the iceberg regarding pressures facing program sustainability today.

With widespread use of ai tools starting in 2022, it is difficult for us to wrap our heads around the radical changes coming to education. AI will impact every aspect of higher ed and the Interior Design industry. The visual format of this poster is intended to prompt discussions amongst faculty, graduate students, program leaders, and industry partners attending IDEC’s 2024 conference in New York City. We must come together to find sustainable solutions for the future of Interior Design education.

REFERENCES

Council for Interior Design Accreditation (CIDA). (2021). Survey Summary – Faculty Data. Retrieved from: https://static1.squarespace.com/static/5c9ae7530490796e32442342/t/619d33f6ea7cd737b5f4aa03/1637692416284/FacultySummary_21.pdf

Goldin, C., & Katz, L.F. (1999). The shaping of higher education: The formative years in the United States, 1890 to 1940. *Journal of Economic Perspectives*, 13(1), 37-62. DOI: 10.1257/jep.13.1.37.

May, B. (2016). Lessons in diversity: Origins of interior decoration education in the United States, 1870-1930. *Journal of Interior Design*, 42(3), 5-28. DOI: 10.1111/joid.12086.

Mills, N. (2012, Fall). The corporatization of higher education. *Dissent*. <https://www.dissentmagazine.org/article/the-corporatization-of-higher-education>

Under Pressure: Examining the Evolving Influences on a 4-Year Interior Design Education in North America

	1920	1930	1940	1950	1960	1970	1980	1990	2000	2010	2020	2030
U.S. & World Events		World War II Great Depression (1937-38)			Civil Rights Act (1964)	Recession (1972) ALEC American Legislative Exchange Council	Economic downturn (1981)		9/11 (2001) Dot Com Bubble Crash (2009)		COVID pandemic	
Evolution of the Profession (North America)	<i>The House in Good Taste</i> Elsie de Wolfe (1913) University of Minnesota BS in Interior Decoration (1918) Dorothy Draper & Co. (1923)			NSID (1957)	IDEC (1963) NKBA (1963) Beginning mass awareness re: built environment must respond to environmental challenges (1960s)	NCIDQ (1972) ASID (1975)	First Title Registration Alabama (1982) ARIDO act (1984)	OBD (1990) ADA (1992) IDECF (1992) USGBC (1993) IIDA (1994) LEED (1998) Florida passes Practice Act (1994) AIA restricts title Interior Architect through state legislation	WELL (2014)	Interior Design Body of Knowledge (2010)		Decolonizing Design Anti-racist design
Technology	Hand drafting						AutoCAD 1.0 (1982)	Mass use of email (1990s) Photoshop 1.0 (1990) 3D Studio MAX 1.0 (1996) Web 2.0 (1999) Revit (2000) Google SketchUp (2000)	iPhone (2007) AR apps	iPad (2010) Oculus Rift (2016) Common use of VR in design practice Pokemon Go puts AR on mainstream map (2016)		rapid acceleration in ai use by public chatGPT (2022) Midjourney (2022)
Social Media									LinkedIn (2003) Facebook (2004) YouTube (2005)	Pinterest (2010) Instagram (2010) TikTok (2016)		
Accreditation			NASAD (1944)			FIDER (1971)						CIDA (2024 draft) 16 standards with 124 expectations
Shifts in Higher Ed							1 st 100% online course (1984) University of Toronto	Blackboard (1998) Universities shift to contingent faculty	Pressure for post-tenure reviews	"Year of the MOOC" (2012) Coursera, edX Udacity	enrollment cliff Proliferation of online and hybrid learning Pressure for transferability of Gen Ed	

Appendix | Table 1

Note to reviewers: Due to the 5 reference limit for abstracts, if accepted, the poster presentation will include all references used to generate the data in this appendix.

Universal Color Design: Analyzing Color Perception and Proposing Color Scheme Design Methods for Tritanopia (Blue-Yellow Color Blindness)

Heejin Lee, Belmont University

ABSTRACT

Designing a built environment that accommodates the diverse needs of individuals is fundamental and aligns with the principles of universal design. Color, a pivotal element in the built environment, has earned considerable attention from designers, planners, architects, and other professionals. The focus has predominantly been on accommodating red-green color blindness in published research. However, to truly embody universal design, it is essential to consider various forms of color vision impairment, including people with tritanopia, a blue-yellow color blindness. Unfortunately, tritanopia has been inadequately addressed in academic and professional research due to its relatively lower prevalence. Universal design strives to guarantee accessibility, comprehensibility, and usability of the built environment for all individuals, regardless of age, size, abilities, or disabilities. Consequently, research on universal color design should encompass considerations for tritanopia as well.

The purpose of this study is twofold: 1) to compare and analyze color perception between individuals with normal vision and those with tritanopia, 2) to propose methodologies for designing color schemes that consider people with tritanopia. The objective is to assist not only individuals with tritanopia but also to enlighten design professionals about effective color scheme design.

To analyze how individuals with tritanopia perceive colors, ten Munsell color charts (i.e., 5R, 5YR, 5Y, 5GY, 5G, 5BG, 5B, 5PB, 5P, 5RP) were utilized for color blind simulation. Coblis, a color-blind simulator, was employed to simulate the colors accurately. After analyzing tritanopia's color perception of ten colors, some suggestions on color scheme design methods were proposed based on the analysis.

The result of tritanopia color perception analysis demonstrates that colors such as red (5R) and red-violet (5RP) are perceived quite similarly to red, with almost no change in saturation. Colors like yellow-red (5YR), yellow (5Y), and purple (5P) are also perceived as shades of red but with significantly lower saturation. Yellow-green (5GY) is perceived as a dull grey with markedly low saturation. Colors green (5G), blue-green (5BG), blue (5B), and blue-violet (5PB) are all perceived similarly as blue-green colors, with similar saturation levels. Based on this analysis of the color perception of tritanopia, it is suggested to avoid using colors like yellow or yellow-red with purple. Careful attention is necessary when using the colors green, blue-green, blue, and blue-violet together since they appear similar from the perspective of

tritanopia. The same applies to red and red-violet. Additionally, it is advised to refrain from using yellow-greens as accent colors, as these colors appear significantly dull to people with tritanopia. It is expected that this study serves as a pivotal reminder to design professionals, reinforcing the critical importance of embracing heightened awareness of color universal design, which necessitates considering a minority of customers, in this case, people with tritanopia. Furthermore, it is anticipated that the proposed color scheme design methods will be beneficial for design professionals working with clients who have tritanopia, enabling them to create more effective visual designs that cater to their needs.

REFERENCES

Abd Ellfattah, M. T. (2014). Web design for color blind persons. *International Design Journal*, 4(4), 37-46.

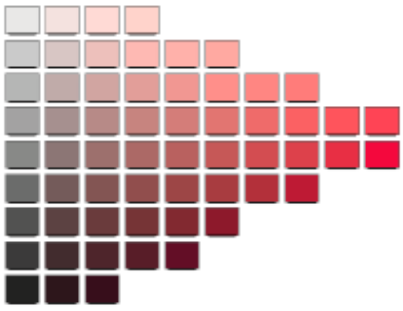
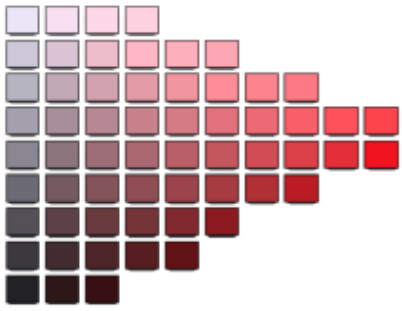
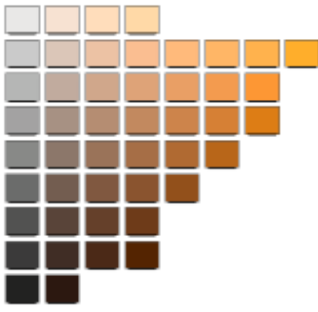
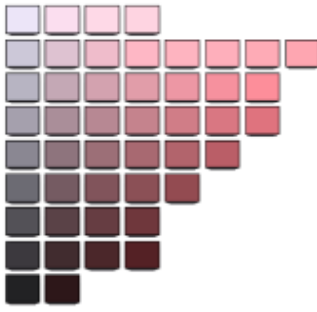


Color Universal Design (CUD) / Colorblind Barrier Free. (2020). Uni-Koeln.de. <https://jfly.uni-koeln.de/color/>



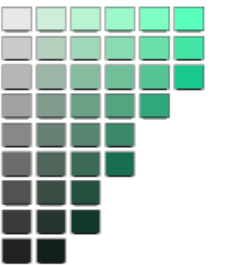





Color Universal Design Organization & EIZO NANA CORPORATION. (2006). *Color Universal Design Handbook*. Color Universal Design Organization & EIZO NANA CORPORATION.

Jenny, B., & Kelso, N. V. (2007). Color design for the color vision impaired. *Cartographic perspectives*, (58), 61-67.

Table 1

Color Perception of Normal and Tritanopia Perspectives

	Perspective		
	Normal	Tritanopia	Analysis
5R			<ul style="list-style-type: none"> - Colors on 5R chart are perceived very similarly with slight blue tone added - Saturation levels are similarly seen
5YR			<ul style="list-style-type: none"> - Colors on 5YR chart are perceived as less saturated reds
5Y			<ul style="list-style-type: none"> - Colors on 5Y chart are perceived as dull reds with very low saturation

5GY			<ul style="list-style-type: none"> - Colors on 5GY chart are perceived as dull grey with very low saturation
5G			<ul style="list-style-type: none"> - Colors on 5G chart are perceived as blue-greens with a blue tone added to an actual green color - Saturation levels are similarly seen
5BG			<ul style="list-style-type: none"> - Colors on 5BG chart are perceived as more blueish greens with a blue tone added - Saturation levels are similarly seen
5B			<ul style="list-style-type: none"> - Colors on 5B chart are perceived very similar with a slight green tone added - Saturation levels are similarly seen

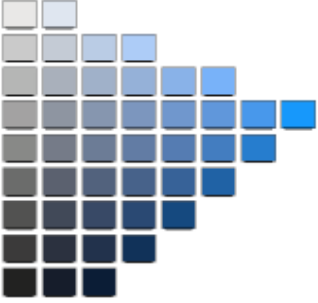
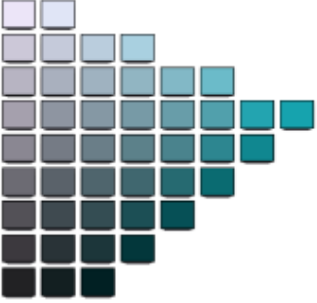
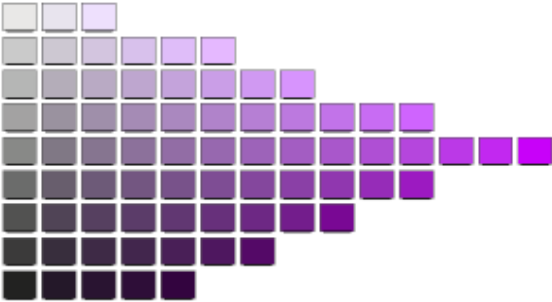
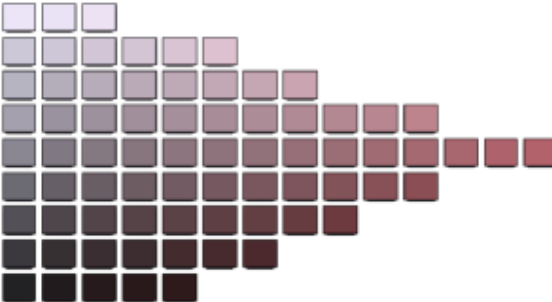
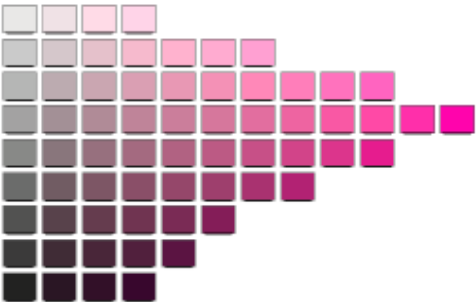
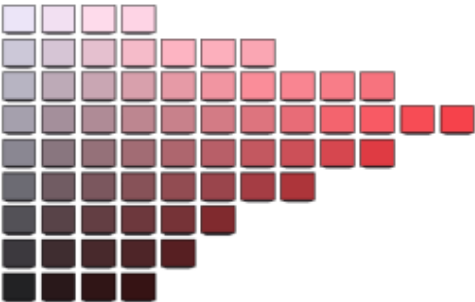
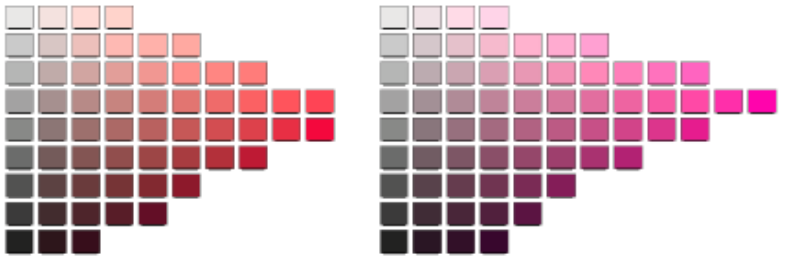
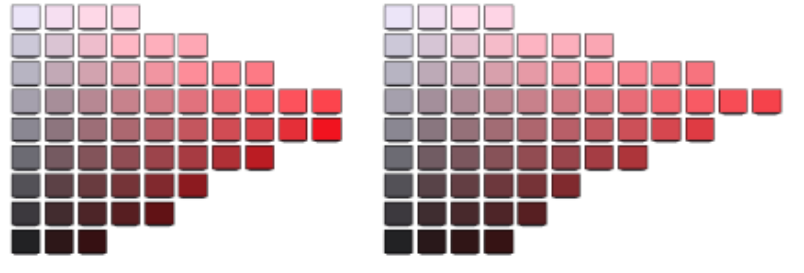
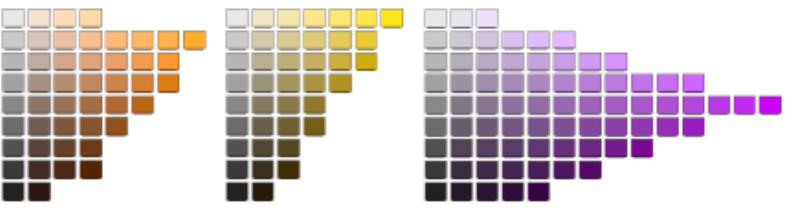



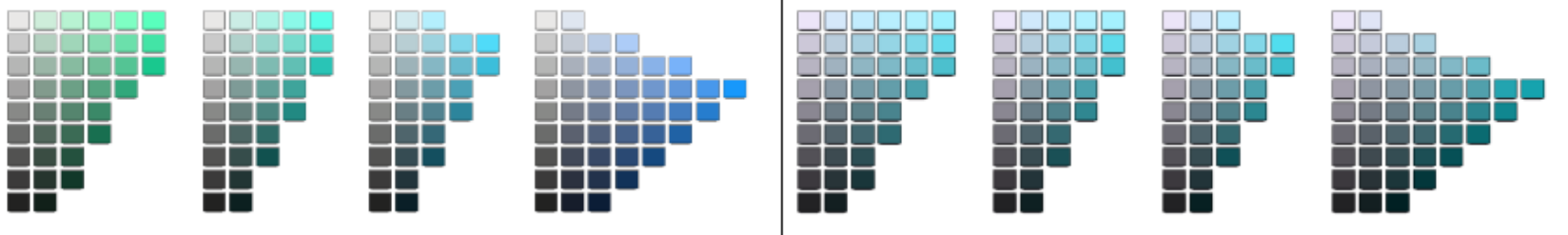
5PB			<ul style="list-style-type: none"> - Colors on 5PB chart are perceived as blue-greens with green tone added to an actual PB color - Saturation levels are similarly seen
5P			<ul style="list-style-type: none"> - Colors on 5P chart are perceived as reds with low saturation
5RP			<ul style="list-style-type: none"> - Colors on 5RP chart are perceived as reds - Saturation levels are similarly seen

Table 2

Cautionary Color Scheme Design Suggestions considering Tritanopia

Cautionary Color Combinations	Perspective	
	Normal	Tritanopia
5R & 5RP		
Avoid using red and pink in the same color scheme.		
5YR & 5Y & 5P		
Avoid using orange, yellow, and purple in the same color scheme.		
5GY		
Avoid using yellow-green as an accent color.		

5G & 5BG & 5B & 5PB



Avoid using green, blue-green, blue, and blue-violet in the same color scheme.

Exploring students' experiences with mixed reality technology in interior design projects: a pilot study

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ABSTRACT

Background: Interior Design education is evolving to provide a more immersive experience to students. The traditional methods of teaching may not always be sufficient to help students grasp the intricacies of the interior design process, which could be solved by allowing them to evaluate their own projects in real scale (Chang et al., 2020; Li et al., 2022). However, the advent of mixed reality (MR) has opened new possibilities for enhancing interior design education in the studio classroom. MR is a technology that merges the real world with the virtual world to create a new environment where physical and digital objects coexist and interact in real-time, providing a more engaging and realistic learning experience (Guevara, 2022; Islam, 2019).

Purpose: The purpose of this pilot study was to explore the potential of MR in enhancing interior design education in studio classroom. The Framework for Inclusive Teaching Excellence (FITE) is guiding this study (Figure 1) (Cuenca-Carlino et al., 2022).

Methods: Two faculty members partnered to work on this pilot study. One of the faculty members teaches in the Interior Design Program and the other teaches in the Technology Department at the same university located in the Midwest of the United States. With an internal grant, a Microsoft HoloLens 2, a Mixed Reality device, was purchased. Two Interior Design Senior students participated in the study. Both students had multiple experiences with the interior design process and various projects completed before participating in this project as an Independent Study. In addition, they have completed a Human Factors course, where they learned topics such as anthropometrics, ergonomics, accessible design, inclusive design, universal design, and design for older adults focusing on aging-in-place before taking the Independent Study. In this independent study, the students had to identify potential clients and redesign their homes for aging-in-place. A pre and post set of questions was developed to analyze students' previous MR knowledge and their learning outcomes with the MR technology focusing on the six dimensions of FITE. The students conducted interviews with their clients

to understand their needs and applied all the traditional steps of the Interior Design Process. After their design proposals were completed using SketchUp, the students took the HoloLens 2 device to their clients' homes and interacted with their designed modifications on site and in real size (Figures 2, 3, and 4).

Results: From the students' interviews, MR was identified as creating a hands-on experience that allows students better to understand spatial relationships, scale, and functionality. In addition, the real-time feedback was the experience that students took most advantage of. In many situations, even when the correct dimensions are applied to a project, some design features end up not being the best design solutions. With real-time feedback, students could test their designs on a real scale and in real environments and could do better-informed design modifications. On the other hand, setting up the device, making all the needed downloads of software and add-ons and the Trimble connect software to use with SketchUp took some time until the team could figure out the technology. The SketchUp models ended up being large and students had to put each room of a house in one file separately, which affected the overall experience. Finally, the FITE dimensions achieved with this project were promoting science of learning, impactful course design, evidence-based pedagogy, and data-informed reflection.

Conclusion: This study served to inform faculty about pedagogy practices and potential challenges when implementing MR technology in studio classroom. While the MR technology is beneficial for learning, the current high costs and the need of technology savvy instructors may be a barrier to implement the technology in large scale.

REFERENCES

- Chang, Y.-S., Hu, K.-J., Chiang, C.-W., & Lugmayr, A. (2020). Applying mobile augmented reality (ar) to teach interior design students in layout plans: Evaluation of learning effectiveness based on the ARCS model of Learning Motivation Theory. *Sensors (Ba*
- Cuenca-Carlino, Y., Giovagnoli, D. J., Friberg, J. C., Meyers, D. J. H., Catanzaro, S. J., & Karraker, D. (2022). Creating the framework for inclusive teaching excellence. *International Journal for Academic Development, 28(3)*, 1–14. <https://doi.org/10.1080/1360144x.2022.2158834>
- Guevara, D., de Laski-Smith, D., & Ashur, S. (2022). Interior design students' perception of virtual reality. *SN Social Sciences, 2(8)*. 152-164. <https://doi.org/10.1007/s43545-022-00423-7>
- Islam, Z. (2019). Constructivist digital design studio with extended reality for effective design pedagogy. *Design and Technology Education, 24(3)*. 1-25. <https://eric.ed.gov/?id=EJ1233393>



Figure 1. Framework for Inclusive Teaching Excellence, adapted from Cuenca-Carlino et al., 2022.



Figure 2. Student using HoloLens 2 on site to visualize project in real scale.

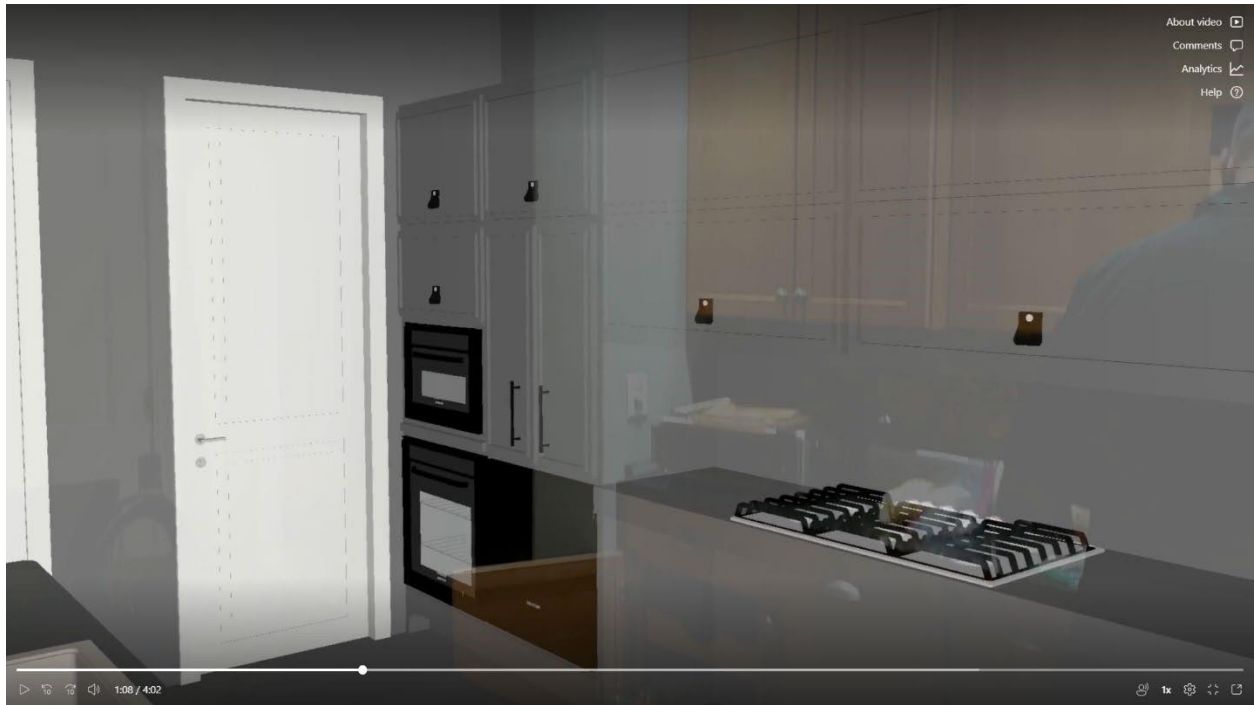


Figure 3. Kitchen view inside of HoloLens 2.



Figure 4. Kitchen to Living room view inside of HoloLens 2.

Human-Nature Relationships to Empower Student Exploration and Creativity: A Multi-Disciplinary Approach

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Justin Phillips, University of Oklahoma

ABSTRACT

Human-nature relationships as explored through diverse activities such as habitat management and restoration can serve as a common denominator to promote collaborative learning opportunities for students from multi-disciplines, with varied life experiences, and at different levels within their educational journey (Valentine, 2016). Design educators are challenged to cultivate an atmosphere of design thinking and encouraged the development of creative solutions addressing real world issues with realistic applications (Guaman-Quintanilla et al., 2023). This work presents the outcomes of a collaborative immersive studio which included undergraduate and graduate students from interior design, architecture, landscape architecture, and regional and city planning and further highlights one students' use of technology to document the built environment studied.

Design as a process develops an initial idea into a solution. The idea is often advanced through creative thinking. In the realm of the built environment, this process is not always linear. Each task calls for a distinct idealization of the situation, the client, and the future use of the object or built environment. This realization is grounded when the designer's professional knowledge, life experiences, ethical and aesthetic sensibilities, mind and body, eye and hand, as well as persona eventually merge (Pallasmaa, 2017). Experiential Learning Theory considers experience as a central role in human development and learning and whereby knowledge results from a transformation of experiences (Kolb & Kolb, 2005).

Methodology: When the epistemological question considered of how knowledge is acquired, two themes emerged: 1) a priori: knowledge that is gained independently of experience and; 2) posteriori: knowledge that is gained by experience. In the phenomenology of the lived experience, students resided on site for the week. Providing students with exposure to nature through visual, multi-sensory and active engagement, supports the notion from biophilia theorist, E.O. Wilson, that natural materials and patterns experienced in nature have a positive impact on health (Valentine, 2016). This not only applies to physical health but also mental health. Mindfulness enhances creative thinking and problem solving (Henriksen, et al., 2020).

Considering priori, students were placed into two teams which were strategically selected to assure each team had members from different majors and year levels in respective programs. Each team was assigned a building and site which became their focus for the week. Working in teams, students

developed annotated drawings and photographs of existing conditions, documented climate conditions at different times of the day and night as it effects the site, building, and habitation. For posteriori, students referenced precedence studies found in the archive and library better understand building methods and materials used in construction. They were encouraged to consider options found in precedence in addition to other data gathered throughout the week to inform recommendations for preservation of the two sites. These recommendations were shared with the historic preservationists, foundation historian, director of education, and other stakeholders.

Immersive projects which expose students to the natural environment promotes creative thinking. While student teams were diverse, each student was empowered and contributed to the project based on their varied skill-set. This is akin to multidisciplinary work as performed in the design-build professions. Working collaboratively in this fashion empowers students to push boundaries and drive their own educational inquiry as shown in student learning outcomes. The debriefing session found that many students value the immersive model. This experience has prompted a graduate student to integrate other technologies such as a 360 camera along with consumer LiDAR and point cloud to enhance the design process.

REFERENCES

Guaman-Quintanilla, S., Everaert, P., Chiluzza, K., & Valcke, M. (2023). Impact of design thinking in higher education: a multi-actor perspective on problem solving and creativity. *International Journal of Technology and Design Education*, 33(1), 217–240.

Henriksen, D., Richardson, C., & Shack, K. (2020). Mindfulness and creativity: Implications for thinking and learning. *Thinking Skills and Creativity*, 37. <https://doi.org/10.1016/j.tsc.2020.100689>

Kolb, A. Y., & Kolb, D. A. (2005). Learning Styles and Learning Spaces: Enhancing Experiential Learning in Higher Education. *Academy of Management Learning & Education*, 4(2), 193–212. <https://doi.org/10.5465/AMLE.2005.17268566>

Pallasmaa, J. (2017). Embodied and Existential Wisdom in Architecture: The Thinking Hand. *BODY & SOCIETY*, 23(1), 96–111. <https://doi.org/10.1177/1357034X16681443>

Appendix

Course Objectives: The course will introduce students to the work of [REDACTED] through studio assignments which address issues that historically were faced by interior designers and architects. The course requires travel and lodging to studio site locations in [REDACTED] attendance on fieldtrips and team contribution to project design problems.

CIDA Standards met in this course:

- Develop an understanding of the impact of the built environment on human experience, behavior, and performance (7a)
- Demonstrate an understanding of the relationship between the natural and built environment as it relates to the human experience, behavior, and performance (7b)
- Through various projects, student will analyze and synthesize human perception and behavior patterns to inform design solutions(7d)
- Develop an understanding of the social, political, and physical influences affecting historic changes in design of the built environment. (10a)
- Develop an understanding of significant movements, traditions, and theories in interior design, furniture, decorative arts, material culture, architecture, and art (10 b-e)
- Application of precedents to inform design solutions (10f)

Course Structure:

This course, held in [REDACTED] will explore the various designs, material and building methods carried out by [REDACTED] which are showcased in [REDACTED] different dwelling units [REDACTED] located within the [REDACTED] estate.

Many of the dwellings have historic significance and because of the extreme conditions [REDACTED], are deteriorating. As part of a service-learning component, students enrolled in this course will document the current conditions [REDACTED]. Working in teams, students will investigate and identify major challenges with each site, then will develop into proposed solutions which address the uniqueness of the site, natural surroundings, and building constraints. Documentation will consist of as-built drawings, annotated digital photographs, sketches/ drawings for proposed design solutions. This work will be provided to the [REDACTED] Preservation department for their use.

[REDACTED] This intensive five-day program will provide students with an in-depth, studio-based experience [REDACTED], which will include tours and individual exploration of the house, educational lectures and discussions, and studio exercises crafted to deepen students' understanding of [REDACTED] design.

Tasks & Assignments:

Studio Exploration 1: Site Studies of Desert Shelters

In this project, students will be divided into teams of six to document their assigned [REDACTED]. Working in teams, students will develop annotated drawings of existing conditions as well as annotated photographs.

Studio Exploration 2: Archival Documentation

Students will have access to the architecture library, archive, preservation lecture, preservation specialist, and [REDACTED] who live on campus as well as guided tours throughout the week. Using these experiences and resources, students should consider the original building materials, methods, and design intent for their [REDACTED] and how any modifications could enhance the structure and experience for future occupants. Also important is how any recommendations adhere to the environment (sustainability) and conditions. Consider the many ways that [REDACTED] uses the conditions of light and shadow to illustrate change, mark direction, reveal texture, and reinforce the conditions of occupancy at [REDACTED]. The recommendations should enhance, reveal, or expand upon a significant moment within the [REDACTED].

Studio Exploration 3: Sketchbook Documentation

Throughout the week students will document their experiences and project exploration in their sketchbook. This includes taking notes during tours and lectures. Students should also be documenting their assigned [REDACTED] as it pertains to light (shade and shadow), wind, temperature, moisture, sound, smell, etc. at their [REDACTED]. Students are encouraged to document those experiences at different times of the day and days of the week. This information should inform design recommendations and be included in the final presentation.

Team Presentation:

Students will present their findings to the historic preservation specialists, historians, and other stakeholders. Each team will have 30 minutes to present followed by question-and-answer session from reviewers.

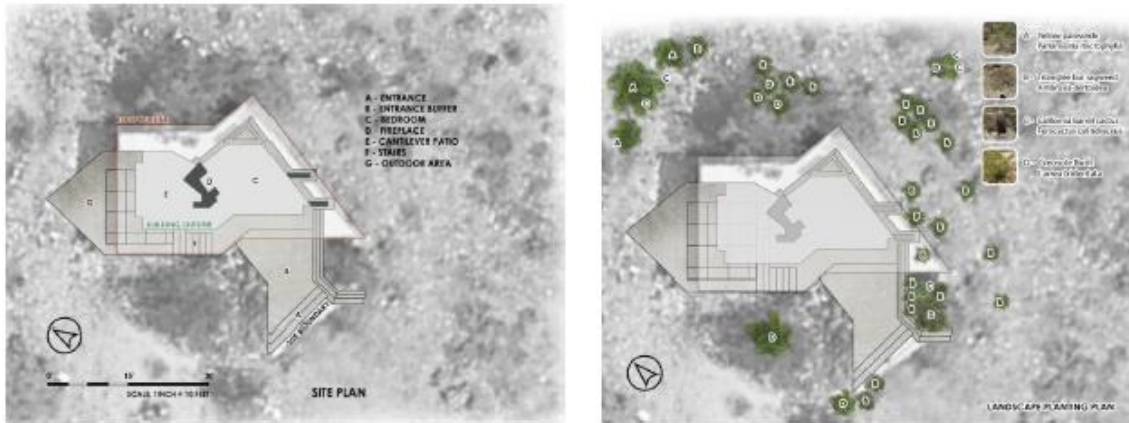


Figure 3. Site Plan and Landscape Planting Plan- CAD



Figure 4. Exterior Scans- LiDAR



Figure 5. Interior Scans- LiDAR

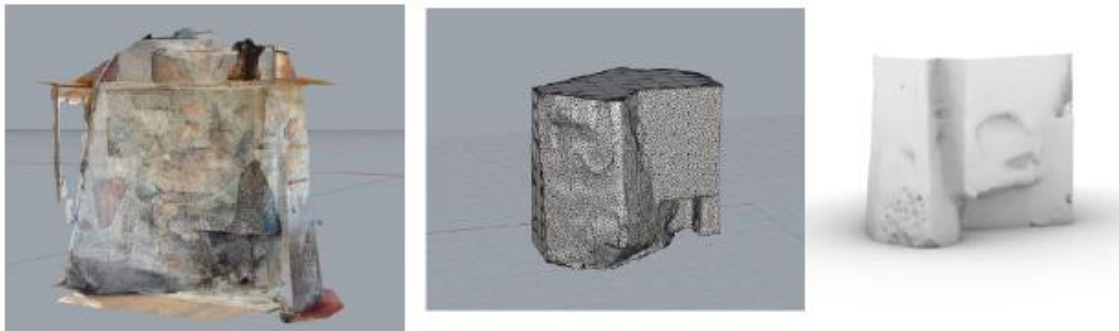


Figure 6. Fireplace Details- Point Cloud- CAD

Pattern Play: employing cultural patterns as a framework for the creative process in a beginning design studio

Miranda S. Anderson, University of Idaho

ABSTRACT

Pattern recognition is a vital human skillset, allowing us the ability to engage and negotiate with our surrounding natural and built environments. Christopher Alexander recognized pattern as a “fundamentally informative characteristic of life” (Alexander 4). Neuroscientist Daniel Bor noted that, “The process of combining more primitive pieces of information to create something more meaningful is a crucial aspect both of learning and of consciousness and is one of the defining features of human experience” (Bor 117). The ability to observe and distinguish patterns is foundational to teaching and learning from the formative years of early childhood education to university-level art and design programs. In interior design, the study of pattern is often limited to the realm of aesthetics. Alternatively, this proposal profiles a first-year interior architecture and design studio that recognizes patterns as manifestations of meaning and catalysts for global and cultural awareness in beginning design students. The analysis of pattern and motif becomes derivation for the creative design process itself. Pattern Play encompasses a series of exercises developed and delivered for the course over several years to explore the pedagogical use of pattern through four different methodologies: Pattern Place; Pattern Analysis; Pattern Translation; and Pattern Dwelling. Each phase supports a learning outcome of interior design education, especially emphasizing indicators within the CIDA Professional Standards such as Standard 4 - Global Context and Standard 11 - Design Elements and Principles.

In the initial exercise, Pattern Place, design students research a selected cultural pattern to better understand the people, place, history, meaning, and other contextual factors that influenced its creation. Patterns are sourced from diverse locations all over the world, encouraging students to develop a broader understanding of the global cultural, social, and ecological contexts informing their work.

In Pattern Analysis, students uncover the presence of elements and principles of design through observation and diagrammatic analysis of their unique cultural patterns and motifs. Through an abstraction process involving iterative layers of diagrams, students deconstruct the elements, principles, and organizational strategies and theories present within each pattern’s composition.

Pattern Translation continues the analysis and abstraction process but seeks to enhance the spatial ability or, “the ability to represent, transform, and manipulate two-dimensional (2D) or three-dimensional (3D) information” of students by engaging them in a series of concept model

transformations (Cho 141). Through this progression, students reinterpret a 2D pattern or diagram as a new 3D adaptation and experience, a notable skill in the creative design process.

The final sequence, Pattern Dwelling, introduces students to the residential design and human factors objectives of the course. Students design an interior spatial experience that is influenced not only by the pattern's design elements and principles, but also by the cultural context and traditions discovered through place-based research efforts.

Assessment criteria for the exercises comprises evaluation of student design processes – the ability to recognize and analyze elements and principles of design in patterns, translate them into their own abstract 2D and 3D forms, and then apply these concepts to the spatial design of an interior environment. Student reflections are also gathered as indicators of global and cultural awareness. Results have highlighted an increased understanding of design elements and principles as well as a broader perspective on place-based design decisions and human factors considerations. For more information, refer to the appendix for excerpts of exercises, student examples of work, and reflections.

REFERENCES

Alexander, Christopher. "The Nature of Order: An Essay on the Art of Building and the Nature of the Universe", Book 1 -The Phenomenon of Life, Berkeley, CA: The Center for Environmental Structure: Routledge, 2004.

Bor, Daniel. The Ravenous Brain: How the New Science of Consciousness Explains Our Insatiable Search for Meaning. Basic Books. New York, 2012.

Cho, Ji Yung, and Joori Suh. "Understanding Spatial Ability in Interior Design Education: 2D-to-3D Visualization Proficiency as a Predictor of Design Performance". *Journal of Interior Design*, 44(3), 141-159, 2019

APPENDIX - Pattern Play: employing cultural patterns as a framework for the creative process in a beginning interior design studio

1.0 – Excerpt from course syllabus including learning outcomes

Course Description

Study of the relationship of design theories to the interior environment: exploration, through a variety of media, of the elements and principles of design, with emphasis on spatial relationship and color theory.

Course and Program-Level Learning Outcomes

Following are learning outcomes and the associated Council for Interior Design Accreditation (CIDA) Professional Standards addressed in this course:

Integrate knowledge concerning the design elements and principles, organizational concepts, and color theory into creative problem-solving processes. (CIDA Professional Standards 2022: 11, 12g-k)

Apply creative and critical thinking skills to the design process at an introductory level including analyzing the design problem, programming, and pre-design, and developing design goals and concepts, to arrive at informed interior design solutions. (CIDA Professional Standards 2022: 8)

Develop and refine verbal, graphic, and writing techniques and abilities to effectively communicate concepts, goals and design solutions at an introductory level. (CIDA Professional Standards 2022: 9b-e)

Utilize theories of human behavior and human factors data including anthropometrics in the design residential interior environments at an introductory level. (CIDA Professional Standards 2022: 7a-d)

Consider social, cultural, economic, geographic, and ecological contexts inform the interior design process. (CIDA Professional Standards 2022: 4)

Specify a broad range of appropriate products, materials, furniture, fixtures, equipment, and elements in support of the design intent. (CIDA Professional Standards 2022: 13a, f)

1.1 – Pattern Place

Research on a selected cultural pattern or motif to better understand the people, place, history, meaning, and other contextual factors that influenced its creation. Deliverables include a written summary of research on the pattern and the place as well as a Place Collage.



IMAGE 4: Maori Patterns
vectorstock.com



IMAGE 1: Kente Cloth

Dr. Courtney Moss, "Kente cloth," in SmartHistory, July 18, 2017, accessed February 6, 2022, <https://smarthistory.org/kente-cloth/>.

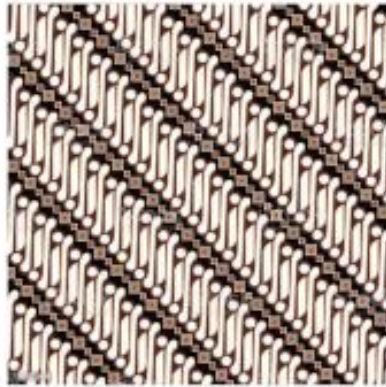


IMAGE 20: Batik Parang
istockphoto.com



IMAGE 9: Palestinian Tattreez
istock.com

Above: Excerpts of some of the diverse pattern image options available (24 total) for students to begin their study.



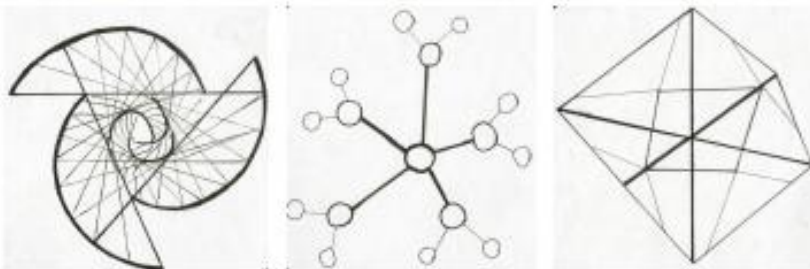
Above: Examples of Place Collages created in addition to written research summaries on selection patterns and their origins.

1.2 – Pattern Analysis

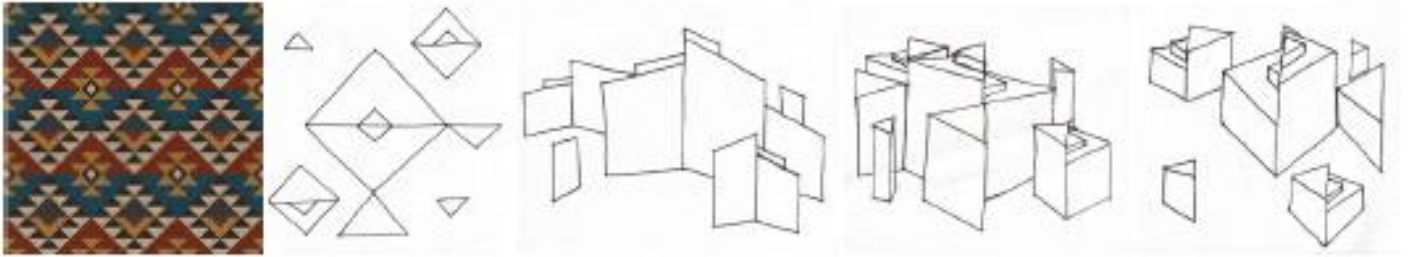
Uncovering the presence of elements and principles of design through observation and diagrammatic analysis of selected cultural patterns and motifs.



Left: Example of initial pattern observation, analysis, and emotive response.



Above: Examples from pattern analysis diagramming process.



Above: Examples from pattern analysis 2D to 3D diagramming process.

1.3 – Pattern Translation

Analysis and abstraction through a series of 3D concept model transformations based on a reinterpretation of the original pattern and subsequent 2D and 3D analysis diagrams.



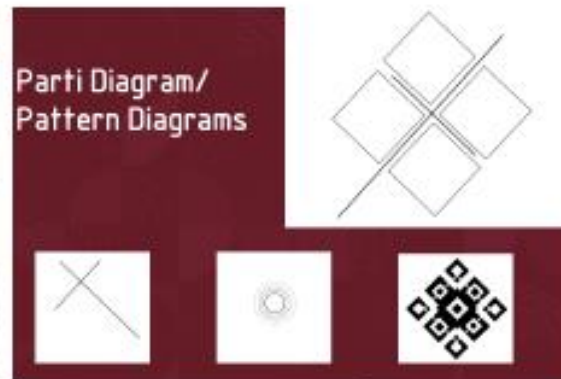
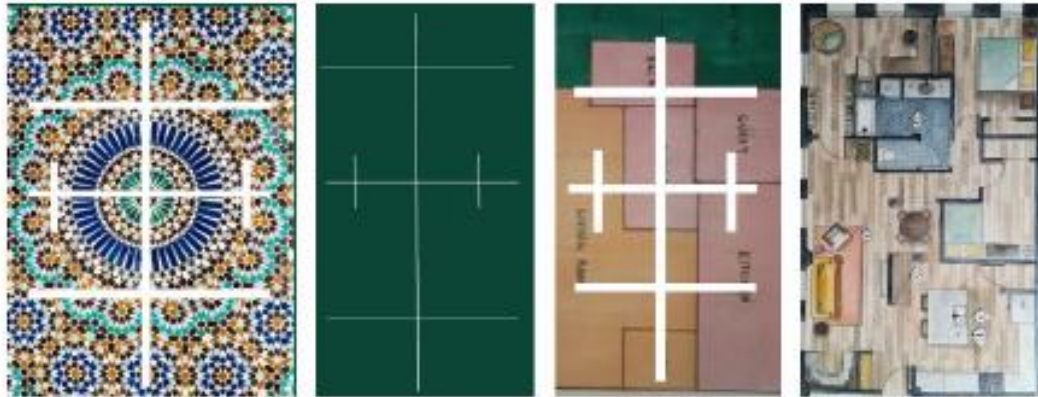
Above: Three different project examples of concept modeling process.



Above: Four different project examples of Pattern Play presentation boards.

1.4 – Pattern Dwelling

Design of an interior spatial experience influenced not only by a pattern's design elements and principles, but also by the cultural context and traditions discovered through place-based research efforts.



Above: Excerpts from three different project examples of Pattern Dwelling process and project presentations.

Three Modes to Approach Sketch Inhibition in Design Students

Elke Altenburger, Illinois State University

Poornima Mankame, Illinois State University

ABSTRACT

Sketching serves multiple purposes during the design process: investigation, exploration, communication, and persuasion (Olofsson & Sjoeflen, 2005; Vistisen, 2015). But “(d)esigners who don’t draw” (Thurlow 2019) have become a common phenomenon that worries educators and practitioners (Thurlow et al., 2019). Many current design students belong to a generation suffering from high levels of fear of failure and show symptoms of sketch inhibition. When their professors ask for sketches, they react with anxiety and avoidance behavior (Booth et al., 2016).

Curriculum development and project intention

To suggest that sketching is an integral part of the design process, our program has across its curriculum increased time and attention devoted to sketching assignments. In this context the goal of the current SoTL study is to experiment with and evaluate the effectiveness of new teaching strategies for a sketching course, intended to introduce and develop three-dimensional sketching skills as well as help relax sketch inhibited students enough to overcome unrealistic self- expectations that are likely to foster anxiety and avoidance behavior.

Instructional methods:

The study is a collaboration between an associate professor, an undergraduate research assistant who attends the course (not for credit) serving as ethnographic informer, and the sketching instructor who retired course content that previously prompted students’ avoidance behavior. She slowed down explanations, now regularly revisits skill modeling activities, and uses unconventional instructional techniques to address weekly student feedback on “things that remain unclear.”

The pedagogic approach relies on three modes 1) studio-based activities, 2) sketching field trips, 3) sketches created between class sessions. Studio time is used for presentations, skill modeling with a document camera, and assignments during which the instructor tapes the horizon line to the studio walls to mark students’ vanishing points. A SoTL grant paid for sketching stools suited to support different body types during sixteen field trips across campus. Lastly, students choose a topic for weekly

homework sketches, which are followed by peer reviews, during which each student shares the best of five sketches.

Student outcomes and student work

The associate professor, who attends class periods as a participant observer, collects qualitative data in form of field notes, photos of classroom activities and field trips, and written student feedback and work. The ethnographic informer shares her insights during weekly team meetings and recruits purposefully sampled participants for semi-structured interviews. The instructor adjusts teaching techniques in response to students' and observers' feedback.

Compared to performance levels of previous groups, sketches created during week four appear advanced. After initial line quality exercises all students now sketch simple one-point perspectives that suggest understanding of the concept and appropriate use of methods. The social course atmosphere, however, is best described as focused. Should students experience anxiety, it is not obvious. But the first- and second-year students are too quiet to suggest relaxed mindsets, even during the field trips which are intended to help create a relaxed course culture by emphasizing joyful aspects of a slow skill-building-process. The instructor is currently experimenting with the peer evaluation format to foster more collaborative conversations.

Resulting insights for teaching and learning

We have two interesting preliminary observations to share: (1) the freshman and sophomore design students are able and willing to provide meaningful regular feedback about problems they experience with the understanding of concepts and methods for perspective sketching; (2) adjustments to instructions informed by the students' feedback are accompanied by fast improvements and an unprecedented high skill level among course participants.

REFERENCES

Booth, J. W., Taborda, E. A., Ramani, K., & Reid, T. (2016). Interventions for teaching sketching skills and reducing inhibition for novice engineering designers. *Design Studies*, 43, 1-23.

<https://doi.org/10.1016/j.destud.2015.11.002>

Olofsson, E., & Sjoeflen K. (2005). *Design Sketching* (3rd ed.). KEEOS Design Books AB.

Thurlow, L. (2019). *Designers Who Don't Draw: An investigation into sketch inhibition among undergraduate designers* [De Montfort University]. Leicester, UK.

Thurlow, L., Ford, P., & Hudson, G. (2019). Skirting the sketch: An analysis of sketch inhibition within contemporary design higher education. *International Journal of Art & Design Education*, 38(2), 478-491.

<https://doi.org/https://doi.org/10.1111/jade.12207>

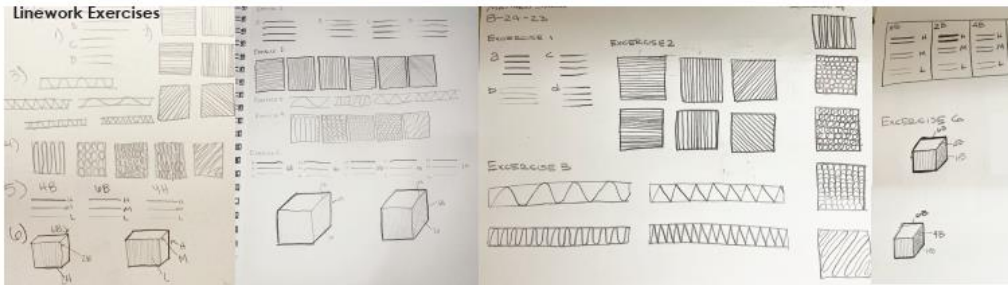
WEEK 1



First day sketching field trip



Students' sketches: First day of class



Linework Exercises

WEEK 2 AND PEER REVIEW



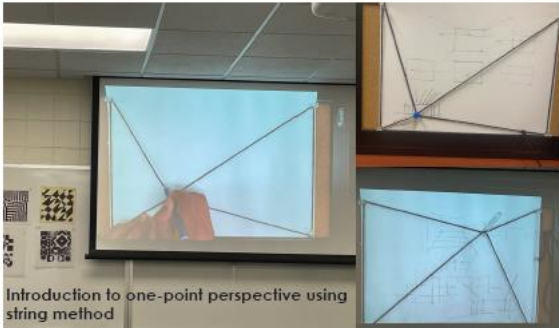
Peer review on weekly homework sketches, students showing their best out of 5 sketches



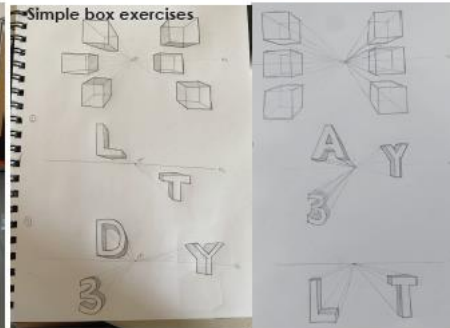
Homework Theme 1: Sketching plants/trees



Homework theme 2: Sketching rooms in one-point perspective

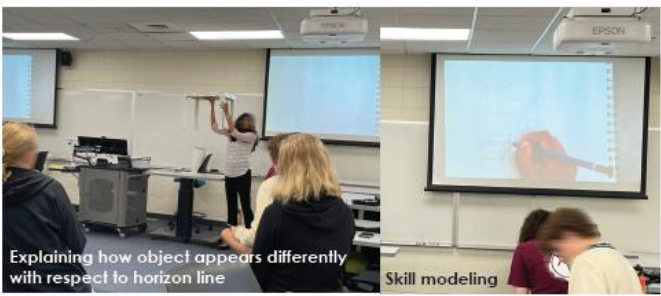


Introduction to one-point perspective using string method

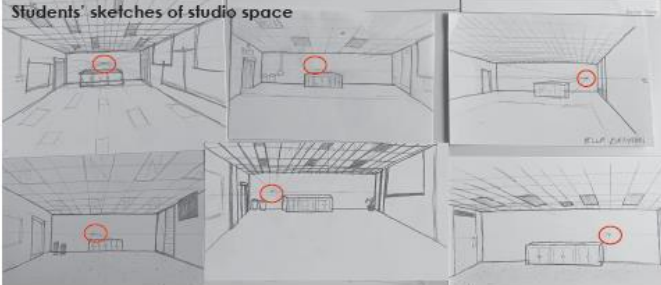
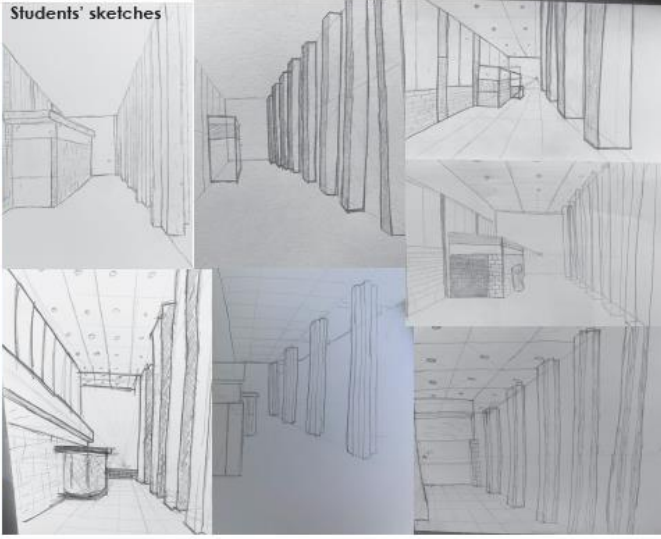


Simple box exercises

WEEK 3



WEEK 4



WEEKLY FEEDBACK

Week 1 Feedback *week 1*

- 1) this week I learned that sketching is really important and a skill that we should develop.
- 2) I think everything was very clear and easy to understand.

week 1

1. Sketching is very versatile, creative, and a different way to see things as perfect.
2. Everything was explained thoroughly.

week 1

1. The most important thing I learned this week was to be loose while sketching.
2. Nothing has been unclear so far.

week 1

1. How sketching is the foundation of the design process and needed before any other work is done.
2. The types of projects we will be doing in this class.



Week 2 Feedback

- 1) how to appropriately place my VP.
- 2) I think demos on the screen are easier to follow.

week 2

1. I learned how easy and important it is to add depth through lensing points + washes.
2. I don't want another minute because I just need to continue sketching practice.

week 2

- 1) I learned how to sketch using one point perspective which will help me draw more realistically.
- 2) I wish to learn more about getting perspective right, especially when drawing depth of objects.

Weekly Exit Ticket

Pick up one index card, write the course name on top and answer following question, don't need to write your names.

1. What was the most important thing you learned during this week?
2. What important part remain unclear or needed to teach better during this week?

week 3

- 1) I have improved on finding/locating the VP in my drawings.
- 2) nothing remains unclear.

week 3 - ex

LS

- 1) where vanishing pt goes depending on where your sitting
- 2) not very good at proportions

Week 4 Feedback

week 4

1. The most important thing I learned was the X method to get more accurate proportions for when I come to depth in one-point perspective.
2. Nothing is unclear.

week 4

1. dividing to find center w/ X method
2. got classmates' reactions to use X method V

week 4

1. how to draw rooms from different vanishing points
2. X method is still a bit unclear

week 4

1. The most important thing I learned was to make sure you look below the vanishing point to make sure your horizon is straight.
2. Nothing is unclear.

Week 3 Feedback

week 3

...this course is the foundation, always sketch with a purpose

...I think I start when to sketch any lines, drawing up, down, and some shading.

I learned how to transform basic 3D geometric shapes into real-life objects with details, such as furniture.

Everything was very clear today, I will just continue to practice my skills.

PRESENTATIONS

Creative Scholarship | Design as Art or Object | Presentation

Beacon: Artifacts to Engage Community

Rene King, Columbia College Chicago

ABSTRACT

“The most important scale is the people scale. The city at eye level and at 5km/hour. This knowledge (about human scale) has been lost by planners and architects.”

-Jan Gehl

In "Wanderlust" by Rebecca Solnit, the author delves deeply into the history of walking, considering it as an activity that predates recorded human history. She highlights its role as a valuable tool employed by ancient philosophers such as Aristotle for contemplation and teaching, while also delving into the intricate relationship between physical movement and cognitive processes. Solnit eloquently expresses this idea when she writes, "Exploring the world is one of the best ways of exploring the mind, and walking traverses both terrains."

Author, Lauren Elkin developed a passion for walking within urban landscapes during her graduate studies in London. In her research she encountered the term "flaneur," which is French for someone who strolls aimlessly and inconspicuously through the streets. This discovery prompted her to ponder why women had been absent from the rich history associated with this concept. In her book, "Flaneuse: Women Walk the City in Paris, New York, Tokyo, Venice, and London," Elkin explores and rectifies this historical oversight, shedding light on the experiences of women who have engaged in urban wandering and adding their voices to the narrative.

Both authors advocate for the act of wandering, emphasizing that it should not be aimless but rather purposeful. They view wandering as a powerful tool for self-reflection, a means to pose questions, to confront societal norms and assumptions, and to foster creativity. By observing and engaging with the world around us as we wander, we have the opportunity to challenge conventional thinking and actively shape our worlds based on the insights gained along the journey.

This project employs walking as a method to keenly observe one's community, the constructed surroundings, the natural environment, and the diverse array of human and non-human entities that coexist within the same space and timeframe. These walks are documented through photographs, sketches, and diagrams, conducted over a period of time. Through this process, a fresh comprehension of the micro-environment is revealed.

These observations also generate a need for further research, encompassing historical accounts, demographic data, and other pertinent information. This supplementary research serves as a crucial bridge, providing context for the current configuration and essence of this lakefront locale.

The design of these artifacts draws inspiration from the Fresnel Lens, renowned for its ability to effectively reflect and refract light, particularly in lighthouses scattered across the Great Lakes Region, where the project is situated. Beacons have a rich historical legacy, serving as guiding lights for both ships and people. Their radiant beams have played a crucial role in revealing potential obstacles along various routes, ensuring safe passage.

An abundance of observational data, collected during a series of walks, is intricately interwoven with the rich tapestry of local history. This fusion becomes a collection of data portraits, etched into each of the acrylic lenses. When the light cascades downward onto the lenses, the images blend, projecting a multi-layered portrait of the local environment onto the ground plane.

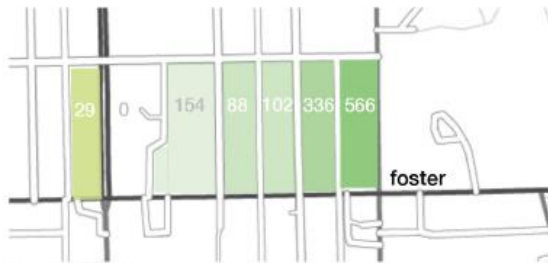
These vessels are crafted to harness the potent force of light, employing it to reshape specific zones within the lakefront park. Their primary purpose is to foster micro-environments that encourage people to come together, exchange stories, and connect with the public sphere. Strategically positioned throughout the park, the vessels spark curiosity with passersby to initiate discussions about the past, the present, and the potential uses of public space in the future.

REFERENCES

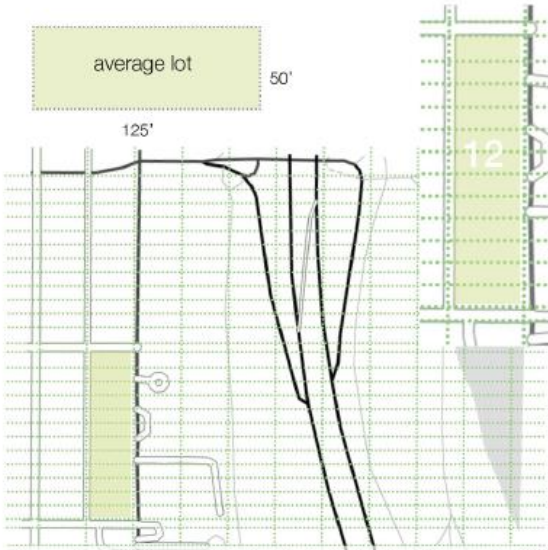
Solnit, Rebecca. *Wanderlust: A History of Walking*. Granta, 2022.

Elkin. *Flaneuse: Women Walk the City in Paris, New York, Tokyo, Venice and London*. Chicago & Windus, 2016.

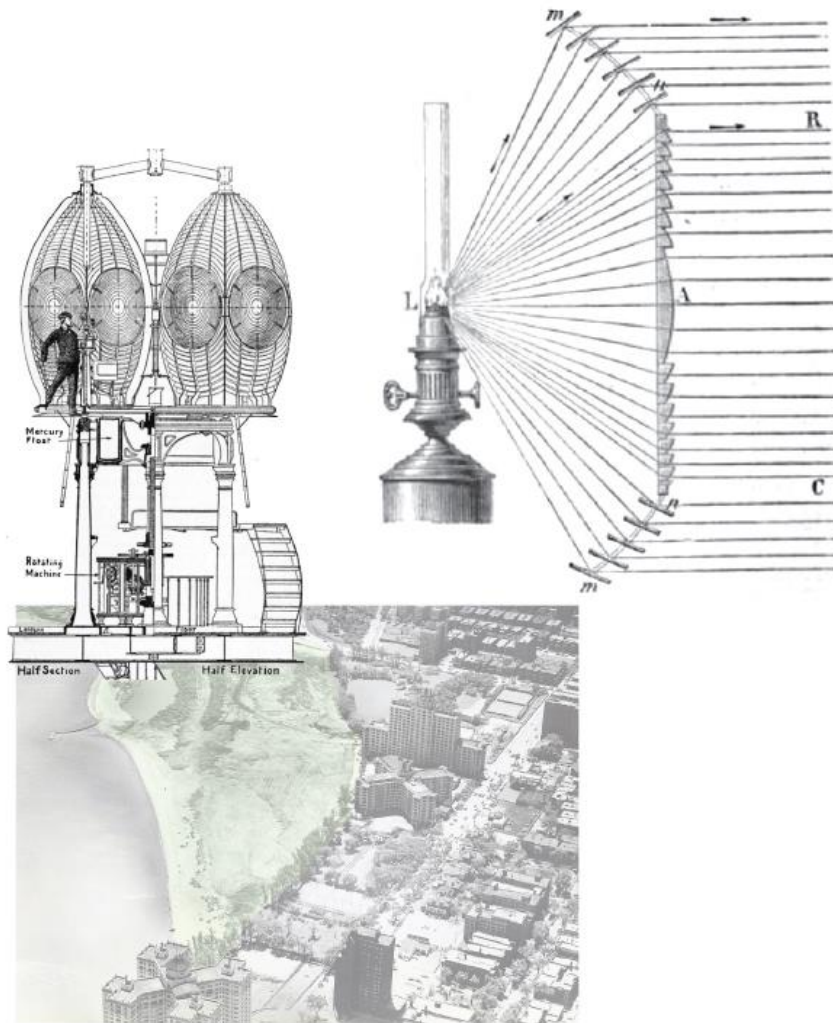
Gehl, Jan. *Cities for People*. Island Press, 2010.



EDGEWATER BEACH DENSITY
residential units per half block

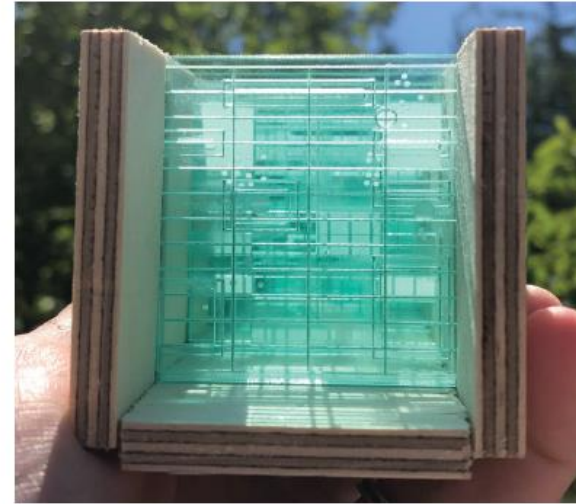
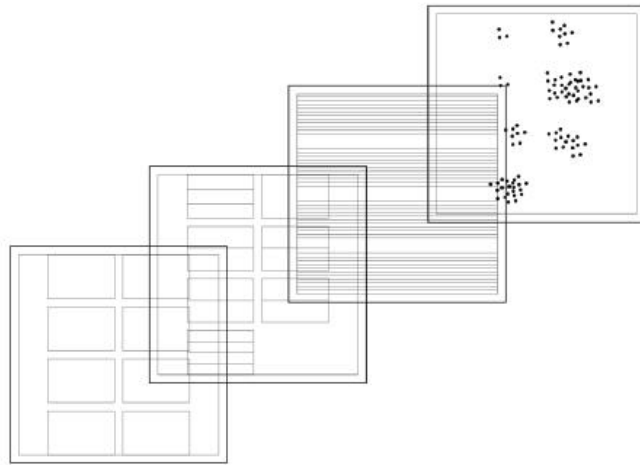


EDGEWATER BEACH DENSITY
twelve lots per half block



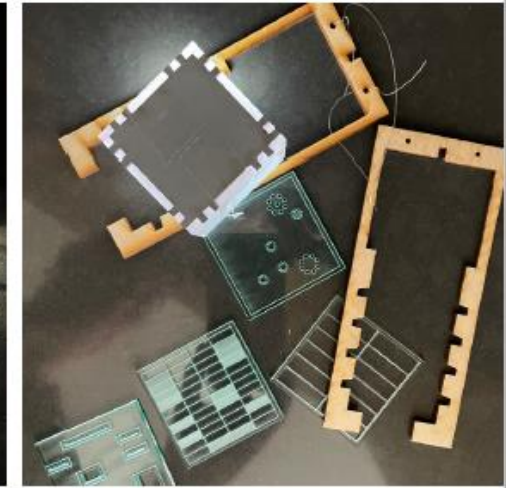
LEGEND (clockwise from upper left)

1. Data mapping block density number of humans
2. Historic Image of Fresnel lens Wikipedia
3. Historic Image of Fresnel lens Wikipedia
4. Aerial Overview of Edgewater with landfill from expressway expansion
5. Average lot size, lots per block, and lot grid layered onto lake front park



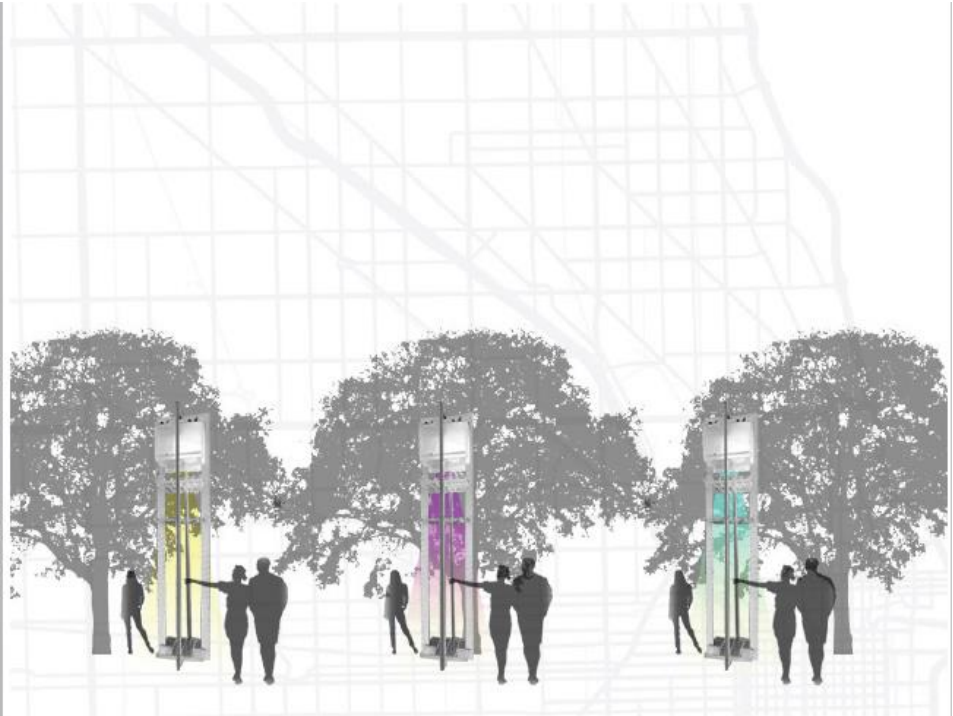
LEGEND (clockwise from upper left)

1. Data portraits capturing density, lot areas, and displacement on acrylic.
2. Test of layered patterns, light and shadow.
3. Initial sketches and material explorations.
4. Initial prototypes and material explorations.



LEGEND (clockwise from upper left)

1. Hand held prototype on site in lake front park. 2. Hand held Prototypes color and material testing. 3. Hand held Prototypes color and material testing. 4. Hand held Prototype shadow casting on concrete. 5. Beacon components disassembled.



LEGEND (clockwise from upper left)

1. Sites for installation mapped on lake front park
2. Large scale installation mock-up
3. Possibilities for future engagement including dance and story circles.

Creative Scholarship | Design as Art or Object | Presentation

Bristles: Crafting Ethereal Experiences Through Spatial Design

Georges Fares, Auburn University

ABSTRACT

Bristles emerges as a specialized approach dedicated to crafting fleeting and atmospheric experiences. These encounters are meticulously composed from a diverse array of elements, including light, materials, form, fabrication techniques, and interactive media. What sets Bristles apart is its unique ability to seamlessly blend objective design principles with subjective engagement in a nonlinear, iterative, and generative manner.

Bristles takes shape as artificial constructs, encompassing objects, surfaces, and material interventions. These creations give rise to a myriad of transient and subjective effects that transcend the tangible components responsible for their inception. In essence, Bristles immerses individuals in environmental qualities reminiscent of sensations encountered in theatrical or cinematic settings (fig. 1). Pioneers such as Olafur Eliasson, Anthony McCall, and Tomas Saraceno exemplify this approach, placing a premium on crafting subjective experiences and nurturing a myriad of effects (Böhme, et al., 2014) (Novakova, 2018). Their visionary work served as the wellspring of inspiration for Bristles, with the objective of conjuring a visual enchantment—an ethereal aura—that effortlessly integrates with the surface it graces, eliciting a feeling of innate harmony despite its unconventional visage.

The fabrication process consists of two main components: particles and a base, both crafted from sheets of Polyester film that possess reflective, refractive, and transparent qualities simultaneously. The 'hair-like' particles, or 'bristles,' are intricately laser-cut and folded individually, akin to origami, allowing them to stand freely and respond sensitively to light and motion (fig. 2). Rigorous testing of various sizes, thicknesses, lengths, and heights ensures stability and flexibility. The base is meticulously cut into a lattice hinges pattern, with designated areas for the bristles to attach to. This pattern maintains the base's transparency, lightweight and flexibility without compromising the bristles' pliability (fig. 3).

Each fabrication piece, conveniently sized as letter paper, consists of 84 particle pieces, each with 420 bristles. The presentation will unveil a collection of modules, prototypes, and small-scale physical tests, exploring different materials and their characteristics to spark new ideas and confront challenges (fig. 4).

When applied to a surface, an enchanting interplay emerges between the object and the observer. As individuals interact with the installation, moving around it or simply being in its proximity, they encounter a distinctive engagement that's shaped by their positioning, the play of light, their perspective, and their actions. With each movement, a fresh and distinct effect unfolds, offering viewers a truly unique and one-of-a-kind experience that can never be repeated or shared. Varied motions and sounds activate the flow of air and vibrations through the particles, fostering an interactive conversation between the installation and its audience.

This form of engagement derives its conceptual underpinnings from Gaston Bachelard's philosophical dichotomy, distinguishing phenomena as the perceptible facets comprising our experiential tapestry, and noumena as the conjectured substratum thought to underlie these sensory manifestations (Odom, 2018). Furthermore, it finds guidance in the tenets of Environmental Preference Theory, emphasizing a proclivity for immersive and captivating settings over rudimentary and banal ones.

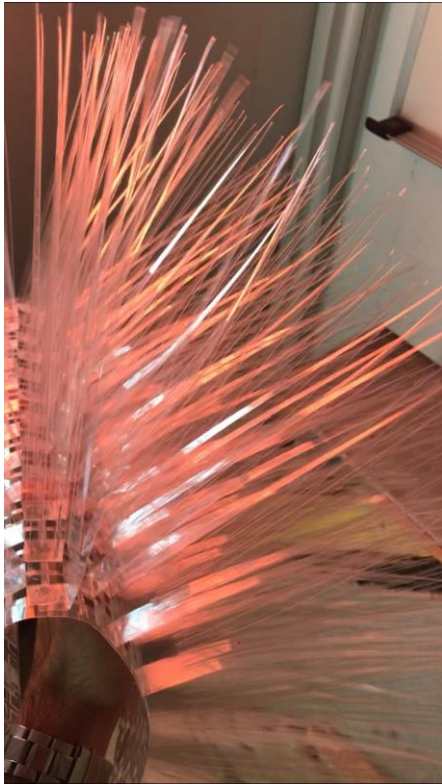
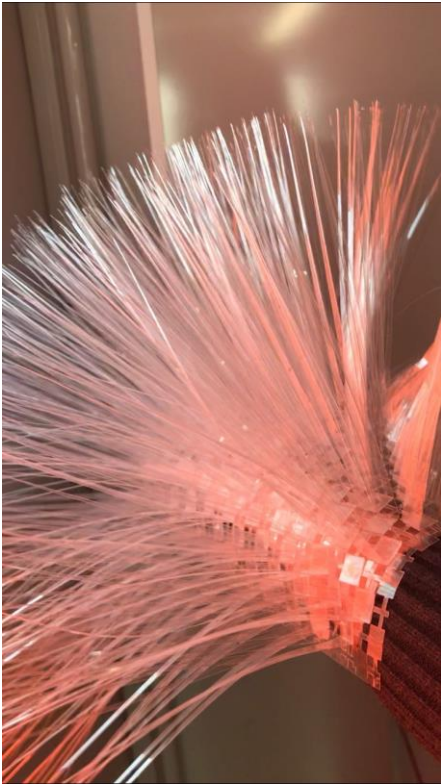
Bristles represents the intricate interplay between light, form, space, and the viewer in spatial design, beckoning the visitor to engage beyond mere observation while fostering a dynamic interaction that transforms both the visitor and the artwork. These atmospheric responses possess a magnetic appeal, weaving together emotional impact and perception to forge an intimate connection between the artwork and its beholders (Böhme, et al., 2014).

REFERENCES

- Böhme, G., Eliasson, Ó., & Pallasmaa, J. (2014). *Architectural atmospheres: On the experience and politics of architecture*. Walter de Gruyter.
- Novakova, L. (2018). *The Scenographic Unfolding: Performance of Immersive, Interactive and Participatory Environments* (Doctoral dissertation, Concordia University).
- Odom, C. (2020). *Productions, Articulations, and the Elusive. Interior Provocations: History, Theory, and Practice of Autonomous Interiors*.

Appendices

FIG. 01 - images of the work in situ.



Images showing the ability of the item to encompass objects and surfaces creating effects as discussed in the abstract

Fig. 2 - Bristle pieces

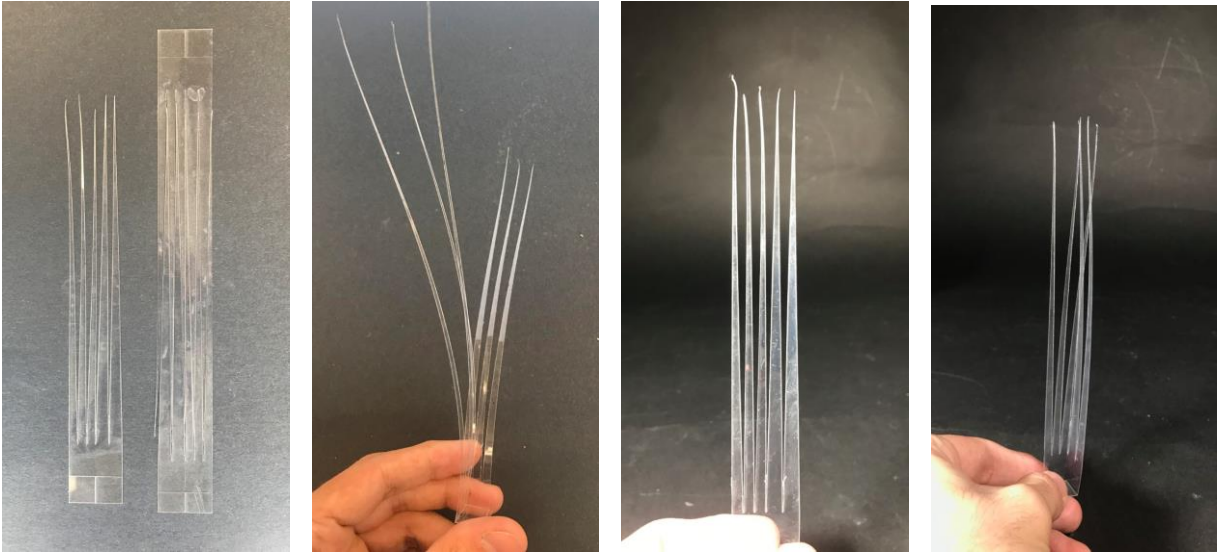


Fig. 3 - Base

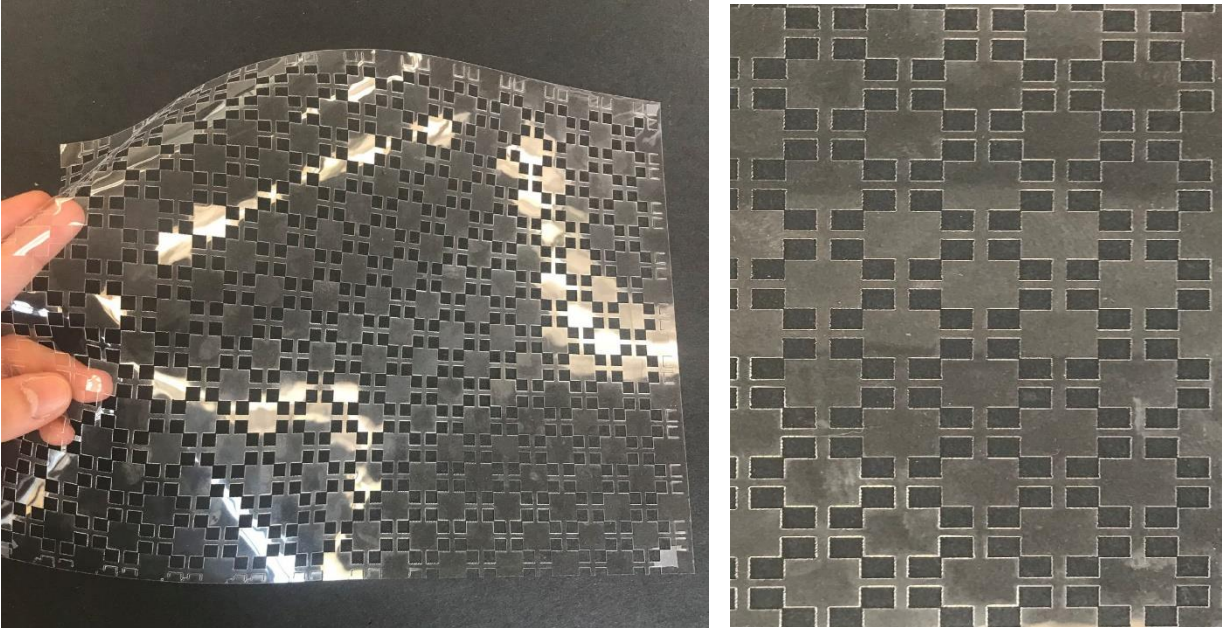
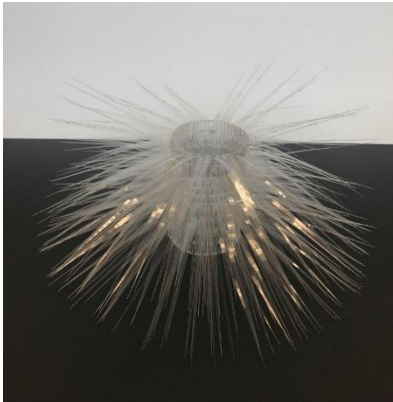


FIG. 4 - Process, testing, iteration, modules, prototypes, and physical tests



Testing different length, strength, weight, adaptability etc.

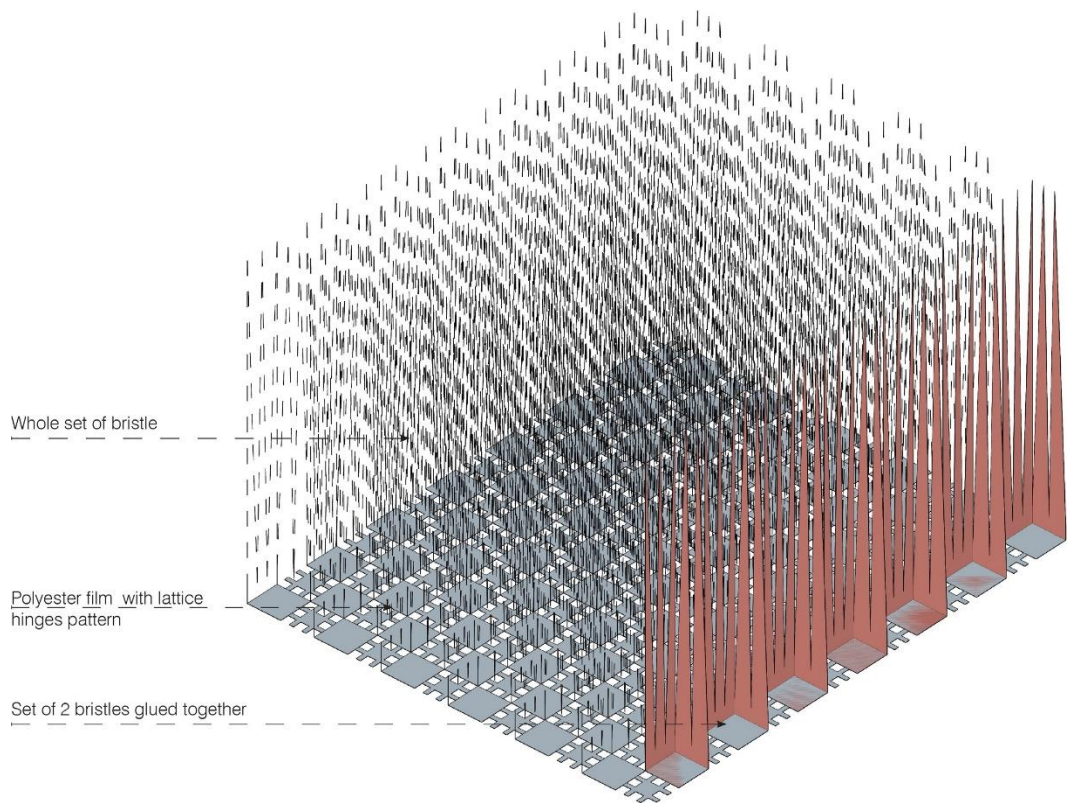
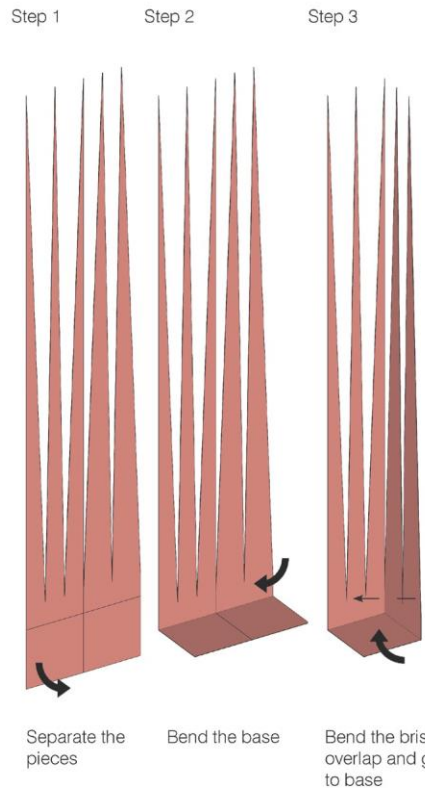
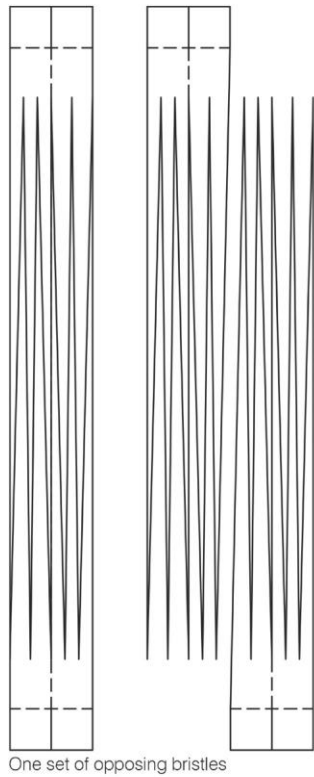


Preliminary tests done with different shapes and materials including plexiglass



Preliminary tests done on malleability, bendability and pliability

Diagrams and Illustrations



Additional Images



Interpretation of Bristles in a setting (rendered environment of the Barcelona Pavilion)



Creative Scholarship | Design as Art or Object | Presentation

On Butterfly Wings: Celebrating Place and Processing Loss through Design

Amy Jacobson-Peters, MFA, ASID, IDEC, University of Central Oklahoma

ABSTRACT

Processing grief is different for everyone. Often, grief can be compared to a snowflake or a fingerprint because it is unique and different for everyone. (Hospice Foundation of America, n.d.) For some, creative projects are a way to help process emotions in a safe and meaningful way. They can increase self-awareness and provide a sense of control when feeling entirely out of control (Hyde, R. 2023, Jan. 16). After a challenging personal period of caretaking and loss, creative projects inspired by personal photographs of butterflies and flowers became a source of therapy that honors lost loved ones.

For many, the last few years have been challenging. A personal heartbreak was the unexpected loss of both parents. In 2020, my father passed away from sarcoidosis (the hardening of the lungs). After his death, my mother decided to move to a smaller home. I spent most of the summer of 2021 helping my mother pack. My folk's home on a lake included three acres with extensive gardens. It was a place that held many fond memories. They had lots of lake "toys" housed in multiple garages, so I spent time packing up and cleaning out those spaces. Helping me through those difficult moments was the nature around me. Lined with giant mounds of purple cone flowers, the driveway attracted many butterflies. Between hauling items out, I snapped pictures of Monarchs and Painted Ladies, patiently waiting for them to land for a perfect composition. At one point, I captured a beautiful yellow Eastern Swallowtail that landed on a gorgeous hanging basket full of purple Petunias, red-orange Million-bells, and Fuchsia and pink Geraniums. Little did I know these images would become a great source of inspiration.

Butterflies are often associated with grief and can be a powerful symbol representing the soul of the deceased. People will feel connected to a lost loved one when spotting a butterfly. Since it is associated with rebirth because of its metamorphosis, people worldwide see a butterfly as a message from beyond that all is well (Painter, S. 2020).

In the summer of 2022, my mother passed away from brain cancer. To help cope with the mental and physical toll of caring for her, I finalized work on light fixture designs. The concept for the fixtures draws inspiration from the flowers and butterflies captured in my photos. The shades, made of layered paper, include delicate laser-cut patterns that wrap around a bulb and "hook" together using a simple paper tab method.

This past summer, I revisited many of the photographs I had taken. The striking imagery with vibrant color combinations inspired me to explore some fabric designs for decorative pillows and scarves. One

pattern, created in Illustrator, features the purple cone flowers and the Monarchs. The straightforward graphics create a clean, elegant design that is ideally suited for an outdoor patio or summertime sunroom. Different-sized pillows and slight color modifications provide opportunities for groupings, allowing for different decorating options.

The pictures of the brightly colored hanging basket with the Eastern Swallowtail provided inspiration for both scarf and pillow schemes. The designs, created using a combination of hand and digital approaches, feature flowers and butterflies, some drawn by hand and rendered in marker and colored pencils, and others digitally painted in Photoshop. A green background featuring a repeated butterfly pattern created using Photoshop and Illustrator sets off hand-drawn images, while patterns, also generated in Illustrator, decorate the outer borders to create the final designs. The square and rectangle scarves' stripes, bright colors, and bold graphics draw inspiration from classic Hermès themes.

The development of the pieces is ongoing, with a plan to bring them to market. Watching the designs emerge and evolve has been fulfilling. Producing them has been healing as they represent the beauty of my parents' gardens, and their love and support.

REFERENCES

Hospice Foundation of America. (n.d.) Different Ways We Grieve. <https://hospicefoundation.org/End-of-Life-Support-and-Resources/Grief-Support/Journeys-with-Grief-Articles/The-Different-Ways-We-Grieve#:~:text=Your%20expression%20of%20grief%20may,thinking%2>

Hyde, R. (2023, January 16). Transforming Grief into Creative Expression. Ever With. <https://www.everwith.co.uk/blogs/news/transforming-grief-into-creative-expression#:~:text=The%20cathartic%20release%20of%20emotions&text=Artistic%20expression%2C%20whether%20it%20be,a%20safe%20and%20controlled%20way>

Painter, S. (2020, August 21). Significance of Butterflies in Association with Death. Love to Know. <https://www.lovetoknow.com/life/grief-loss/significance-butterflies-association-death>

Appendix for:
On Butterfly Wings: Celebrating Place and Processing Loss through Design



^Personal photos taken that became the inspiration for scarf and pillow designs.



^Hand-rendered images were scanned and layered over a background produced in Illustrator.



^An iteration of a rectangular scarf design.



^Above, mock-ups of the rectangular scarf in use.
Right, a square pillow design using the similar pattern components.

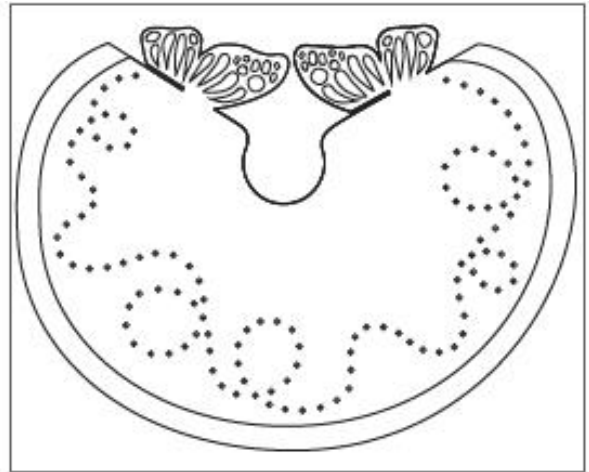


^Photographs of Monarch butterflies on purple cone flowers.



^Above, a pattern created in Illustrator for decorative pillow designs. Right, a mock up of a pillow. Below, a square version.





^Above, an early iteration of the shade cut out of metal. Right, an Illustrator file showing the pattern, and an image showing variations of the shade design before it is wrapped.



^Above, different versions of a shade design inspired by butterflies and flowers. Right, a close-up view of one color combination.

Creative Scholarship | Design as Art or Object | Presentation

Portal: A Modular and Adaptive Design Solution for Autism-Inclusive Environments

Georges Fares, Auburn University

ABSTRACT

The underrepresentation of individuals with Autism Spectrum Disorder (ASD) in interior and architectural design is a pressing concern. The unique needs of individuals with ASD, particularly children, are often overlooked in building codes, design guidelines, and regulations, resulting in a deficiency of tailored design solutions (Khare and Mullick, 2009). This is a significant issue given the increasing ASD population (CDC, 2021).

This presentation introduces Portal, a Modular and Adaptive System prototype designed to address different requirements of individuals with ASD. Portal's modular nature offers versatility by enabling the creation of therapeutic environments that leverage multi-sensory experiences to enhance fine/gross motor control and social interaction skills. Comprising adaptable components, Portal can be easily modified to accommodate different symptoms, functions and sensitivities (figure 01, 02, 11, 12).

Recent design solutions for children with autism, such as "Synchrony" by Kenneth Tay and "Mia Hoodie Chair" by Tink Thinks, focus on specific sensory outcomes in specific environments. "Social Sensory Architectures" by Sean Ahlquist is an ongoing research project dedicated to technology-embedded multi-sensory environments for children with ASD and is site-specific. In contrast, Portal is rooted in universal design principles, aiming to create products and environments usable by all, regardless of abilities or location.

The presentation will detail the methodology employed in designing and fabricating the Portal prototype, encompassing the final design, testing, materials, and other relevant aspects, emphasizing the importance of adaptable design solutions that can cater to the diverse needs of individuals with ASD (figure 03, 05).

Portal's nature-inspired, triangular geometry emerged from extensive testing, prototypes, and iterations (figure 06, 07), informed by feedback from autistic individuals, caregivers, educators, industry professionals, and technology experts, this ensured its adaptability to diverse settings, including homes, schools, public spaces and healthcare settings, prioritizing safety and portability while maintaining affordability for parents, caregivers, educators, and individuals with ASD.

Each modular piece underwent a rigorous prototyping process using laser cutters, 3D printers, and CNC machines before being machine milled to a one-foot diameter piece and molded with EVA foam (figure

03). Velcro on both sides allows for various uses and activities. The triangular unit features notches, grooves, and straps (figure 04) for easy assembly, disassembly, and transportation, enabling the creation of room dividers, wall panels, and cocoon-like environments.

These customizations cater to individual sensory needs, promote independence, and discourage excessive sheltering.

Designing spaces for individuals with ASD is a complex task due to their diverse needs and unique cases. One-size-fits-all solutions are inadequate, necessitating consideration of various theories, including the Therapeutic Environment Theory

which emphasizes the interplay between individual needs and social context (Nasar, 2007; Kaplan, et al., 1989). Privacy and Control Theory which underscores the significance of choice and control for individuals with ASD, and Environmental Preference Theory which advocates for engaging and stimulating environments (Kaplan et al., 1989).

Portal demonstrates how intentional architectural and interior design can positively impact the behavior and well-being of individuals with ASD, fostering a built environment that enhances their overall quality of life.

REFERENCES

Nasar, J. (2007). Inquiry by Design: Environment/Behavior/Neuroscience in Architecture, Interiors, Landscape and Planning. *Journal of Environmental Psychology*, 27(3), 252–253.

<https://doi.org/10.1016/j.jenvp.2007.05.001>

Khare, R., & Mullick, A. (2009). INCORPORATING THE BEHAVIORAL DIMENSION IN DESIGNING INCLUSIVE LEARNING ENVIRONMENT FOR AUTISM. *International Journal of Architectural Research: Archnet-IJAR*, 3, 45-64.

U.S. Department of Health and Human Services. (n.d.). Autism spectrum disorder (ASD). Eunice Kennedy Shriver National Institute of Child Health and Human Development. Retrieved April 10, 2023, from <https://www.nichd.nih.gov/health/topics/autism>

Kaplan, R., Kaplan, S., & Brown, T. (1989). Environmental preference. *Environment and Behavior*, 21(5), 509–530.

<https://doi.org/10.1177/0013916589215001>

Appendix

The images below illustrate Portal's adaptability to various environments and settings, allowing it to cater to diverse functions and sensory requirements.



FIGURE. 01- Here are instances demonstrating Portal's capacity to generate distinct environments tailored for various activities, all while ensuring sensory accommodation.

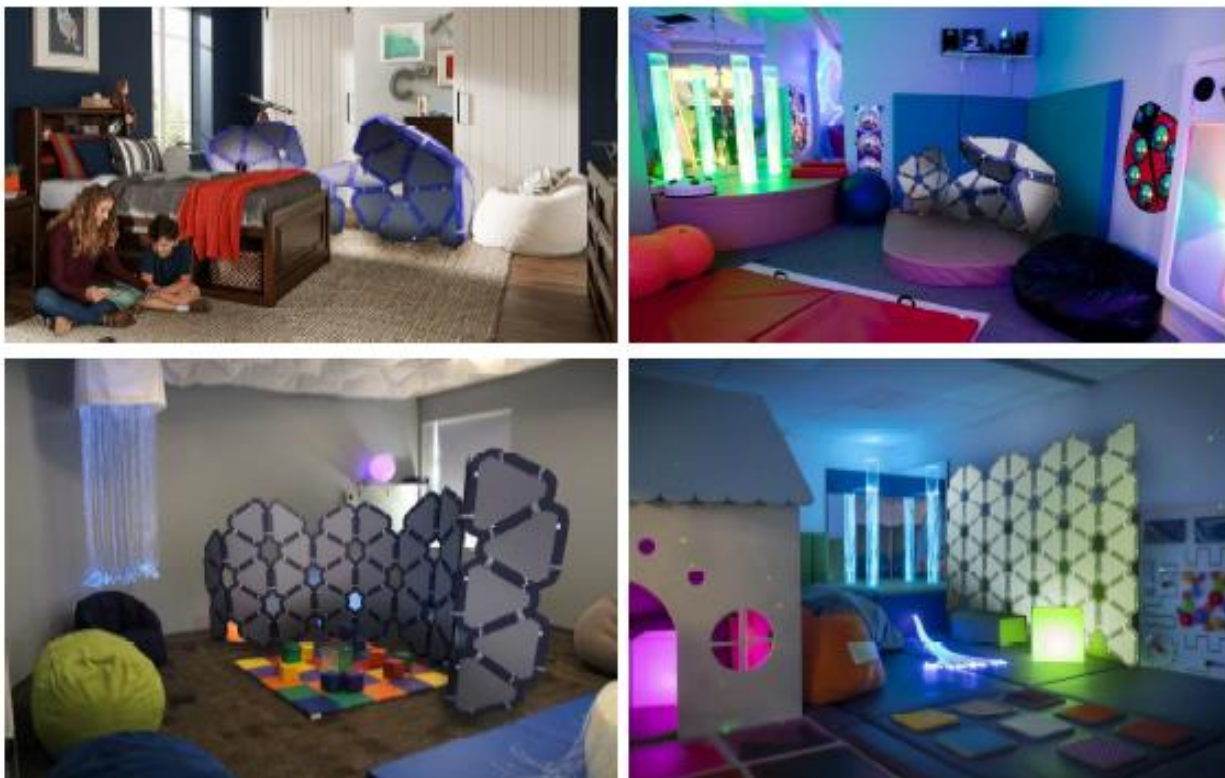


FIGURE. 02- Visuals displaying various configurations of Portal in diverse environments, each tailored for specific activities and functions.



FIGURE. 03- Fabrication using CNC machine and foam

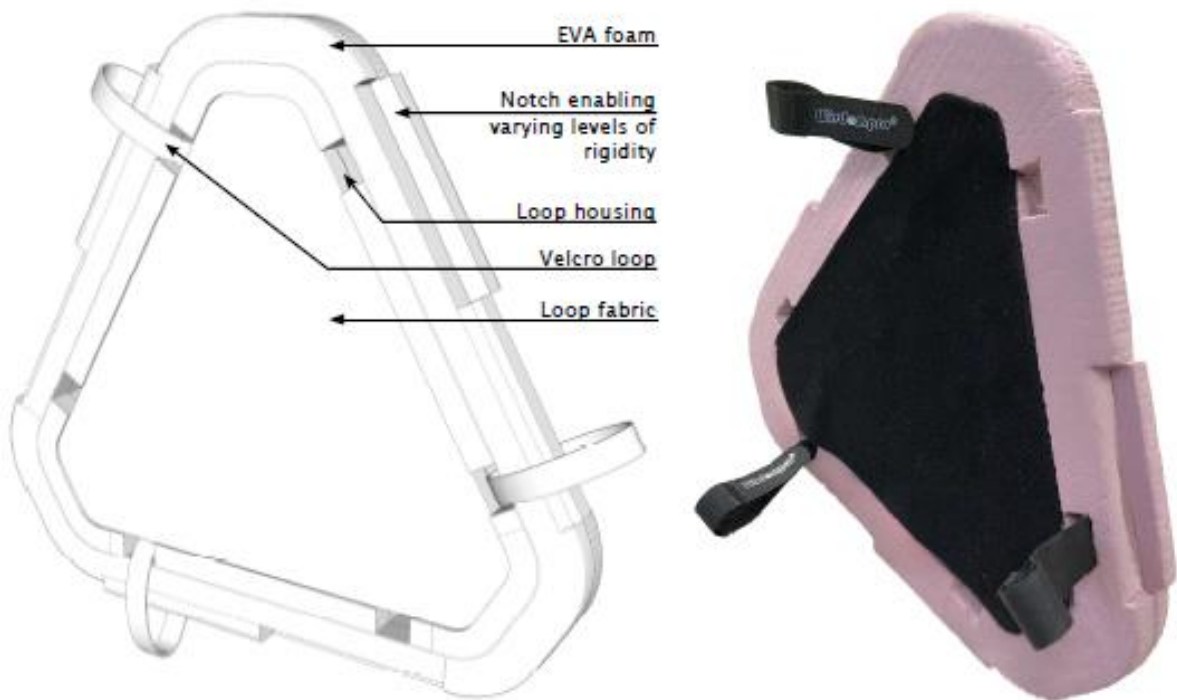


FIGURE. 04- Portal unit

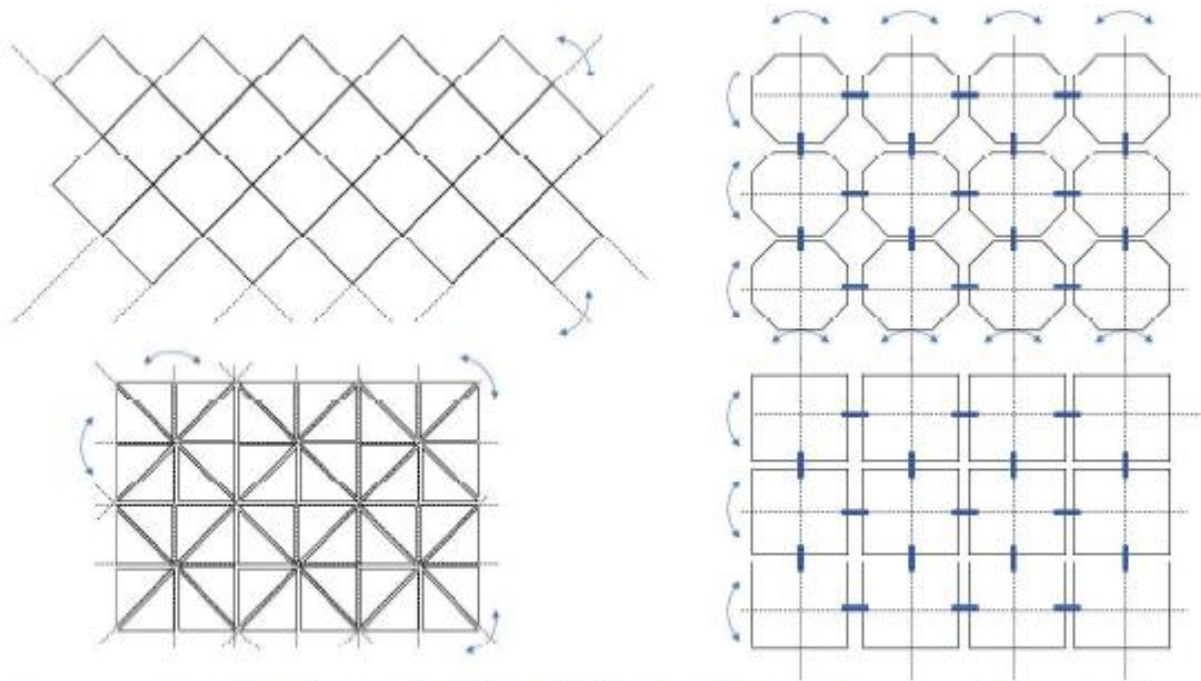


FIGURE. 05- Diagrams explaining the different "folding" and "rotating" options and iterations that lead to the final shape.

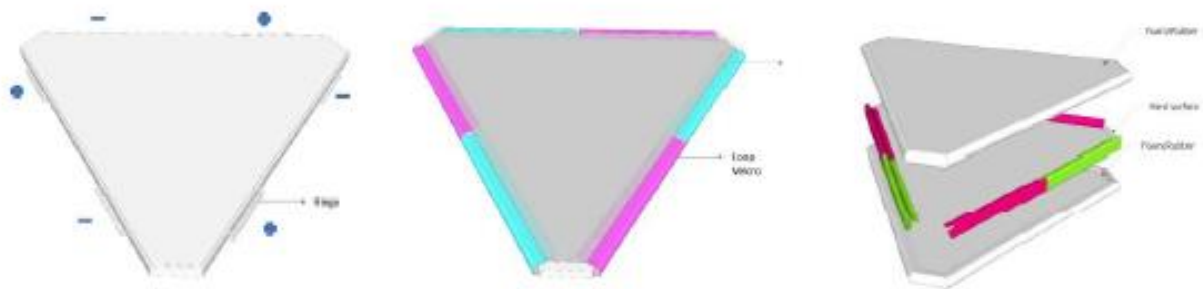


FIGURE. 06- Portal underwent numerous prototype iterations to develop appropriate and user-friendly edge connectivity. The images above depict instances where various magnet and Velcro options were explored.

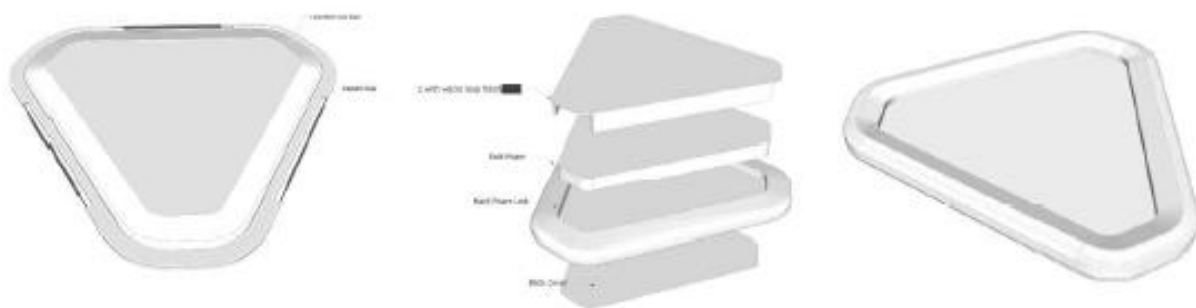


FIGURE. 07- The prototype underwent a series of transformations and fabrication processes that ultimately resulted in the final design.

Sense	Hypo-Sensitive	Hyper-Sensitive
Auditory	Does not respond when called. Enjoys strange noises. Enjoys making loud, excessive noises.	Overly sensitive to loud noises . Appears to hear noises before others . Cannot function well with background noise.
Tactile	Touches people and objects unnecessarily . Has up normally high pain threshold . Does not appear to feel extreme temperatures .	Avoids wearing certain fabrics. Does not like being wet or going barefoot . Reacts negatively to being touched .
Visual	Disregards people or objects in environments . Can see only outlines of certain objects . Likes bright colors or bright sunlight.	Bothered by bright lights . Easily distracted by movement . Stares at certain people or objects .
Vestibular	Moves around unnecessarily . Enjoy spinning in circles . Becomes excited about any task involving improvement .	Seems unbalanced . Becomes distressed when feet the ground .
Smell/Taste	Seeks out strong smells . Fields objects with mouth .	Will only eat foods with certain texture with particular Smells are at a certain temperature .
Proprioception	Unaware of body position in space and body Sensations like hunger . Often lean against people or objects .	Odd bodily posture. Uncomfortable in most positions . Difficulty manipulating small objects

FIGURE. 08- Table illustrating the research study conducted to comprehend how the modular system can cater to a multitude of requirements.



FIGURE. 09- Photographs captured during on-site visits to residences and educational institutions, aimed at examining the various ways caregivers support individuals with Autism Spectrum Disorder (ASD)

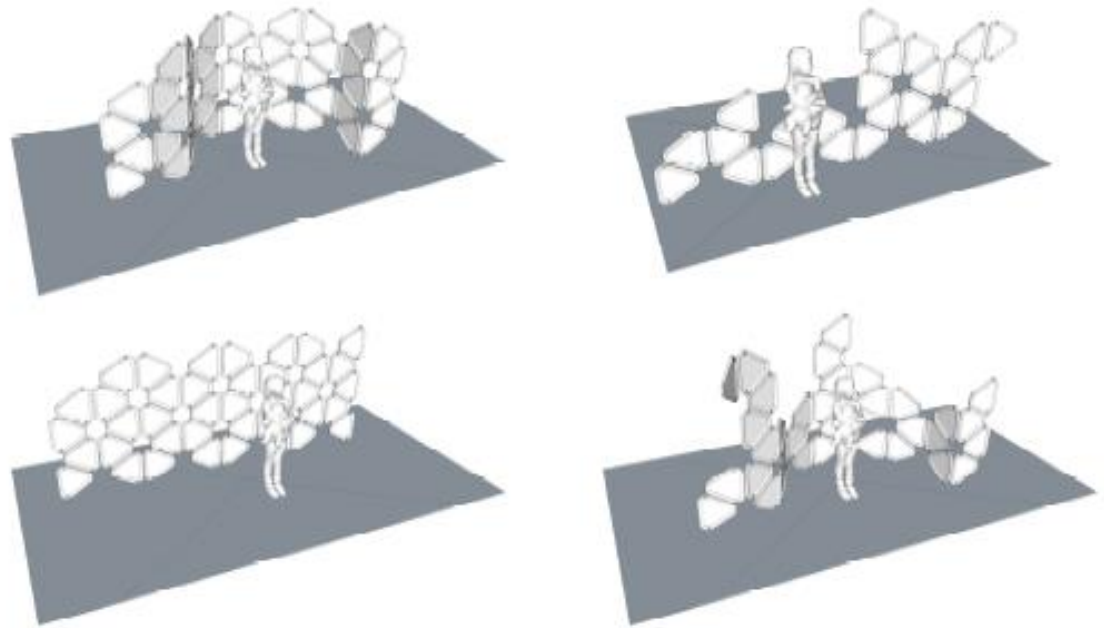


FIGURE. 10- Instances demonstrating the diverse configurations Portal can attain.

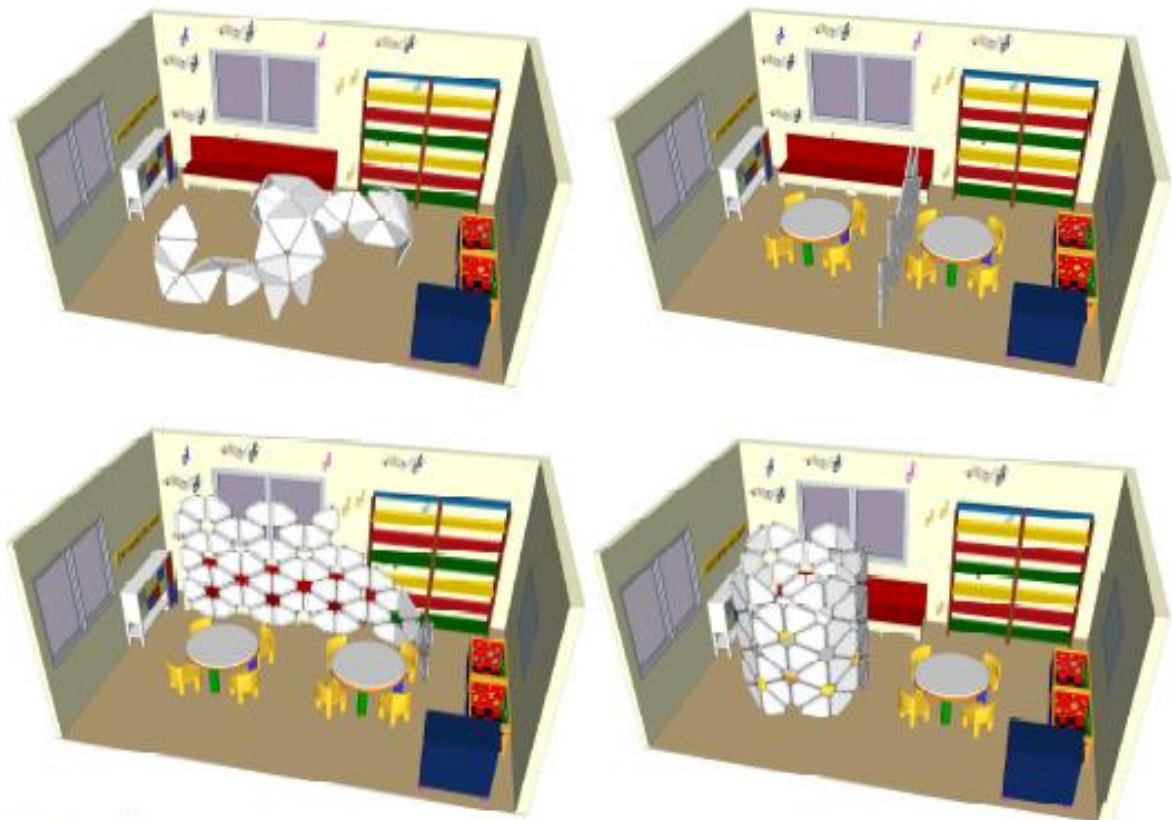


FIGURE. 11- Illustrations highlighting how Portal can be employed within a classroom environment to cater to various activities and needs.

Creative Scholarship | Design as Art or Object | Presentation

The Fingerboard Orchestra: Sound + Community

Derek Toomes, Department of Interior Architecture, UNC-Greensboro

Lee Walton, UNC-Greensboro

ABSTRACT

The Fingerboard Orchestra project is an experimental sound work, intended to bring artists, soundmakers, skateboarders, and the general public together as an interactive platform for facilitating collaborative productions in sound and movement. This initiative aims to make 'play' a serious and accessible experience for diverse artistic communities, facilitated by an eclectic, amplified miniature skatepark designed for fingerboarding.

The skatepark is transformed into a resonant instrument, housing numerous contact microphones beneath its visible terrain. These microphones are connected to a custom soundboard and paired with two Fender tube amplifiers during performances, magnifying the distinctive sounds produced by the miniature skateboards navigating the park—each shred and grind resonating as a unique musical note and tone.

The project was conceptualized as a bottom-up design, that included a local skate/fingerboard community. This collaborative approach ensured bringing a myriad of visions to life through collective effort and passion. This was crucial in shaping the park as a space that resonated with the interest and excitement of the communities using it: especially for the niche culture of fingerboarding, spanning a diverse demographic of ages and genders. The park becomes a communal ground and site that can be shared with fellow enthusiasts and within the broader community.

Incorporating the local fingerboard community from the inception of this project aimed to instill a sense of empowerment and agency among its individuals, enabling them to mold and design the space to reflect their visions and preferences. This empowering design philosophy was extended to everyone who interacted with or performed within this space. Participants found themselves immersed in a creative process, a process appreciated and celebrated by audiences at venues ranging from symphony spaces to international museums. This interaction serves as a pivotal experience for both spectators and performers, recontextualizing sounds or acts that might traditionally be perceived as inconsequential, or even perhaps as a public nuisance and reimagining them through innovative spatial and formative contexts.

This venture is not merely a convergence of sonic and skateboarding elements but extends to incorporate dancers, musicians, and other multimedia arts. It has traveled to various venues, where each presentation offers a distinctive symphony of sounds, movements, and visuals, curated by a diverse ensemble of participants. The project accentuates themes of community engagement and inclusivity, fostering a spirit of collaboration among varied subcommunities. It is both a curated performance and, at

times, an open invitation, encouraging participation from a broad demographic spectrum, thereby enhancing communal bonds and shared creative experiences.

The essence of this project resonates with the philosophies of John Cage. It manifests Cage's vision by embracing the incidental, improvisational, and unconventional, transforming ambient noises and impromptu sounds into harmonious symphonies, breaking the barriers between noise and music. It's a celebration of raw, authentic soundscapes, echoing the principles of noise music, inviting audiences to redefine auditory aesthetics and embrace the intrinsic part of transforming noise into a form of sound and spatial expression and communication.

Finally, this project explores the profound intersections of community design, patterns of sound, action, and space as a harmonious symphony. Through its community-centric approach and bottom-up design, it speaks to the transformative power of collective creation and shared agency, serving as a beacon inspiring communities to weave their narratives within these shared spaces. The Fingerboard Orchestra illuminates the potential of communal artistic endeavors, activating spaces through sound and movement, and establishing a fertile ground for innovation, unity, and celebration.

REFERENCES

Note: No references were included with the abstract.

The Fingerboard Orchestra: Sound + Community

Video links:

[Projection Performance](#), Everson Museum of Art

[Community Workshop](#), Syracuse, NY

[Orchestra Performance](#), promo clip



Design phase/process, with the local skateboard community.

Community Engagement



Performances



Creative Scholarship | Design as Art or Object | Presentation

Three-dimensional Software Usage in Digital Art and Architectural Visualization Beyond its Traditional Applications

Saral Surakul, University of Georgia

ABSTRACT

Visual arts are often considered prestigious art forms (Meyer, 2022). The works demonstrate the artists' ability to capture and convey their ideas through various media. In today's world, advanced technology is expanding the possibilities for artists, from interactive videos to user-friendly Apps on mobile devices. People often question whether machines, like computers, can create art that evokes an emotional response.

In this presentation, the author discusses his experience blending traditional art with advanced 3D software to create digital art and architecture visualization. He started experimenting with 3D software in 1995 using AutoCAD but only fully embraced advanced 3D animation software, 3ds Max, in 2006. This program was primarily used by major film productions rather than visual artists. The author's interest in creating images using software grew and became integral to his work.

The examination of the author's retrospective work from 2011-2023 shows his effort to replicate the essence of conventional media. This presentation consists of two sections.

Section 1: Art

His artworks' figures and scenes are crafted in 3ds Max in the visual art section. The software allows users to simulate natural and artificial lighting, physical cameras, and a range of real-world materials. He utilizes 3D sculpting software, Mudbox, to create intricate details unattainable in 3ds Max. Lighting the scene is one of the most challenging parts of the process. He successfully developed a lighting system regulation technique by designing a visual studio, evoking the style of classic masterpieces. The finished images are printed onto canvas. The retrospective works exhibit ideas, styles, and techniques development over time.

Section 2: Architectural Visualization

The author discusses his new illustration style for architectural visualizations in this section. He blends Sumi ink and digital elements created in 3ds Max and draws inspiration from Sumi ink and Ukiyo-e. The illustrations explore three main themes: composition, perception, and colors. The author combines manually inked and digital elements to achieve the desired fluidity in Sumi ink and Ukiyo-e. Unlike East Asian paintings, which tend to be flat and oblique, the built environments are computer-generated with 3D software. Sumi ink inspires a more desaturated color palette, while Ukiyo-e inspires a more vibrant color palette. The composition emphasizes using positive and negative space to enhance the narrative. In this painting, the landscape elements, such as mountains, water, and clouds, are more

abstract and symbolic than realistic. Digitally composited scratch and paper textures provide a physical media appearance.

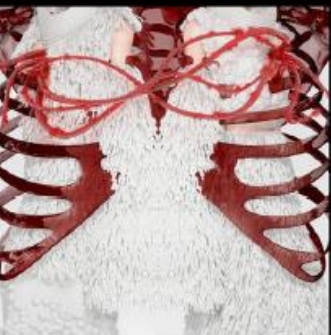
As technology continues to evolve, the ongoing pursuit of replicating the essence of conventional paintings through digital means is still in progress.

REFERENCES

Note: No references were included with the abstract.

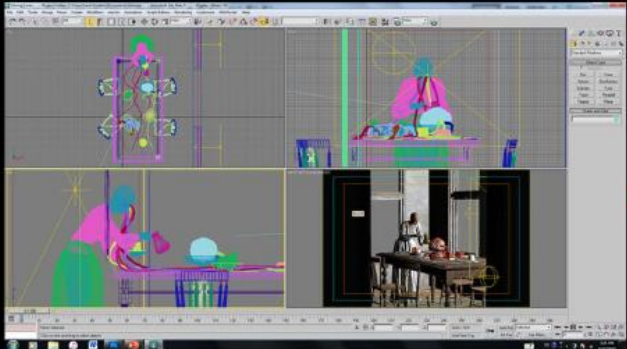
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Three-dimensional Software Usage in Digital Art and Architectural Visualization Beyond its Traditional Applications

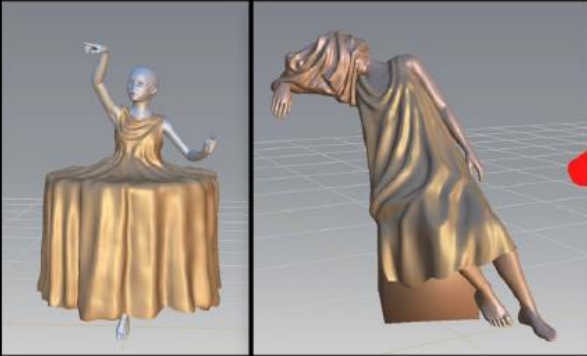


Creation Process

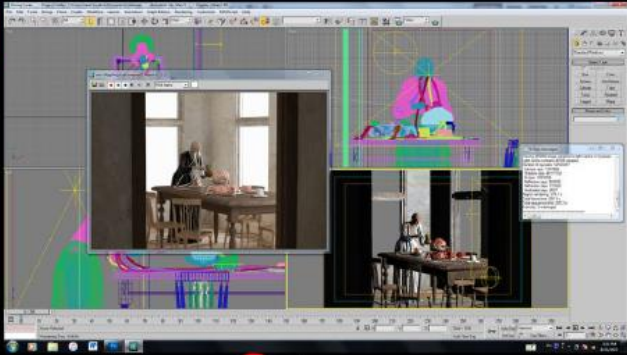
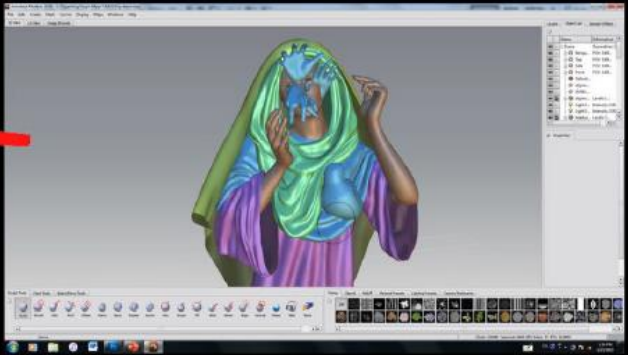
1. Manual sketch



2. 3ds Max



3. Autodesk Mudbox



4. 3ds Max



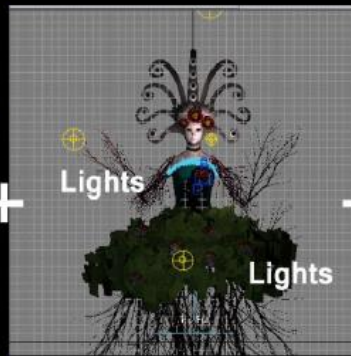
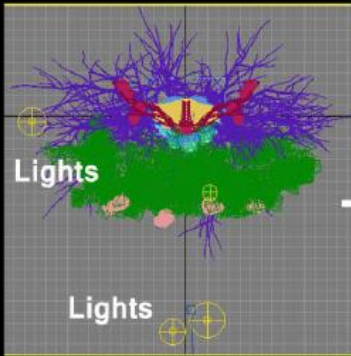
5. Final image

Traditional 3ds Max applications in design visualization



SECTION 1: VISUAL ART

Earlier Works (2009-2011)



Simple light setup

Simple camera settings

Final rendering





Marionette
24" x 36"



Botox
24" x 36"



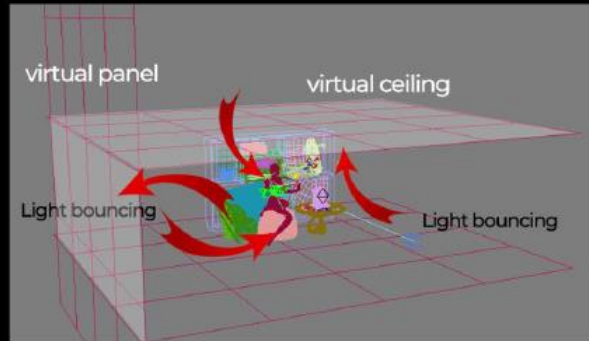
Godess
24" x 36"



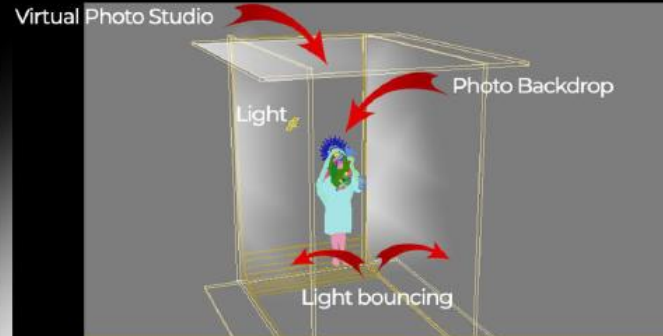
Arati
24" x 36"

Earlier Works (2009-2011)

Later works (2011-2023)



Adding virtual ceiling and panels to control lights



Creating a virtual photo studio to control environments



Camera view



Camera view



Final Image



Final Images



Birth
24" x 36"



Narcissistic
24" x 36"



Parasite 1
24" x 36"



Bride
24" x 36"



Apocrypha
18" x 20"

Later Works (2012-2023)



Painted Skin
24" x 36"



Bonjour
24" x 36"



Lamentation
24" x 36"



Parasite 3
18" x 20"

Later Works (2012-2023)

Traditional rendered images in design visualization



SECTION 2: ARCHITECTURAL VISUALIZATION



+



+



Rendered 3D objects

Sumi ink Landscape

+



=

Final image



Noh Theater



Tokyo Graffiti





Fish Retreat



Sleeping Dragon

Architectural Visualization

Xref: eXploring, eXplaining, and eXpressing a human eXperience

Jim Dawkins, Florida State University

ABSTRACT

The 'xref' ... an external reference; files within other files that enable the digital drawer to reference information in a relative and comparative manner. Imagery from one drawing enables a clearer understanding of another. AutoDesk defines them as "links to the model space of a specified drawing file" (AutoDesk, 2023). Loosely interpreted, it is a visual reference for the creation of a three dimensional model that may eventually be communicated via its representation in paper space. The overlaps with hand drawing here can be obvious; the act of sketching aspects of one's environment allows for a measured reference of being three-dimensionally present in a time and place relative to one's ability to re-present it in the two-dimensional 'paper space' of a sketchbook.

Exploring, explaining, and visually expressing one's appreciation and interpretation of the rich international body of urban and rural landscapes lends a measure of perspective, literally and figuratively, to a world that exists outside of our American borders. Having the ability to step out of domestic everyday life and into an environment not one's own allows me to examine the role of design as a generator of and respondent to human behavior. The unique joy of studying, sketching, and drawing spaces and places set in a unique context of architectural and design history continues to influence my observations of design's impact on the human experience. My work is frequently on-the-go, and capturing scenes necessarily requires a measure of quick sketch expertise in a small format that allows for a personally accurate recording and eventual recollection of moments and memories. It is an intensely high-touch, physically connective activity that a high-tech photograph just cannot reproduce. It is at this level where sketching can provide a unique insight into a built environment's size, shape, and form. It heightens one's awareness of immediate time and space. It can provide the viewer/sketcher an understanding of and enthusiasm for design and its impact on life experiences. As an architect, designer, and educator, sketching is my lens, and perspective is the framework through which I identify and articulate design-related problems and solutions, explore the impact that design has on everyday actions and human nature, and thoughtfully evaluate designs that are human-crafted, human-centered, and humanly relevant.

The sketches associated with this abstract are taken from several sketchbooks of work I have completed while teaching with a study abroad program recently overseas. Some images are the result of measured and time-consuming studies of shape, form, scale, and proportion while others are rather quick expressions of fit and feel that I became aware of as I took my sketchbook out for a walk. They are indeed 'xrefs' – references that underpin my human experience.

REFERENCES

AutoDesk. (2023). About Attaching and Detaching Referenced Drawings (Xrefs). AUTODESK AutoCAD LT 2024. <https://help.autodesk.com/view/ACDLT/2024/ENU/?guid=GUID-A987D2FF-45BD-474E-99C1-E6316A42F667>



The Duomo from Via dei Servi
© Giacomo for a sketching lesson & break
06.15.23







Santa Maria Navicella
06.21.23 Last day of sketch

Creative Scholarship | Design as Idea | Presentation

Bias: Textile, Color, and Ornament in Contemporary Interiors

Ingrid Schmidt, University of Kentucky

Hannah Dewhirst, University of Kentucky

ABSTRACT

In historical and traditional models of design education and practice, great care has been taken to validate modernist approaches to architecture and interior design. Supremacist notions of materiality integrity have narrowed the scope of respected approaches to surface, color, pattern, ornament, and soft or temporal elements - often within the purview of the Interior Designer. As argued by Joel Sanders in the *Curtain Wars*, this devaluation of the realm of interiors is not accidental but linked to deep-rooted anxieties regarding gender and sexuality. "By identifying manliness with the genuine and womanliness with artifice the Western architectural tradition has for two millennia associated the ornamented surface with femininity... For classical architects ornament was acceptable, provided it was properly subordinated to the tectonic logic of buildings, in much the same way women were taught to be subservient to men" (Sanders). As David Batchelor argues in *Chromophobia*, Western philosophers and cultural theorists have systematically devalued the use of color in space for generations, reserving it for use among groups that they viewed as inferior - children, women, peoples of the global south and east, and queer people (Batchelor).

In the perception of interior design, a number of critical issues arise regarding the meaningful and critical use of "soft" or "surface" elements in space. How do we address the lag in cultural assumptions that have historically defined these fields? How might historic biases reinforce how we value methods of making in contemporary practice? Our practice finds validation not solely in theories that are entrenched within a biased culture, but through direct maker-based experimentation that is methodologically critical in and of itself.

In our studio-based research practice, we forefront immaterial materials like light, water, and layering, using effect and atmosphere as spatial drivers. Weaving together studio-based hand craft, digital fabrication, robotics, and large-scale factory production, we are able to fine-tune visual and experiential complexity. With each new tool we acquire and study, we are able to amass a vast array of outputs that showcase the capabilities of the tool and its ability to finetune material to sensorial, body-related environments. This means that elements like color, patterning, and material knowledge

are deeply ingrained within our practice, validated not by traditional theoretical lenses, but by the feedback loops developed by comparative iteration-through-making.

Through our practice of tufted rug-making (one branch of our material research), a craft that has roots in many cultures and locations, we study critical relationships between color, pattern, texture, and material. Our evaluation of success in this approach is related to iterative making and evaluative observation, wherein the complexity of color and texture, for example, can only be understood in relationship to one another, and through hundreds of refined tests. Rather than a pure act of self expression or material “truth,” the necessity of experimentation is ingrained in our DNA, and thus in the resulting products and spaces we design.

As Interior Design professors, this methodology directly translates to the classroom. Through both direct contact with the world, and direct experimentation with materials and their effects, students discover meaning in the design of interior spaces by “allowing the experimentation of making to be a co conspirator in the evolution of ideas” (Massie). Within an academic studio environment, our prompts are open-ended, allowing for students to use a “tool” (paper- folding, laser-cutting or sewing) as an experimental approach to testing spatial outcomes for traditionally marginalized elements like color, ornamentation, and soft/temporal elements, thus “institutionalizing for each student the necessity of experimentation in the development of a truly innovative and unique voice” (Massie).

REFERENCES

Sanders, Joel. “Curtain Wars: Architects, Decorators, and the Twentieth-Century Domestic Interior.” *JSA / MIXdesign*, 10 June 2015, <http://jsamixdesign.com/curtain-wars-architects-decorators-and-the-twentieth-century-domestic-interior/>.

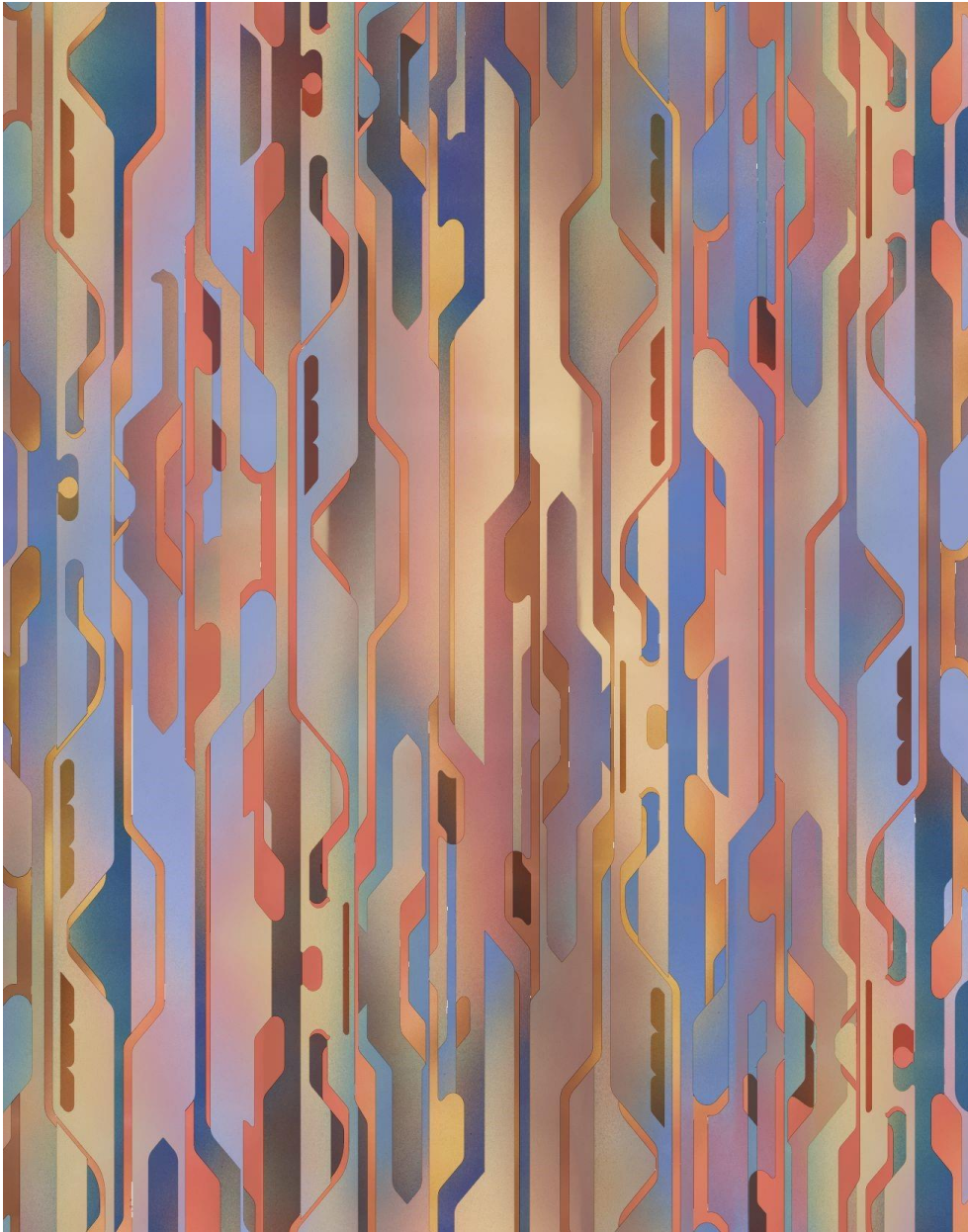
Batchelor, David. “Chromophobia.” Reaktion Books Ltd, 2000.

Massie, William. *AD Cranbrook Architecture: A Legacy of Latitude*. John Wiley Inc., 2023 ISBN: 9781119834427

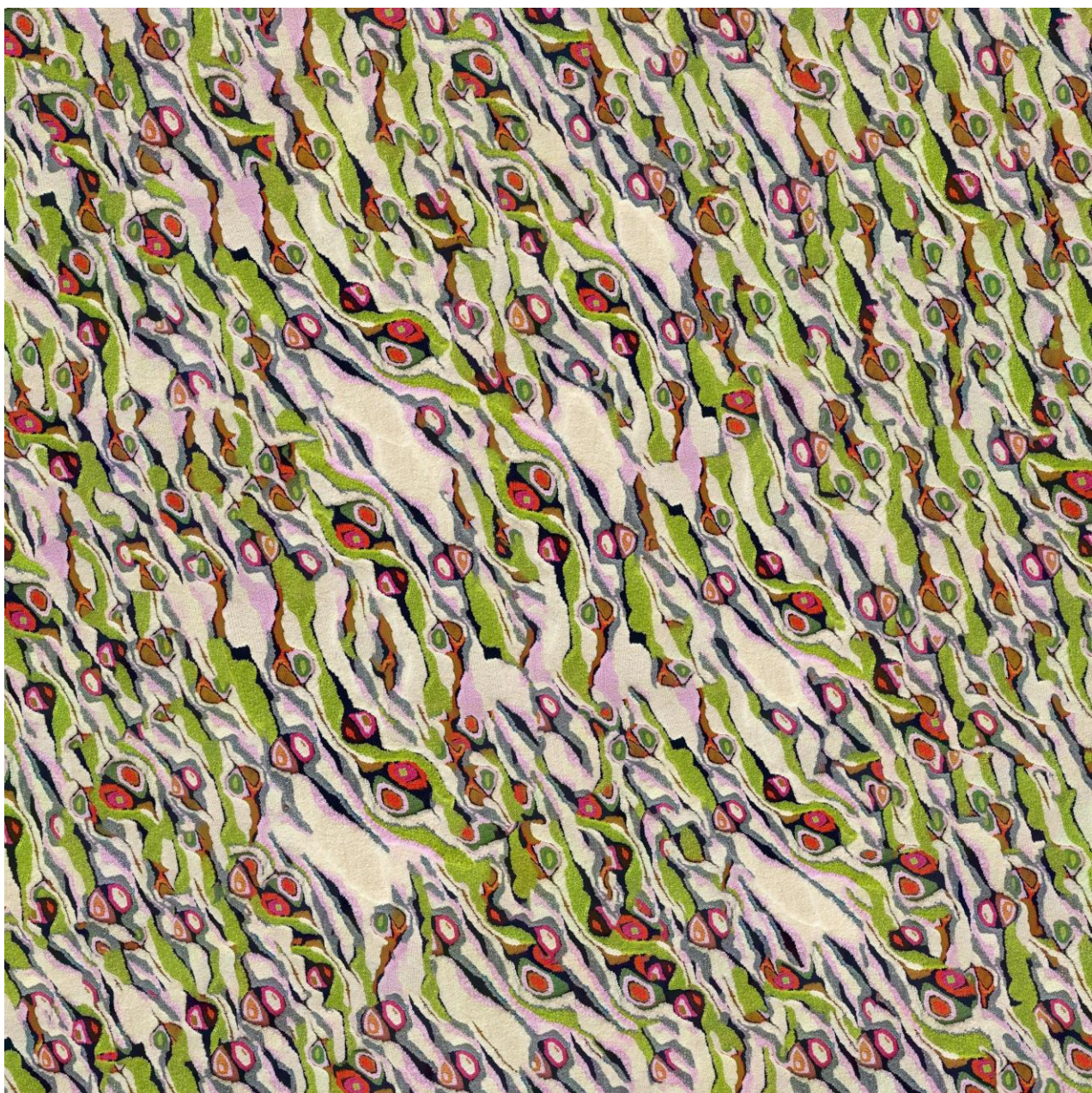
Nimkulrat, Nithikul. “Hands-on Intellect: Integrating Craft Practice into Design Research.” *International Journal of Design*, vol. 6, no. 3, 2



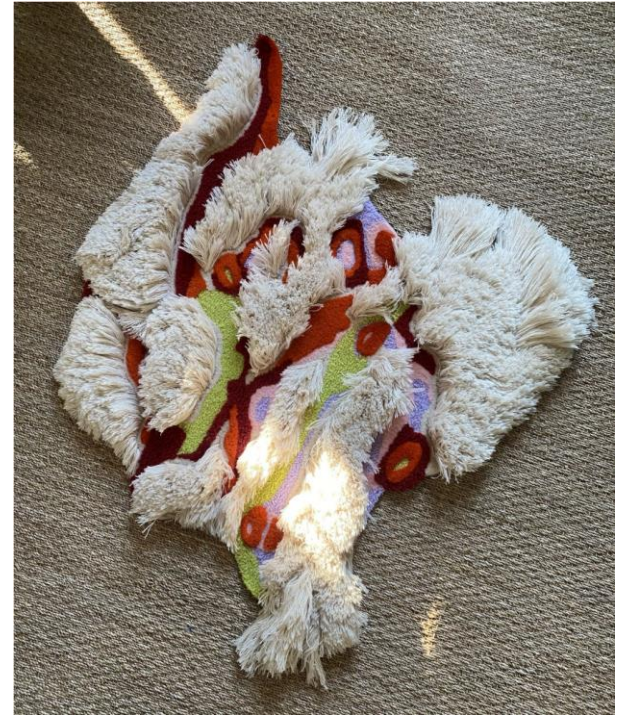
Music Festival Stage & VIP Area Design and Fabrication



Custom Wallpaper using airbrushed pigments, 8' x 12'



Hand Tufted sample with digitally generated wallpaper



. Machine tufted rug samples exploring color, pile-height manipulation, and pattern



Robotically tufted large-scale, custom, site-specific rugs. Image on left provided as inspiration from fashion house (client).

Embodying History Through the Work of Furniture Designer Robert Manwaring

Annie Coggan, Pratt Institute

ABSTRACT

Robert Manwaring was a London furniture designer and “wannabe” Chippendale. He printed the book *The Cabinet and Chair-Maker’s Real Friend and Companion* as a calling card for his entry into the London furniture milieu beginning in 1763. This small octave book was one of four texts that he created between 1762 and 1768. This print output seems to be his only contribution to the mid-eighteenth-century furniture community as there seems to be no record of an actual furniture shop. His drawings are wonderfully naïve and incorrect; therefore, historians look down on his output. This project is a continuing research initiative structured to understand the history of the man Robert Manwaring and how he fit into the eighteenth-century furniture design culture in London, unpack his idiosyncratic drawing style, and find places of commonality in his design practice that might create an understanding of historical maker culture. To date, the researcher has produced a series of drawing, model-making and full-scale furniture projects that look to Manwaring’s work as a method of understanding the historical context.

First, a practice of reproducing the chair drawings was initiated to answer questions about Manwaring’s intent. Reproducing the drawings can lead one to understanding the proportional system of the chairs. These acts of drawing are efforts to embody the builderly knowledge of Manwaring’s work. This method of research is an alternative method for understanding historical archival objects found in library collections and archives.

Secondly, Manwaring provided drawings for his readers that were spliced together with two different design options on either side. One can see in Chippendales or Ince and Mayhew’s work similar drawings more elegantly presented with a space in-between to illuminate the difference, but Manwaring, unconcerned with the visual confusion it might cause places the different styles right next to each other. These half-man/half-monster chairs are some of the most provocative of Manwaring’s designs and some of the least derivative of the Chippendale culture. As a polemic and with the knowledge that an eighteenth-century wood carver might not be able to navigate such a conglomerate, the researcher used contemporary tools that could easily master the construction; two Manwaring chairs were created that had never

been manifested in physical form. Two tests were made, the first using a 3D printer; small models were made from reproduction SketchUp drawings and finally a full-scale version of the chairs were created from CNC fabrication technology. Both versions illustrate different approaches to the eighteenth-century drawings and illuminate the life of Manwaring's texts as "cabinet makers' companions" to be interpreted in wood shops around the eighteenth-century world.

This presentation will introduce the little-known designer Robert Manwaring and investigate the role of the eighteenth-century pattern book and its impact on the interior realm. Ultimately, it will illustrate a method of research, haptic research, that creates its own material culture, drawings, models, and furniture that embody archival material culture and examine it more completely.

REFERENCES

Robert Manwaring, and Robert Pranker, *The Cabinet and Chair-maker's Real Friend and Companion, or, The Whole System of Chair-Making Made Plain and Easy*.
London: Printed for Henry Webley, 1765.

Society of Upholsterers and Cabinet Makers, London, Robert Manwaring, Thomas Chippendale, William Ince, Thos Johnson (Thomas), John Mayhew, *The 11d edition of Genteel Household Furniture in the Present Taste*.

London: [publisher not identified], 1762]

Christopher Gilbert, Smith, Manwaring, Sayer and a Newly Discovered Set of Designs, *Furniture History*, Vol. 29 (1993), pp. 129–133 Published by: The Furniture History Society

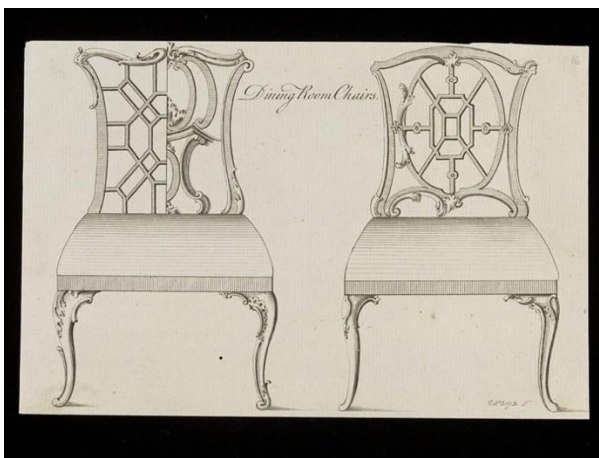
R. S. Clouston, *Minor English Furniture Makers of the Eighteenth Century*. Article II-Robert Manwaring, *The Burlington Magazine for Connoisseurs*, May, 1904, Vol. 5, No. 14 (May, 1904), pp. 173–178
Published by: (PUB) Burlington Magazine
Publications Ltd.

Embodying History; through the work of furniture designer Robert Manwaring

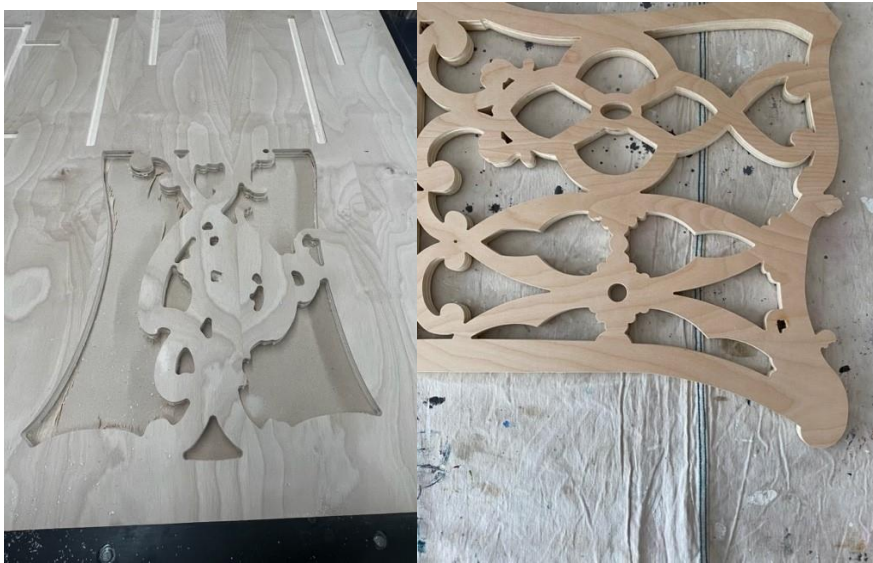
Appendix



1-Watercolor Drawings -selected from studies of 62 etchings by Manwaring



2-Plate from Robert Manwaring's
The Cabinet and Chair-Maker's Real Friend and Companion 1765



3-In process CNC Full scale Manwaring Chair



4-3-D printed Model-1/4" scale



5-Full scale Manwaring Splice Chair



6-Full scale Manwaring Splice Chair



7-Full scale Manwaring Splice Chair



Detail- Full scale Manwaring Splice Chair

Embracing new vehicles of health: An ecosystem of spatial interventions that integrate into people's lives

Tamie Glass, The University of Texas at Austin

Christoph Sokol, The University of Texas at Austin

Xie Maggie Hill, The University of Texas at Austin

ABSTRACT

Concept

Healthcare is often associated with sickness, frustration, and inconvenience. We propose that healthcare does not have to be this way. Working in close collaboration with a new healthcare start-up, we sought to answer the question: how does the spatial environment help people meet their health goals? Our design response led to a unique ecosystem of spatial interventions that promote a synergistic person-place dynamic. This approach often uses vehicular and portable solutions, allowing the start-up's city to become the patient's waiting room.

Context

This project exemplifies the notion that "interior designers are increasingly asked to practice within new and untraditional territories" where they "seek to establish the field not merely as a subset of architecture limited to the inverse of a building, but as a distinct practice that specifically focuses on the specialty of inside" (Campos et al. xv). While this is true, portable environments have existed for millennia as some of humankind's earliest artifacts, but are often seen as cheap and low-quality (Kronenburg 1). Vehicular solutions are also abundant. Some, like vans, became popular in the 70s but saw a resurgence during the pandemic as van life took hold. However, healthcare in the US is assumed to be inside a building—not in a vehicle—reserving mobile clinics primarily for disaster relief or a temporary event like a blood drive. However, our ecosystem delivers primary and specialist healthcare in various socio-economic circumstances in urban and rural settings. It employs a temporal kit-of-parts for exterior installations, vans for experiential and light clinical needs, mobile clinics deployed to various sites, and brick-and-mortar clinic takeovers.

Guiding Design Principles

We translated the start-up's values—relationship-centered, whole-person care, systems perspective, usability first, long-term view, and care is custom—into guiding design principles. From there, we defined the spatial implications. The principles framed and oriented our work throughout the design process to establish a new environmental language.

Condensed versions of the principles are listed below:

Presence: Every day, anywhere, everywhere

This new ecosystem is a supportive and reliable health partner, offering multiple interaction points, scalable spatial experiences, and seamless platform integration.

Fresh: Care as you've never known it before

Provide a refreshing new approach and attitude toward health and care to help the whole person flourish. Enhanced care is embodied in experiences and interactions, offering places for connection, education, and restoration.

Nimble: Proactive and responsive

Decidedly not your typical healthcare solution, the ecosystem is quick to learn, light in motion, and sensitive to people's desire lines. Spatial solutions are resourceful with the agility to maneuver to meet holistic healthcare needs.

Interactive: An invitation to participate

Spaces and experiences deliver healthcare interactions that are participatory and empowering. Behavioral prompts nudge people to be less passive and more involved in their health journeys.

Honest: Honest to Locale. Honest Care.

The ecosystem is embedded in the community, offering a transparent environment that forms to meet the needs of the people it serves with sincerity, veracity, and integrity.

Atmospheric: A friendly, welcoming face

Regardless of the platform, spaces carry the same identifiable thumbprint. Emotionally intelligent environments set a supportive tone—sometimes joyful, sometimes surprising, but always earnest and respectful.

In summary, the ecosystem provides diverse spaces for diverse actions and human needs. The system's literal and figurative levels, layers, and scaffolds allow for modular, vehicular, and transitional environments that can adapt, offering flexibility and a full range of permutations of experience based on changing demographics and needs over time.

REFERENCES

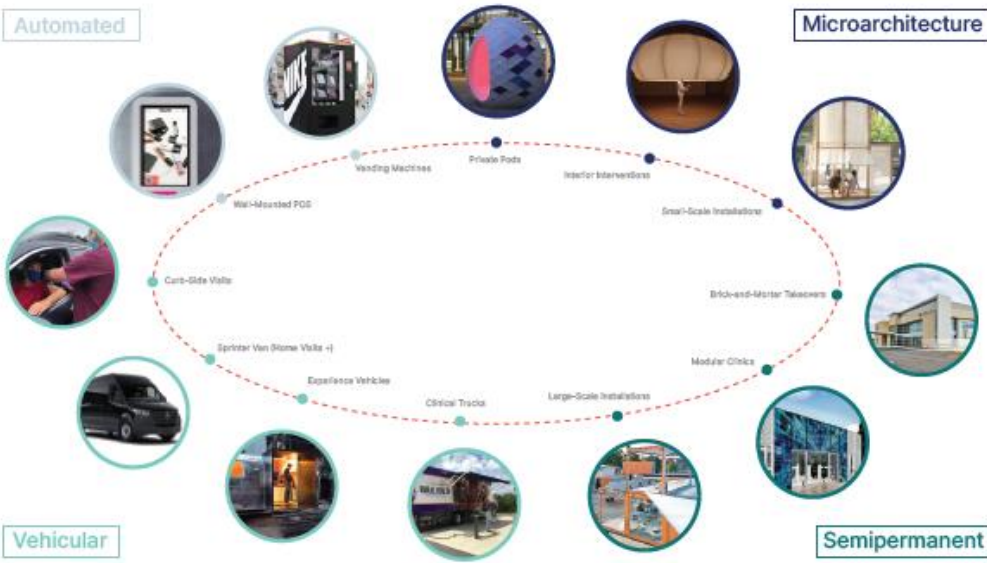
Campos, Amy, and Deborah Schneiderman. *Interiors beyond Architecture*. London ; New York, Routledge, 2018.

Kronenburg, Robert. *Transportable Environments: Theory, Context, Design, and Technology*. CRC Press LLC, 1994.

EMBRACING NEW VEHICLES OF HEALTH: An ecosystem of spatial interventions that integrate into people's lives

Automated

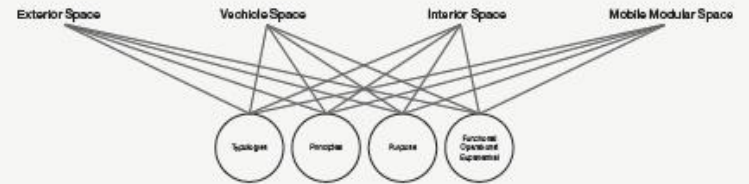
Microarchitecture



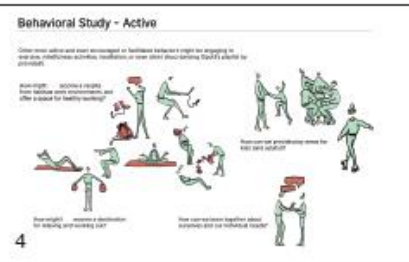
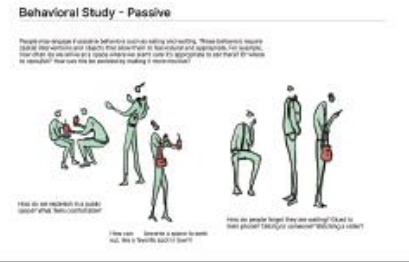
Vehicular

Semipermanent

1



3



4



Presence
Every day, anywhere, everywhere



Fresh
Care as you've never known it before



Nimble
Proactive and responsive



Interactive
An invitation to participate

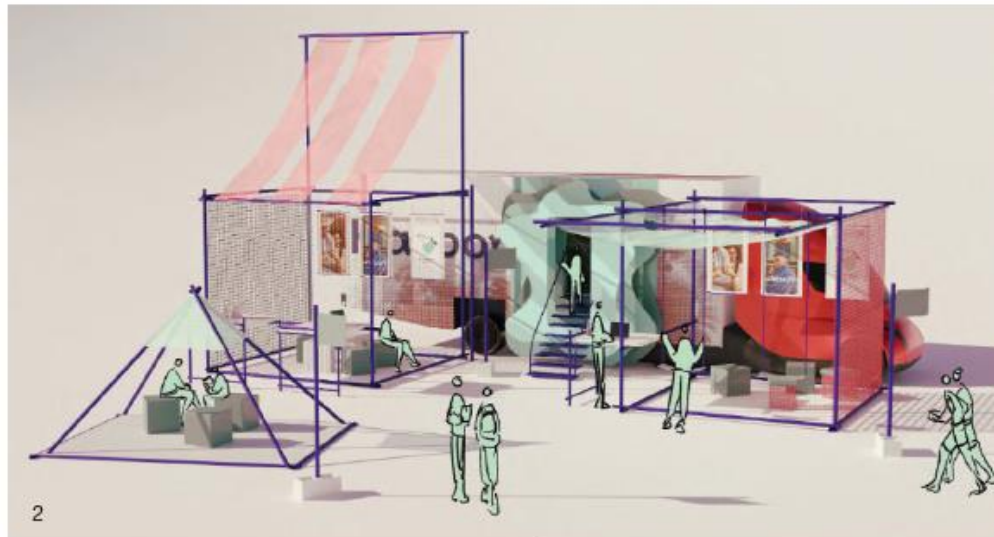


Honest
Honest to Local. Honest Care.



Atmospheric
A friendly, welcoming face

5

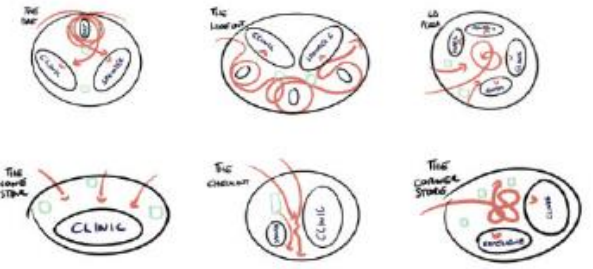
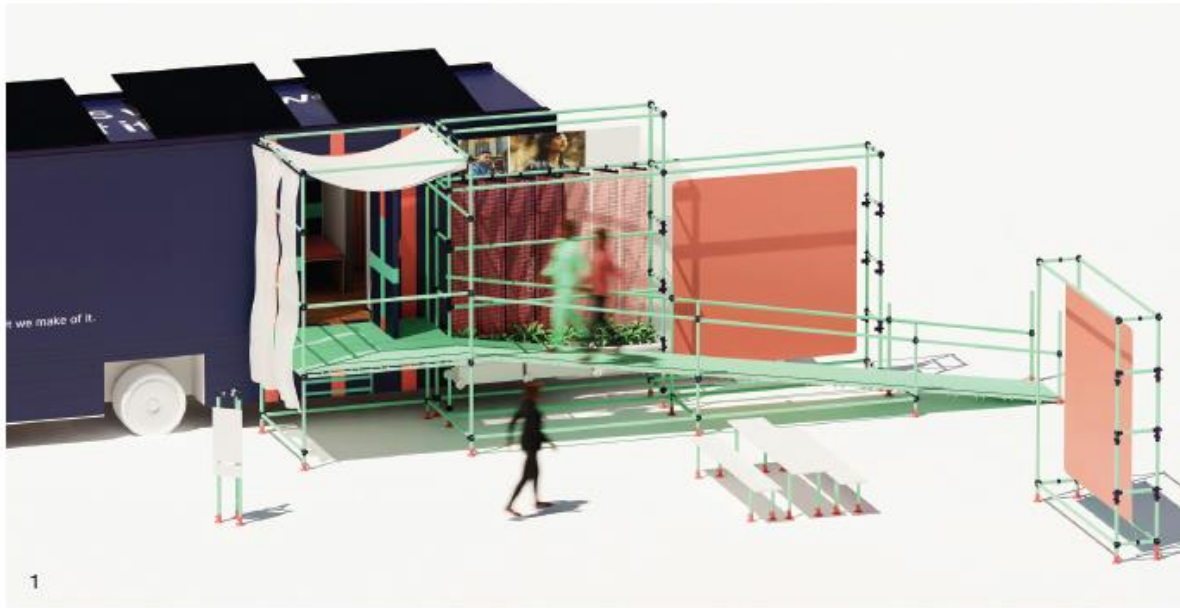


2

- 1 Ecosystem diagram
- 2 Experience concept sketch
- 3 Space types framework
- 4 Behavioral study
- 5 Design principles developed for the project

Kit-of-Parts

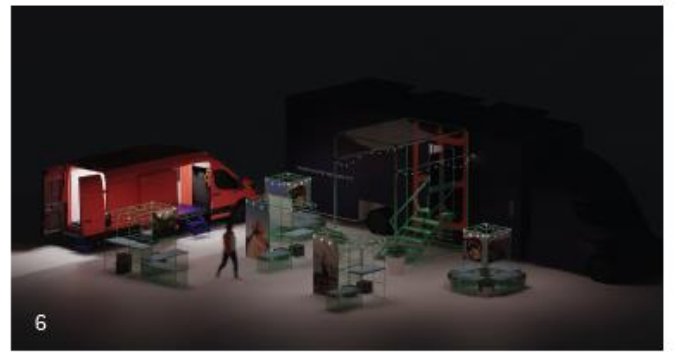
Scaffolding new experiences



4



5



6



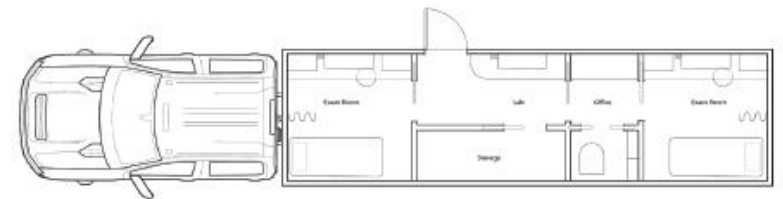
- 1 Exterior kit-of-parts shown with a ramped entry
- 2 Moments afforded by the kit
- 3 Concept sketch showing postures
- 4 Possible arrangements for different experiences
- 5 Application - daytime mode
- 6 Application - nighttime mode



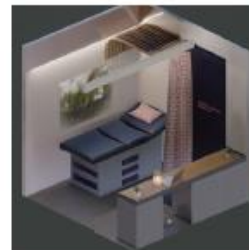
3

Mobile Clinics

Meeting patients where they are

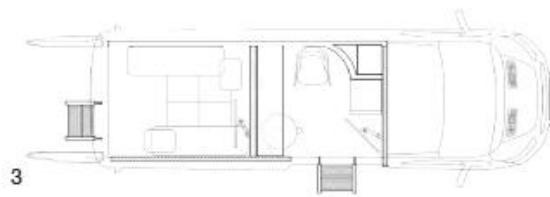


- 1 Axons of mobile clinic
- 2 Actual mobile clinic with branding
- 3 Moments showing interior features
- 4 Sectional view with nature scene
- 5 Floor plan diagram
- 6 Axon of exam room

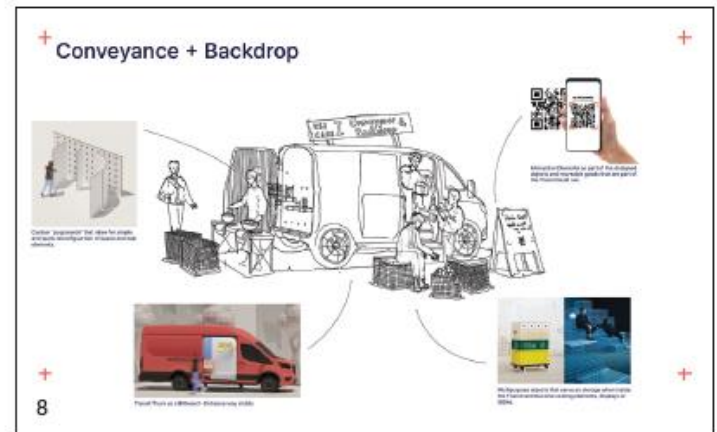


Transit Vans

Sprinting to meet community needs



- 1 Actual transit van with branding
- 2 Interior view from back of van
- 3 Floor plan diagram
- 4 Diagram showing arrangement with mobile clinic
- 5 Moments showing interior features
- 6 Journey map
- 7 Sectional view showing van's two areas
- 8 Functionality and features



Clinic Take-Overs

Embedding care into the existing fabric



- 1 Interior proposal for a clinic take-over
- 2 Actual application for an existing clinic
- 3 New approach to clinic reception areas
- 4 Impromptu consultation area near check-out
- 5 Moments showing interior features
- 6 Axon of exam room with enhanced patient zone



Enveloping the Past: An Expansion of the Bella Vista (AR) Historical Museum

Torrey Tracy, Fay Jones School of Architecture & Design;
Department of Interior Architecture

Daria Hall (student), Fay Jones School of Architecture & Design;
Department of Interior Architecture

ABSTRACT

Bella Vista, located in Northwest Arkansas, population 30,000, was first established as a summer resort town in 1917. While the luxuries of resort living throughout the country faded following the great depression and the subsequent economic ups and downs, Bella Vista continued to grow through the efforts of multiple investors and their visions, and by the 1960s Bella Vista Village was a nationally recognized vacation and retirement village destination. In 2006, residents and property owners of Bella Vista Village voted to incorporate Bella Vista into a full-fledged city, and the change was official in 2007, creating the brand-new City of Bella Vista, AR. In 1976, a group of individuals, inspired by the nation's Bicentennial historical celebrations, formed the Bella Vista Historical Society as a 501(c)(3) non-profit corporation. Determined to create a local historical museum celebrating Bella Vista's colorful past, volunteers of the historical society placed a pre-manufactured building on a block foundation at a donated site along the major thoroughfare, Highway 71. Since its creation, the museum has grown to undergo multiple additions, leading to its current aspiration to almost double its size with a new expansion. Instead of following suit by continuing to expand in the same architectural language, the Committee wishes to set a precedent with its newest proposed expansion. Museums are no longer only institutions to preserve heritage but are engaged with communities in a proactive effort to improve society.

(1). By highlighting the region's natural resources (an abundance of wood and stone), celebrating a local barn vernacular, as well as creating a space that can be flexible for a multitude of uses, the Bella Vista Historical Society hope to have a new edition that will catalyze future remodels while helping to improve the community. One of the key elements of this new architectural intervention is the enveloping of an original turn-of-the-century settler's cabin that sits near the current structure. Highlighting the cabin's masonry foundation is also imperative to the experience. This abstract will highlight the early schematic stages of the expansion of the Bella Vista Historical Museum. With a

shoestring budget and endless compassion, the museum's charm is one of its greatest assets. The authors of this abstract—the designers of the expansion, are eager to share the work that has been done to date. As educators, the opportunity to be involved in the project is serving as a wonderful learning opportunity for student researchers involved in the process.

REFERENCES

Crimm, Walter L., Martha Morris, and L. C. Wharton. 2009. *Planning Successful Museum Building Projects*. AltaMira Press. [https://doi.org/ISBN: 978-0-7591-1187-5](https://doi.org/ISBN:978-0-7591-1187-5).

<https://www.bellavistamuseum.org/>



Bella Vista Historical Museum
Bella Vista, AR



Schematic design process and iteration

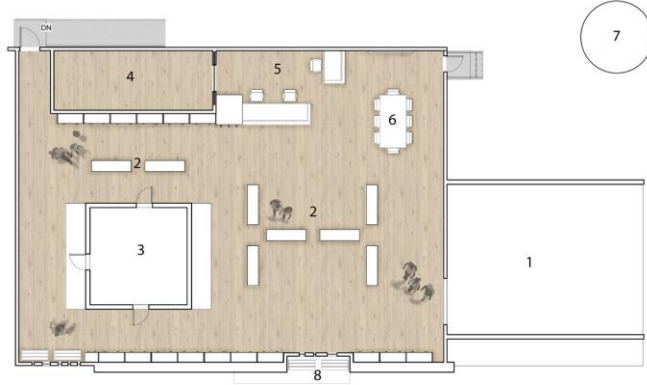


Proposed schematic design.



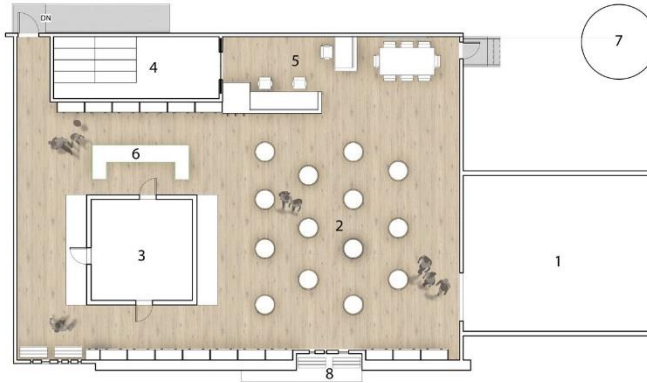
Interior walk through to show the enveloping of the historic settlers cabin as part of the expansion.

General Exhibit Layout



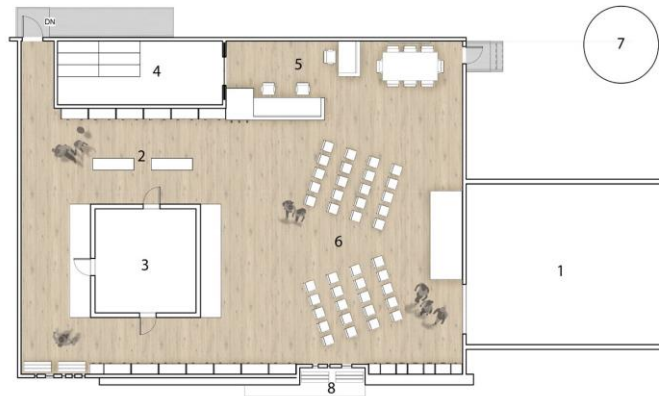
- Key:
- 1 - Existing Museum
 - 2 - Flexible Exhibit Space
 - 3 - Enclosed Cabin
 - 4 - Archive
 - 5 - Open Office
 - 6 - Conference Space with Monitor
 - 7 - Firepit
 - 8 - Outdoor Bench Seating

Flexible Cocktail Hour Layout



- Key:
- 1 - Existing Museum
 - 2 - Cocktail Hour Space
 - 3 - Enclosed Cabin
 - 4 - Archive
 - 5 - Open Office
 - 6 - Temporary Bar Setup
 - 7 - Firepit
 - 8 - Outdoor Bench Seating

Flexible Lecture Layout



- Key:
- 1 - Existing Museum
 - 2 - Flexible Exhibit Space
 - 3 - Enclosed Cabin
 - 4 - Archive
 - 5 - Open Office
 - 6 - Temporary Lecture Hall Sets
 - 7 - Firepit
 - 8 - Outdoor Bench Seating

Material Dualities: Stone as Corduroy and Fabric as an Inlay

Felicia Francine Dean, University of Tennessee, Knoxville

ABSTRACT

My creative scholarship connects to the built environment through investigations of interior Material Identities. The scholarship responds to the human experience of identity, directly investigating spatial narratives related to culture, race, and society embedded within interiors. I focus on textiles, physically and abstractly, integrating traditional craft methods with digital technology. My manner of application of upholstery into the furniture system merges the material properties of stone and fabric. The studies move beyond the technical of analog and digital craft to focus on an awareness of sensitivity to the intentionality of the work's relationship to identity, culture, craft, and lived environmental experiences. My method of mixing processes, materials, and disciplines develops by abstractly exploring bi-racial identity and socio-cultural experiences through my design process with materials and making. My work's discourse on bi-racial identity and society's historical and present-day duality of black and white emerges through materiality and the synthesis of two materials whose perceived definitions of identification are historically opposing. The materials engage with the process to harmonize their stories and create emotional experiences unfamiliar to people's visual and physical communication with objects. As a result, my work uncovers new material narratives I refer to as Material Identities and examines the human spatial experience of identity vs. identification through an investigation of stone and textiles.

During the making process, my physical interaction and responses to the materials unconsciously link to childhood memories of being asked, "What are you?" and how I reconciled people's curious confusion with my bi-racial identity. In those moments, I would pause, reflect, and sometimes turn the question back to them, "Why are you asking?" I ask the materials through my creative scholarship investigations, "What are you?". During the dialog of the making process, the materials respond, "Why are you asking?" My approach expands the identity of materials vs. their identification. I relinquish control of the materials to the processes to engage with them beyond their designation, not conforming to siloed perceptions of how they perform within the interior or how and where they "should" be used.

The making methods I employ for merging Material Identities are evident in the most recent studies for a new design (See Images 1-4 of Appendix). I propose stone to take on the material properties of corduroy and envision the upholstered pattern as an inlay. The approach establishes a visual connection between

the fabrication method of inlaying stone and appliqué sewing for quilting. The materials proposed for the project are Tennessee Light Rose stone and corduroy fabric for the inlay. The overall furniture form is derived from the precedent study of a historical quilt entitled "Winding Rose" by an enslaved African-American in Meigs County, Tennessee, circa 1860 (Ramsey & Waldvogel, 1986, p.2). The intended design includes stone from the same region as the quilter to reinforce the relationship culturally connecting the two materials and processes of stone and fabric of Appalachia and East Tennessee. Additionally, the materials and making methods juxtapose one another with the reverence of stone as a "classical" material and historical interpretations of quilting by enslaved African-Americans as low craft, not high craft. What happens when these are synthesized into one identity? How is the stone now perceived? How is the quilted surface now understood?

REFERENCES

Ramsey, Bets, and Merikay Waldvogel. "The Quilts of Tennessee: Images of Domestic Life Prior to 1930". Nashville, Tenn: Rutledge Hill Press, 1986. Print.



Image 1: Rendered Perspective #1 of stone form for the furniture stool design



Image 2: Rendered Perspective #2 of stone form for the furniture stool design

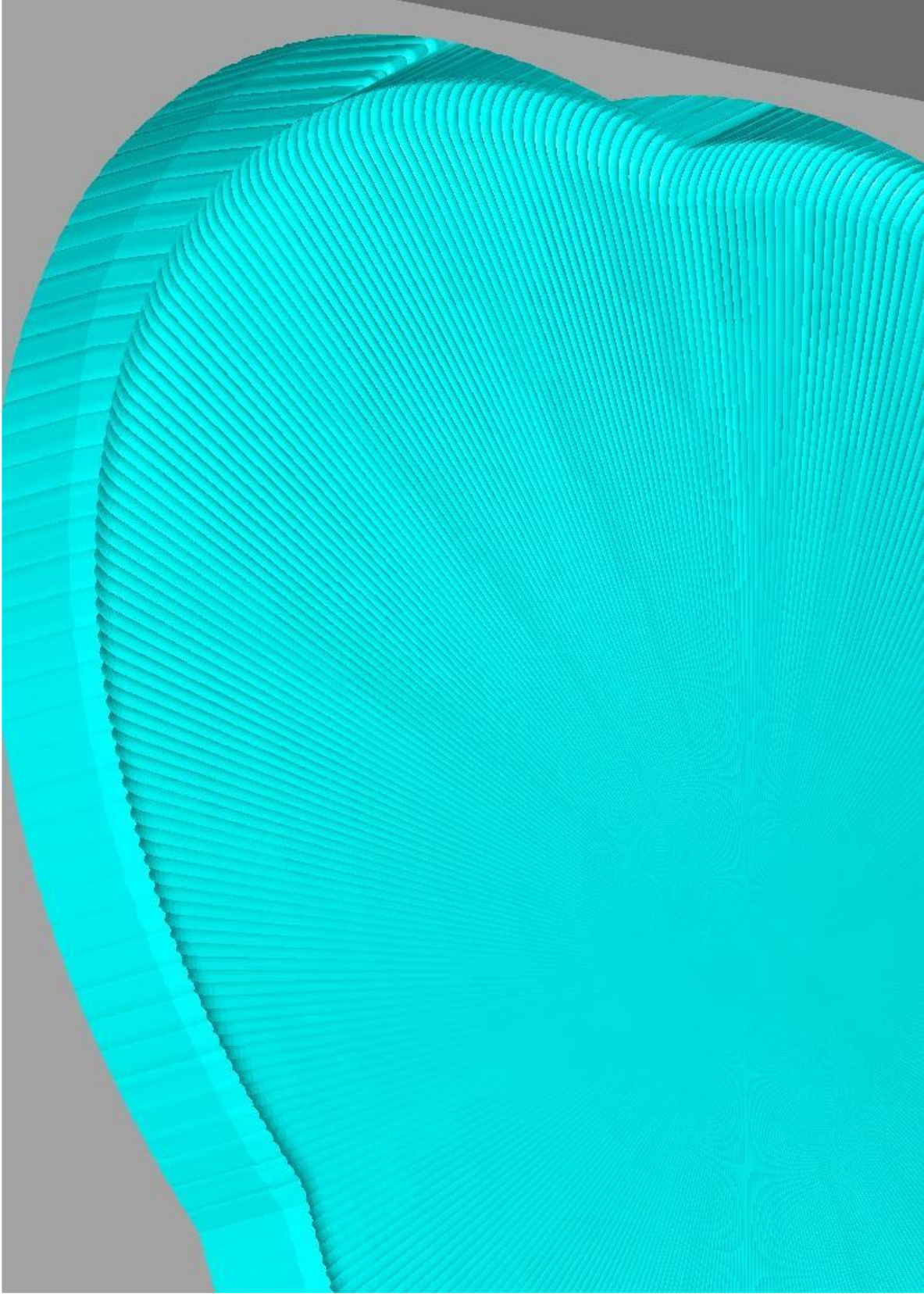


Image 3: Digital simulation of robotically engraved corduroy pattern on the stone seat deck



Image 4: Conceptual image of the corduroy fabric inlay

Shift happens: Perceptions of CLT housing in an ever-changing industry

Sierra Wilson, Washington State University

ABSTRACT

Context

The adoption of Cross-Laminated Timber (CLT) in housing construction has gained momentum due to its sustainability and structural benefits. However, achieving optimal indoor comfort while minimizing energy consumption remains a challenge. In comparison to more common commercial construction methods, such as steel and concrete, wood tends to have greater thermal insulation, thus lowering heating costs of buildings, which accounts for 25% of commercial energy consumed globally (IEA, 2019). Additionally, CLT facilities contribute to positive indoor environmental qualities (IEQ) (NIOSH, 2022). Although CLT naturally produces a more energy-efficient environment, informed occupant behaviors are still critical in supporting high-performance buildings.

Purpose

This study aims to explore the relationship between occupant perceptions of comfort and energy use in temporary and permanent CLT housing interiors. For this research, the unique case study location, site, and design approach emphasize resiliency, low-income housing, and energy efficiency. Lessons learned from this study will inform a guide of best practices for future affordable and healthy CLT housing.

Methodology

A mixed methods approach was employed, combining quantitative data collection through on-site sensors and surveys, as well as qualitative insights through open ended survey questions and interviews with residents. In particular, data were collected at a case study building in central Washington in 16 CLT housing units. These units were monitored over a four-month period to measure energy consumption data and indoor environmental qualities such as temperature, humidity, daylighting, etc. Residents' perceptions of comfort and personal energy use behaviors were collected through interviews and surveys.

Data Analysis

Through the process of affinity diagramming, or the KJ method, key topics were derived from the cleaned responses by using three sample surveys (Haskins Lisle et al., 2020; Kawakita, 1982), as well as quantitative analyses of IEQ levels. Data analysis of IEQ sensor data included quantitative time-series and correlational methods to gain insights into the environmental conditions and their implications on occupants' wellbeing. The results were then merged for comparison to derive how building

performance levels in the CLT units affected occupant comfort and wellbeing, and alternatively, how did occupant behavior impact building performance levels?

Findings

Results include insights on permanent and temporary occupant perceptions of IEQ, and personal comfort and energy use levels. Qualitative data highlighted that residents value the natural aesthetics and thermal comfort provided by CLT, but concerns regarding energy efficiency and heating costs were suggested. Surveys also revealed the influence of occupant behavior on energy consumption. The findings suggest a complex connection between building design, occupants' comfort preferences, and energy use in CLT housing. Design strategies to enhance energy efficiency while preserving comfort need to be explored, and promoting occupant awareness of building material performance and behavioral changes can contribute to sustainable practices in CLT housing.

Importance to Interior Design

This study emphasizes the importance of considering both building characteristics and human behavior when addressing comfort and energy use in CLT housing. Future research should focus on intuitive design solutions and occupant education to optimize comfort and energy performance in all housing contexts, but especially those of innovative nature. Findings from the study may also be applied to green buildings overall, and especially the housing industry. With the housing shortage and climate crisis as a forerunner in design techniques, it is crucial for designers to better understand energy savings and occupant comfort in all domains of the built environment.

Keywords: CLT, housing, wellbeing, comfort, energy, behavior, sustainability.

REFERENCES

International Energy Agency (IEA). (2019). Global energy & CO2 status report. <https://www.iea.org/reports/global-energy-co2-status-report-2019>

NIOSH. (2022). Indoor environmental quality. Center for Disease Control and Prevention. <https://www.cdc.gov/niosh/topics/indoorenv/default.html>

Haskins Lisle, A., Merenda, C., & Gabbard, J. (2020). Using affinity diagramming to generate a codebook: a case study on young military veterans and community reintegration. *Qualitative Research*, 20(4), 396-413. <https://doi.org/10.1177/1468794119851324>

Kawakita, J. (1982). The original KJ method. In. Tokyo, Japan: Kawakita Research Institute

ID+CL AND BLOCKHOUSE

GENERAL OVERVIEW

Considering the impacts of future energy growth and consumption, it is necessary for designers to consider more energy-efficient and sustainable buildings. One example of this type of building is cross Laminated Timber (CLT) construction, also referred to as mass timber, which was developed in Germany and Austria in the 1990's (Wigo, 2022). CLT is a composite wood material, which is made by pressing alternating layers of wood together, thereby increasing its strength, durability, and building energy efficiency due to thermal insulation.

In comparison to more common commercial construction methods, such as steel and concrete, wood tends to have greater thermal insulation due to its natural thermal properties, thus lowering heating costs of buildings, which accounts for 25% of commercial energy consumed globally (IEA, 2019). Additionally, mass timber facilities contribute to positive indoor environmental quality (IEQ), which refer to indoor conditions such as lighting, air quality, access to daylight and natural views, acoustic conditions, thermal conditions, and often, occupant autonomy (NIOSH, 2022). In this way, sustainable buildings may contribute to the health and wellness of their occupants through simple interface and building construction changes.

GOAL

The goal of this study is to understand the effect of CLT construction interiors on occupant comfort, behaviors, and building performance metrics (IEQ, and energy use) at a transitory and permanent housing context through field measurements and online occupant surveys.

This inquiry is particularly interested in the following research question(s):

- RQ1: What are the effects of CLT as a biophilic element in housing design on occupant comfort and wellbeing?
- RQ2: What are the effects of CLT temporary and permanent housing design on building performance metrics, such as energy efficiency and indoor environmental qualities?
- RQ3: How does the use of wood as a construction material affect indoor environmental perceptions of occupants in comparison to other construction materials?
- RQ4: How does the understanding and behavior of building occupants in CLT housing affect their own comfort levels?

METHODOLOGY

This research will analyze the application of CLT construction in one case study building: BlockHouse, which is a net-zero micro-housing community in the South Perry District of Spokane, Washington, designed to emphasize a healthy lifestyle with environmentally conscious home features. BlockHouse is home to multiple living situations, from AirBnb temporary housing to full-time residents. Therefore, the sample population will be guests that stay in each unit type over a three-month period, on a volunteer basis, as well as a handful of long-term renters in selected units.

In this study, we will gather building metrics surrounding energy efficiency and interface performance, as well as how the development contributes to the feelings of comfort and wellness of both its transitory and permanent housing occupants. The aim is to truly discover the perceptions of occupants regarding comfort, energy use, and interface usability. This study will help to determine successful ways for Blockhouse occupants to interact with the building that best supports the performance and their own comfort via online surveys about comfort, wellness, building interface (e.g., smart wall) usability, and energy use perceptions. These aspects will be integrated into visitor experience and regularly shared with residents to collect timely feedback and comfort data.

With insights from the previously listed activities, the study will also include materials at the end of each survey to educate building occupants through catered curriculum (i.e., a visitor guide to unit interfaces, resident dashboard training, and links to learn more about the building design) that focuses on wellness and Blockhouse ideology. Research has shown that even in “smart buildings”, human interaction is still needed to maintain the highest levels of efficiency (Konstantakopoulos et al., 2019), and many methods encourage occupants to be more conscious of their actions (EnergyStar, 2019). Consideration of these educational opportunities and survey data collection of energy-use perceptions will facilitate a better understanding of how occupants in the case study building manage their comfort levels and how that relates back to the mass timber construction of the building and its performance.

RESEARCHER'S ROLE

The role of the researcher for this study will include coordination with the facility manager, building owner, and occupants. It will be important to maintain these relationships for successful completion of both phases of the study. In addition, during the quantitative phase, the researcher will complete monthly trips to Spokane, Washington to collect building metering data. Once this data collection has ended, the researcher will perform data analysis to find and isolate significant findings. During the qualitative phase, the researcher will finalize the survey questionnaire, test for reliability and validity of the instrument, and will finalize a sampling frame before administering the survey. Once the survey data collection has ended, the researcher will perform survey data analysis to determine significant findings. This analysis will occur simultaneously with the quantitative analysis. An additional consideration is that occupants will need to offer their participation in the study willingly. The researcher will also determine the best methodology for conducting the interviews.

After data analysis is completed for both methods, the results will be merged for comparison: how do the building performance levels in the CLT units affect occupant comfort and wellbeing, and on the flip side, how does occupant behavior in the spaces affect BlockHouse building performance levels? These comparisons will then be discussed to comprehend their importance and implications within future CLT building design.

We hope to partner with the brewery next door to offer incentives to increase the response rate of the survey.

PROPOSED PROJECT TIMELINE

Timeline

Aims/Task	Year 1												
	months	May	June	July	August	September	October	November	December	January	February	March	April
Background research and prep.	x	x	x	x									
Form Survey Questionnaire			x										
IRB Submittal				x									
Purchase equipment				x									
Pilot testing of equipment					x								
Survey re-evaluation					x	x							
Aims data collection							x	x	x	x			
Aims data analysis									x	x	x		
Write results / manuscripts										x	x	x	x
Proposal and submission of manuscript													x

To accomplish these goals and deliverables in time for the WSU Graduate School’s deadline for defending (mid/late April 2024), the proposed timeline below illustrates critical project tasks and associated time periods.

PROPOSED POST OCCUPANCY EVALUATION (POE) QUESTIONS:

A sample of the proposed open-ended questions built for the occupancy surveys are shown below, which will help inform the research questions of this study.

- *How do you feel that the structural materials (CLT) of BlockHouse Life impact your personal occupant comfort on a (daily) basis?*
- *How do you feel that CLT affects your personal energy consumption?*
- *How do you feel that CLT affects your indoor environmental comfort, in terms of THERMAL comfort?*
- *How do you feel that CLT affects your indoor environmental comfort, in terms of VISUAL comfort?*
- *How do you feel that CLT affects your indoor environmental comfort, in terms of AIR QUALITY?*
- *How do you feel that CLT affects your indoor environmental comfort, in terms of ACOUSTIC comfort?*
- *Do you behave differently in (your home/this unit) in part or because of the BUILDING MATERIALS? Why?*
- *Do you behave a certain way in (your home/this unit) in part or because of the CONTROL INTERFACES (Thermostats, smart wall, Windows, Doors, program/layout)? Why?*
- *How does having all of your primary building controls in one location affect your daily use of your space? Please explain (ask them to elaborate as needed)*

- *How are your behaviors in using your space in this location (Blockhouse) differ from your experiences in a typical residential setting, such as a single family home, apartment, or condo?*
- *Do you feel that being surrounded by NATURAL TEXTURES/MATERIALS affects your wellbeing/emotions/comfort/behaviors?*
- *Do you feel that being surrounded by HEAVY TIMBER MATERIALS (CLT) affects your wellbeing/emotions/comfort/behaviors?*
- *Do you feel that being a part of an ECO-CONSCIOUS COMMUNITY affects your wellbeing/emotions/comfort/behaviors?*
- *Do you understand how to use your (insert interface here) well?*

MEASUREMENTS:

- Energy consumption from whole unit and plug loads.
- Ongoing Environmental quality – PPM for pollutants, daylight, noise pollution, ...View....Quality view percentages.

DISSEMINATION AND OUTCOMES

After data collection and analysis, the primary deliverable of this thesis-track Master of Arts in Interior Design will be a completed manuscript ready for submission for a design-related, double blind, peer-reviewed journal (e.g., *Interiors, Building and Environment, Journal of Interior Design, Environment and Behavior*). Results will be openly shared with Uptic Studios and management at BlockHouse.

These findings are expected to provide new knowledge and clarification concerning occupant behavior and comfort in mass-timber housing contexts, which in turn will aid future designers in their goals of happier, healthier, and more energy efficient buildings.

sLow Tech High Touch: A micro-machine for living large

Edwin Zawadzki, Pratt Institute

Mason Wickham, In Situ Design

ABSTRACT

sLow Tech High Touch: A micro-machine for living large

sLow Tech High Touch is the analysis, prototyping, and production of sixteen floors of micro-apartments retrofitted into an abandoned hotel. Developed as a nested program contrived in transparent layers, the interior is animated by physical engagement. Through acts of transformation the user manipulates efficient yet expressive, interactive, low-tech elements to compose a variety of scenes that transcend domestic functions and affordably foster sometimes lost ideals of modernism: sensory experimentation, ongoing movement, change and indeterminacy (Koeppnick). Other explorations of ambiguous boundaries employ materials and light to invent spatial extension, visual variety, and psychological dimension beyond the confines of the bounded room.

The developer's strategy of building affordable apartments in a commercial urban district was an economic concept in the spirit of Bloomberg's initiative to rethink minimum apartment sizes in NYC. But since small quarters are associated with squalor and compromise, less space would need to become more with an aesthetic and ethos. Instead of waste and consumption, sLow Tech High Touch was designed to create a different way of occupying space, reducing possessions to essentials and developing an active, sensual, social relationship with the interior.

The investigation of making small space complex and engaging instead of incarcerating led to the identification of the concept of extension, an interior manifestation of linguistic displacement, to amplify the visual and psychological borders of a 191sf room. To be there and not there, to disconnect time and place, we applied four strategies: transformation, reflection, projection, and perforation.

Transformation

Sliding, folding, deploying, swinging, and adjusting assemblies such as doors, cabinets, and furniture the user is constantly changing their situation through touch and action extending the spatial variety. A monolithic planar wall of machines for cooking and sleeping houses a pull-out worktop and fold-down bed behind a swing-fold screening door. A social wall of individual loosely assembled, moveable

elements such as storage boxes, a sofa, tables, and light fixtures are arranged on poles and planks that form a theatrical scaffold. By creating domestic rituals through interior transformations that fully engage the body and the mind, the sLow Tech High Touch user is both present and outside.

Reflection

Eccentrically placed planes of unframed mirror complexify space through displaced imagery. The one-point perspective of the plan is transformed into a multi-point perspective in life. The narrow, mirrored kitchen backsplash casts a shard of the opposite wall knitting the two halves of the room while implying more space. A mirrored window jamb casts a sliver

of the wall across the street into the interior.

Projection

Technical, contrived illusions that entertain rather than confound are motivated by the work of Abelardo Morell. Unlike reflections, projections usually capitalize on imagery produced elsewhere. Immaterial material from another time and place dematerializes the present, "... the domestic space, the room where we dwell, is like a mind." (Costello)

Perforation

Unlike reproduced internal images (reflection) or exterior images (projection) perforations allude to space through a porous surface which mediates the information of light (luminance, views, focus) and to a lesser degree sound. Small holes puncture swing-fold doors implying space behind them and evoking ambiguity. Whether the holes are lit from behind or black with darkness, they suggest the depth of unknown space visually and psychologically expanding the room. The perforated door panels deployed flat, doubled or unfolded as a screen produce varying degrees of opacity and translucency suggesting different registers of space.

REFERENCES

Lutz Koepnick. 2014. *On Slowness : Toward an Aesthetic of the Contemporary*. Columbia Themes in Philosophy, Social Criticism, and the Arts. New York: Columbia University Press.
<https://search.ebscohost.com/login.aspx?direct=true&db=nlebk&AN=828258&authtype>

"2. Family Matters: The Schröder House, by Gerrit Rietveld and Truus Schröder." In *Women and the Making of the Modern House: A Social and Architectural History*, by Alice T. Friedman. New Haven: Yale University Press, 2007. Accessed September 27, 2023. <https://aaeportal-com.ezproxy.pratt.edu/?id=15103>.

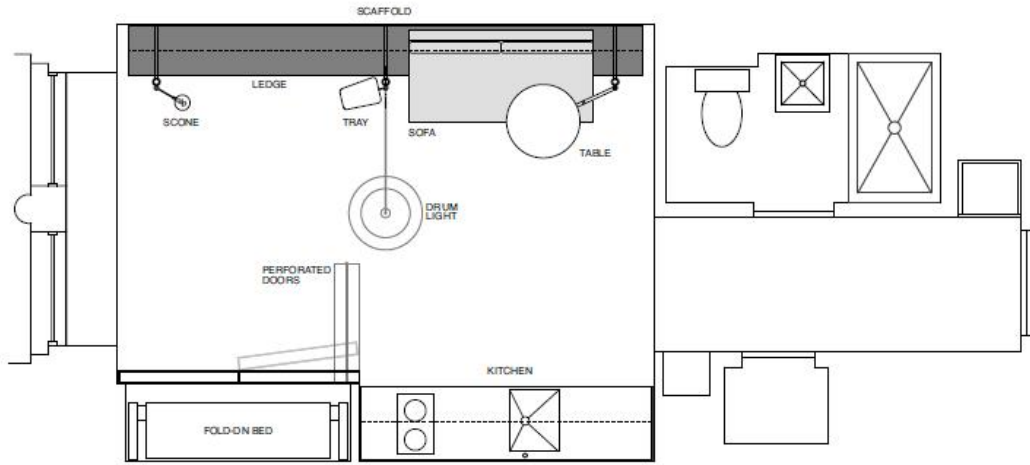
Costello, Bonnie. "CONCLUSION: Domestic Disturbance." In *Planets on Tables: Poetry, Still Life, and the Turning World*, 168–80. Cornell University Press, 2008.
<http://www.jstor.org/stable/10.7591/j.ctv2n7jv8.11>.

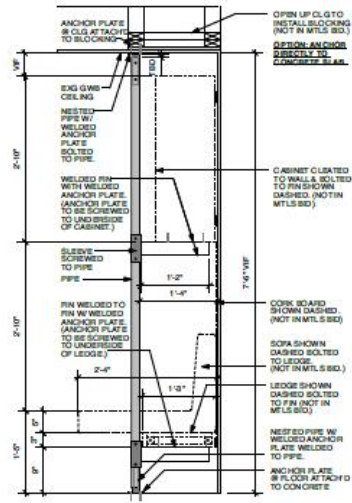
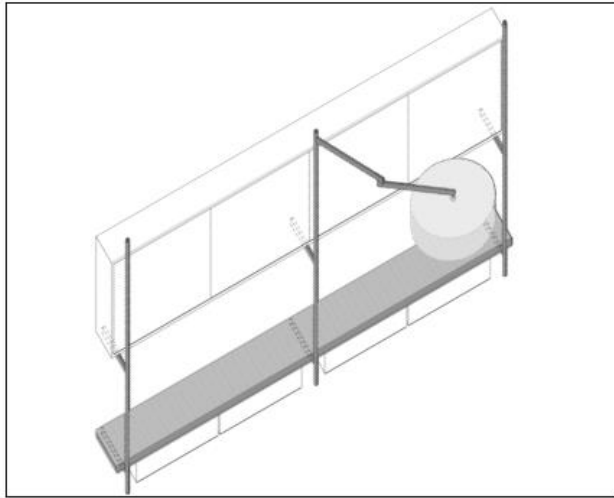
image appendix: sLOW TECH high touch











Venice Biennale: Exhibition Design and Process

Cory Olsen, University of Oregon

ABSTRACT

This work is the culmination of a year and a half of conceptualization, design, fabrication and installation. Invited by the European Cultural Council to propose an exhibition for the recent 2023 architecture biennial, my school dean (anonymous for the purposes of this abstract) knew from the beginning the conceptual framework to be pursued. As a faculty member with a specialization in fabrication, the author was asked to spearhead the design and coordination of the project. I offer this work as a presentation of creative practice on the design as interior.

The Site

The exhibit location is a Venetian palazzo built in the 15th century. Our assigned space is on the primary exhibit level, two floors above and overlooking the grand canal. The room features a terrazzo floor and a grand Murano glass chandelier in the center. Notably, there is no elevator access which became a significant consideration in the design of the exhibit pieces for purposes of transportation and installation.

Exhibit Theme

The exhibited work was collected around a theme of Transpecies Design- the idea that our efforts as humans need not only benefit ourselves but also that of our planetary co-denizens: flora, fauna, even microbes. Projects submitted included inhabitable planted facades, designing for beneficial bacteria biomes, and wildfire beacons to alert both humans and wildlife.

Concept & Precedent

From the very beginning the exhibition was pitched by the Dean as a “spatial forest” to explore while learning about the transspecies proposals. Early ideas ranged from mass timber columns to actual salvaged trees with the project descriptions milled into their surface. Through iteration and discussion, eventually this translated to laser etched plywood panels that could be shipped flat-pack and assembled on site. Inspirational precedents included Sou Fujimoto’s “Forest of Light” for the 2016 Salon del Mobile in Milan (1), the suspension “Penetrables” artworks of Jesus Rafael Soto (2), and Alvar Aalto’s Villa Mairea (3).

Process

If selected for public presentation emphasis will be placed on sharing process from early sketches, digital models, advanced rendered visualizations, and sample tests (a glimpse of which is included in the

accompanying appendix document). A variety of exploration modes were utilized from Rhino, VRay, Enscape VR, scaled models, and full scale mockup resulting in a rich documentation of the project evolution. Towards the resolution of the work, additional detail drawings and shop documentation became critical. The wrap up of process will include timelapses of a pre-shipment mockup installation and crating details (including some unusual and sometimes humorous aspects of shipping to an international location without roads).

Installation

Images of the completed install will be shared and paralleled to appropriate details, plans and concept renders. Photos include the space empty to emphasize the exhibition apparatus as well as populated with individuals experiencing the space and the work. Details such as column sections, reveals, packing logic, assembly sequences, and grain-matching will be shared in greater magnification.

Resolution

Beyond the final result, the intent here is very much to share the process and evolution of the design as it became an interactive interior experience which will be engaging for audience educators, students, and practitioners. Additional insight into showing work internationally (and particularly in the water-based systems of Venice) could assist others that are interested in expanding their own exhibition outreach.

REFERENCES

Gintoff, V. (2016, April 13). Sou Fujimoto installs a “Forest of light” for COS at 2016 Salone del Mobile. ArchDaily. <https://www.archdaily.com/785460/sou-fujimoto-installs-a-forest-of-light-for-cos-at-2016-salone-del-mobile>

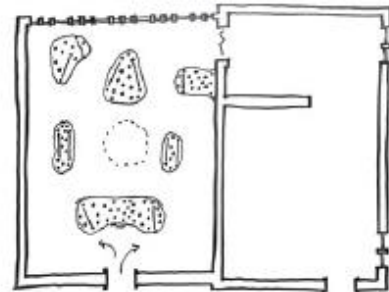
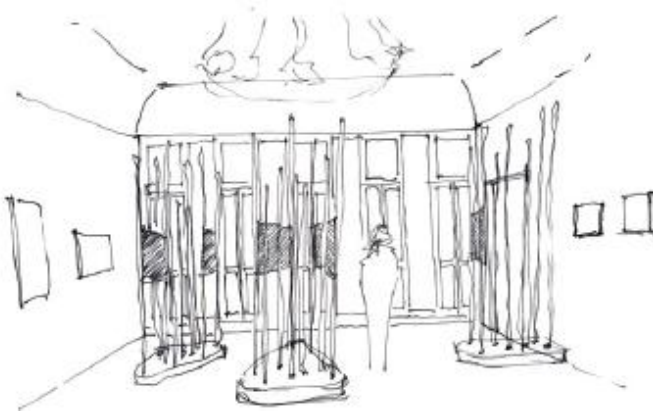
Penetrables - large-scale participatory sculptures. Soto. (2021, July 25). <https://jesus-soto.com/penetrables/>

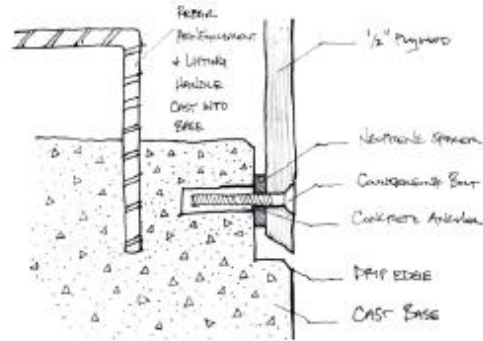
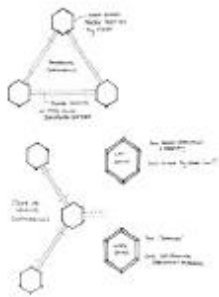
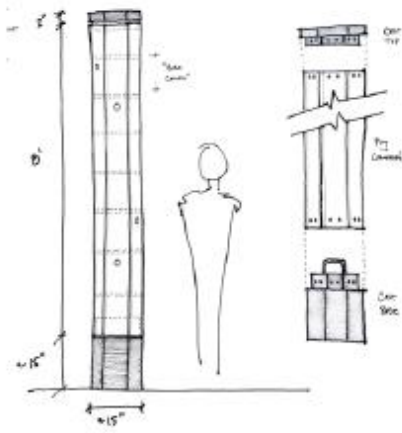
Sveiven, M. (2010, October 28). AD classics: Villa Mairea / Alvar Aalto. ArchDaily. <https://www.archdaily.com/85390/ad-classics-villa-mairea-alvar-aalto>



Site, Precedent, and Early Schematics

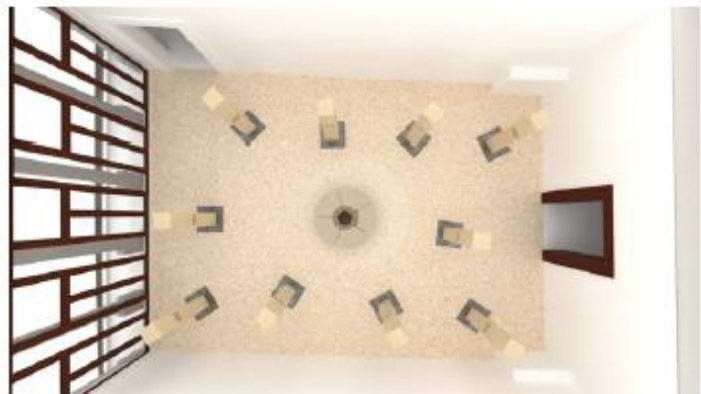
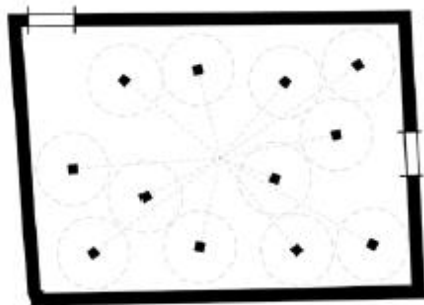
This page shows the Venice exhibition space (top), three influential precedents (Fujimoto, Soto, & Aalto) and an early sketch which began to combine these influences in context with the overarching exhibition concept of a spatial forest which would serve as the work display apparatus.





Further Schematic Design

As designs were presented to the dean (exhibit curator) there was a shift from a thin scale forest of “branches” into a more monumental forest of “trunks”. The exhibition room footprint was a challenge as there were two passageways, a monumental Murano glass chandelier suspended in the center, and a glazed wall that overlooks the Grand Canal. Numerous plan arrangements were explored to test circulation paths and balance these against a quantity of exhibited projects that could be included. A Grasshopper script was employed using magnetic repulsion points to space columns and keep the chandelier space uninterrupted (some early examples below).





Design Development

As the process continued, the display columns evolved into four sided extrusions to enable a flat-pack approach to the eventual overseas shipping that would take place. The image above illustrates further iteration of column widths, base detailing, and insets to allow the display of physical objects in addition to the etched text component. The bases looked briefly at locally sourced Italian Marble as a nod to their destination, but shifted to a sheet steel logic to provide a thin wide base to resist any potential tipping and allow each column to be freestanding.

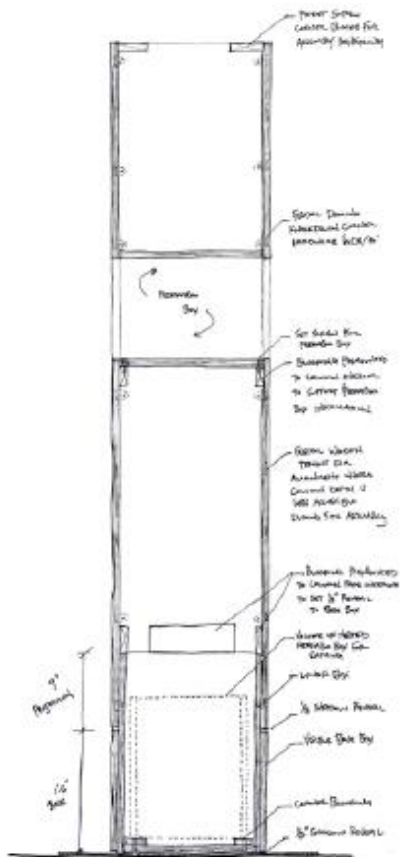
The object displays similarly progressed and went from a contained cubby to what became dubbed a "peekaboo" which passed entirely through the depth of each column, allowing a visual connection and the opportunity to display objects from two sides. The peekaboo explored a variety of reveal detailing, from inset to proud. For full effect a full-scale mockup column was constructed to test the scale and expression of the design.





Fabrication, Testing, and Visualization

Once the design details were dialed, there was plenty of testing to occur for laser etching (as above), assembly hardware, and mapping into the venue space. Methods ranged from physical testing to advanced rendering visualizations including 2D graphics and 3D web-based walkthroughs for sharing across teams.





Installation & Resolution

Photographs of the final installation will be shared and compared to the design process work, with additional emphasis on detailing and execution (including crating and full mockup). *Note, the author designed the exhibition but has no direct affiliation with the work visible in these photographs. Some elements have been obscured to maintain anonymity.

Design Practitioners' Assessment of Biophilic Interior Design Matrix: A Cross-Cultural Study

Xu Jin, University of Florida

Beth McGee, Georgia Southern University

Nam-Kyu Park, University of Florida

ABSTRACT

Purpose of the Study: In recent years, biophilic design has received a growing research base for interior design (Gillis & Gatersleben, 2015; Suharjanto et al., 2020). The goal of biophilic design is to provide a positive influence to occupants in any indoor environment, from physical to behavioral (Gillis & Gatersleben, 2015; Totaforti, 2018). Biophilic Interior Design Matrix (BID-M) is established as a tool not only to help design practitioners to evaluate and identify biophilic design features but also to optimize natural integration, which further assists interior designers with evidence-based design strategy (McGee et al., 2019). BID-M was previously employed by American interior designers with good reliability and validity (McGee et al., 2019). After translating the BID-M into Chinese and testing it with Chinese design practitioners with increased reliability and validity (McGee et al., 2022), the current comparison study was conducted. Thus, the object of this study explored how BID-M was perceived and evaluated by both American and Chinese design practitioners and the validity and reality of BID-M when participants had different cultural backgrounds.

Methods: A mixed-method study was adopted with three sequential sections. The first and third sections assessed American (n = 31) and Chinese (n = 101) participants' experiences before and after being exposed to BID-M through a pre and post-questionnaire. The second section asked participants to evaluate an interior space assessment survey using BID-M with 54 design attributes.

Results: The findings show that both culture groups' perceptions of BID-M and biophilia were similar, and Chinese design practitioners saw a statistically significant increase in the perceived importance of biophilia after using the BID-M. Both culture groups had an improved understanding of biophilia after comparing the first section and third section's data, and the validity and reliability of the BID-M were consistent between the two culture groups. Both culture groups reported that the attribute "Habitats" needs further modification or removal from the list of attributes. Chinese design practitioners' data advised that another attribute "Bounded spaces" should be removed. Both groups approved that BID-M had good overall quality, which is also a valuable tool in the entire design process.

Conclusions: Through this study, the test of reliability and validity of the BID-M in both cultures showed benefits to the design procedure and research. Design practitioners from both cultures also see that BID-

M could help them to enrich their knowledge of biophilic interior design and support the application of biophilic design in interior design. Participants' instinctive need to connect with nature might result in the overall similarities in the perception of BID-M. Conducting this study also builds a theoretical foundation for future studies when testing the BID-M in other cultures and theory building.

REFERENCES

Gillis, K., & Gatersleben, B. (2015). A review of psychological literature on the health and wellbeing benefits of biophilic design. *Buildings*, 5(3), 948–963. <https://doi.org/10.3390/buildings5030948>

McGee, B., Jin, X., Park, N.-K., Ball, S., & Carr, A. (2022). Designers' perceptions of biophilia and testing of the biophilic interior design matrix in China. *Archnet-IJAR: International Journal of Architectural Research*, ahead-of-print(ahead-of- print). <https://doi.org/10.1108/ARCH-10-2021-0279>

McGee, B., Park, N., Portillo, M., Bosch, S., & Swisher, M. (2019). DIY Biophilia: Development of the Biophilic Interior Design Matrix as a design tool. *Journal of Interior Design*, 44(4), 201–221. <https://doi.org/10.1111/joid.12159>

Suharjanto, G., Taufik, C., Mariana, Y., & Suryawinata, B. (2020). The implementation of biophilic design in co-working space design as a concept of healthy sustainable architecture. *IOP Conference Series: Earth & Environmental Science*, 426(1), 1. Complementary Index.

Multi-Sensory Environments in Higher Education: Opportunities to Build Resiliency

Amanda Gale, University of North Carolina Greensboro

ABSTRACT

Resiliency is the ability to adapt to overcome obstacles and is a predictor of psychological wellbeing (Rustamov et al., 2023). This is important within higher education as levels of stress, anxiety, and depression have increased among college students (Eisenberg, 2023). Some universities have even canceled classes due to an influx of student suicides (Chuck, 2023). Multi-sensory environments (MSEs) have the potential to help with these issues by providing a restorative and interactive space for students. As a result, several universities have begun incorporating varying levels of MSEs on campuses across the United States. MSEs have provided calming effects on dementia patients (Lorusso et al., 2022), reduced stress among pregnant women (Staal et al., 2012), and improved the ability to focus with neurodiverse individuals (Unwin et al., 2022). However, limited research exists regarding specific elements of MSEs and their effect on individuals who are not among vulnerable populations or are neurotypical. The question remains, can MSEs help students cope with the pressures of college life? The purpose of this study was to explore the effect of multi-sensory environments on university students' perceived stress while ascertaining preferred sensory features.

A 270 sq ft windowless room was converted into a MSE using attention restoration and play theories. Vision, hearing, touch, and smell were senses incorporated into the design. Participants were able to customize and control aspects of color, lighting, smell, sounds, and air circulation through apps on a tablet. The concurrent mixed method study included a convenience sample of 31 undergraduate students at a mid-sized university recruited through email listservs. The study blended a quasi-experimental approach, using the MSE as an intervention between the pre- and post-tests, with qualitative questions to gain deeper insight. The Perceived Stress Scale (PSS), used to measure perceived stress, consisted of 10 items in Likert format. The Perceived Restorativeness scale, consisting of 22 items, was used to measure the restorative quality of the MSE. Seven open-ended questions provided insight on sensory features.

The average score of the MSE was 4.5 out of a 6-point scale (0-none, 6- completely), showing that participants viewed the space to be restorative. The majority of participants experienced decreased levels of perceived stress, with an average reduction of 3.62 points on the PSS. Most participants (64.5%) engaged in passive activities such as watching a water or lighting feature and listening to music. The most preferred components of the space were the color changing LED lights, a hammock

chair, and musical elements. These components also represented play theory within the MSE. Participants cited having the most control over lighting, seating and sounds within the MSE thus showing a connection between favorite features and user control. A full report of the findings will be shared. The value of this study lies within knowing that play and sensory components within the MSE were favorites among the participants and were reported as helping ease stress. Interior designers need to know what college students prefer to effectively design MSEs. Knowing the preferred features will help prioritize funding to help build student resiliency.

REFERENCES

Eisenberg, D., Lipson, S. Heinze, J., Zhou, S. (2023). The healthy minds study: 2022-2023 data report. Retrieved September 2, 2023 from https://healthymindsnetwork.org/wp-content/uploads/2023/08/HMS_National-Report-2022-2023_full.pdf

Luroso, L., Bosch, S. Park, NK., Shorr, R., Conroy, M. Ahrentzen, S., Freytes, M. (2022). Investigating the Feasibility of Multisensory Environments to Improve the Assisted Bathing Experience for Veterans With Dementia: A Clinical Trial. *HERD*, 15(2), 180-195. doi: 10.1177/19375867211053861

Rustamov, E. Musayeva, T., Xalilova, X., Ismayilova, G. & Nahmatova, U. (2023). Exploring the relationship between social connectedness and mental wellbeing: The mediating role of psychological resilience among adults in Azerbaijan. *Discover Psychology*, 3(15). <https://doi.org/10.1007/s44202-023-00080-8>

Unwin, K. L., Powell, G., & Jones, C. R. (2021). The use of Multi-Sensory Environments with autistic children: Exploring the effect of having control of sensory changes. *Autism*. 13623613211050176.

Staal, J., Shteyhfeld, E., Matheis, R., & Lopez, A. (2012). The effects of multi-sensory behavior therapy (Snoezelen) on pregnant women with depression and anxiety: A single case design. Retrieve, May 7, 2023, from https://www.rompa.com/media/free-resources/snoezelen_pregnant_women.pdf

Visualizing Interior Spatial Dynamics as Semiotics of Information Processing in the age of AI

Aaron Kadoch, The University of Wisconsin Stevens Point

ABSTRACT

Interior space, like information, is a multi-media, multi-sensory experience. It can be shown that information flow is an overarching process that describes how space is perceived and how it functions (Gleick 2011; Husserl 2013; Habermas 1992). Yuri Lotman's concept of the Semiosphere represents the semiotics of space as a function of information processing related to the work of other important semioticians such as the text-based analysis of Umberto Eco and film-based semiotics of Christian Metz (Eco 1986; Lotman 1990; Metz 1991).

Contemporary design is not simply about establishing aesthetics and functions for a space, but rather in creating spaces that are responsive and dynamic to human evolutions in time. Using big data and Evidence Based Design (EBD) is an effective methodological framework that informs and provides the raw materials from which to design in the new age of AI. Buildings are becoming and can become even smarter with regards to their functionality and efficiency in their use of energy, water, and how they process waste, among many other ecological impact criteria. However, the human experiential side of making spaces and buildings more responsive to the social, cultural, and universal needs of people are also in need of becoming smarter. Buildings and their interiors, like computers, can continue to achieve advanced learning in real time.

Information creates a vast network of connections between ideas in the mind, with physical matter, and through media. It is these three spheres of space that intra-act to form our conceptions of space and how we function within it. How do we visualize and use these dynamics to inform spatial design? What will become the primary datapoints for informing the future of interior space design as big data, artificial intelligence, and EBD, continue to grow in influence within the design profession? How can data retain a human centered focus in the face of AI? My research in spatial semiotics and Information Architecture shows how we can begin to visualize the evolution of space as a function of information processing. I provide three core spheres of data that can be used as a foundational framework for future AI algorithm design as well as informing less technical forms of EBD and human centered research. With Information Architecture, we can link space and information in a visual geometric vocabulary. As such we can bridge the traditional discipline of design with information technology for new intra-disciplinary infrastructures in space and information together.

The presentation will present original semiotic research, a method for creating new data sets and coding, data visualization tools, and spatial diagrams to help participants better understand the link between space and information (See Appendix A). Participants will be interactive in solving a problems using these new research skills.

REFERENCES

Eco, U. (1986). *Semiotics and the philosophy of language*. Indiana University Press.

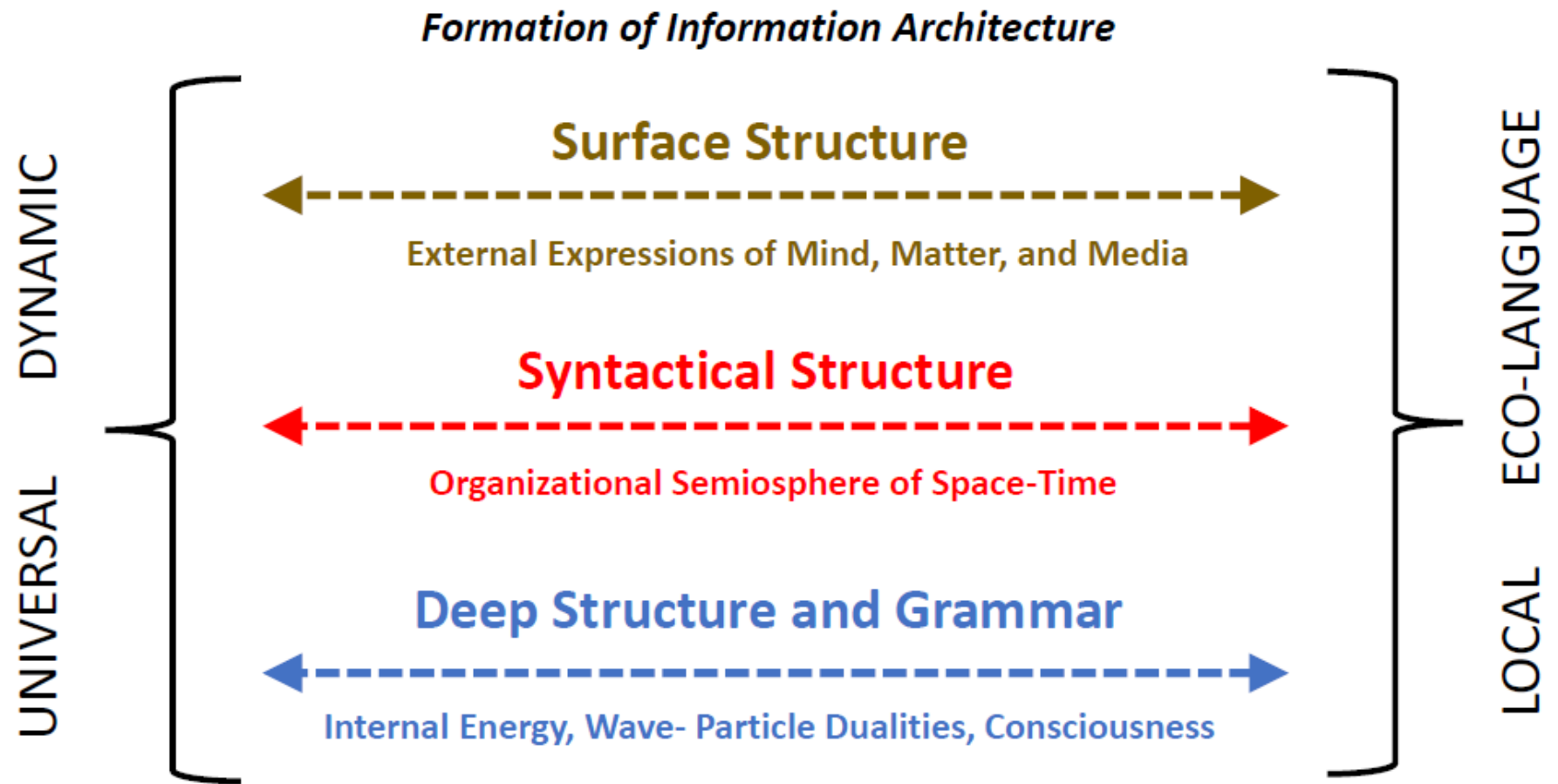
Gleick, J. (2011). *The Information*. Random House Inc.

Habermas, J. (1992). *The theory of communicative action*. (Vol. 1). Beacon Press

Husserl, E. (2013). *Ideas: General introduction to pure phenomenology*. Routledge;

The Framework: *Semiotics of Space and Language*

A Focus on the Spatial-Structural Layers of the Communicative Event:



The Communication
Structure

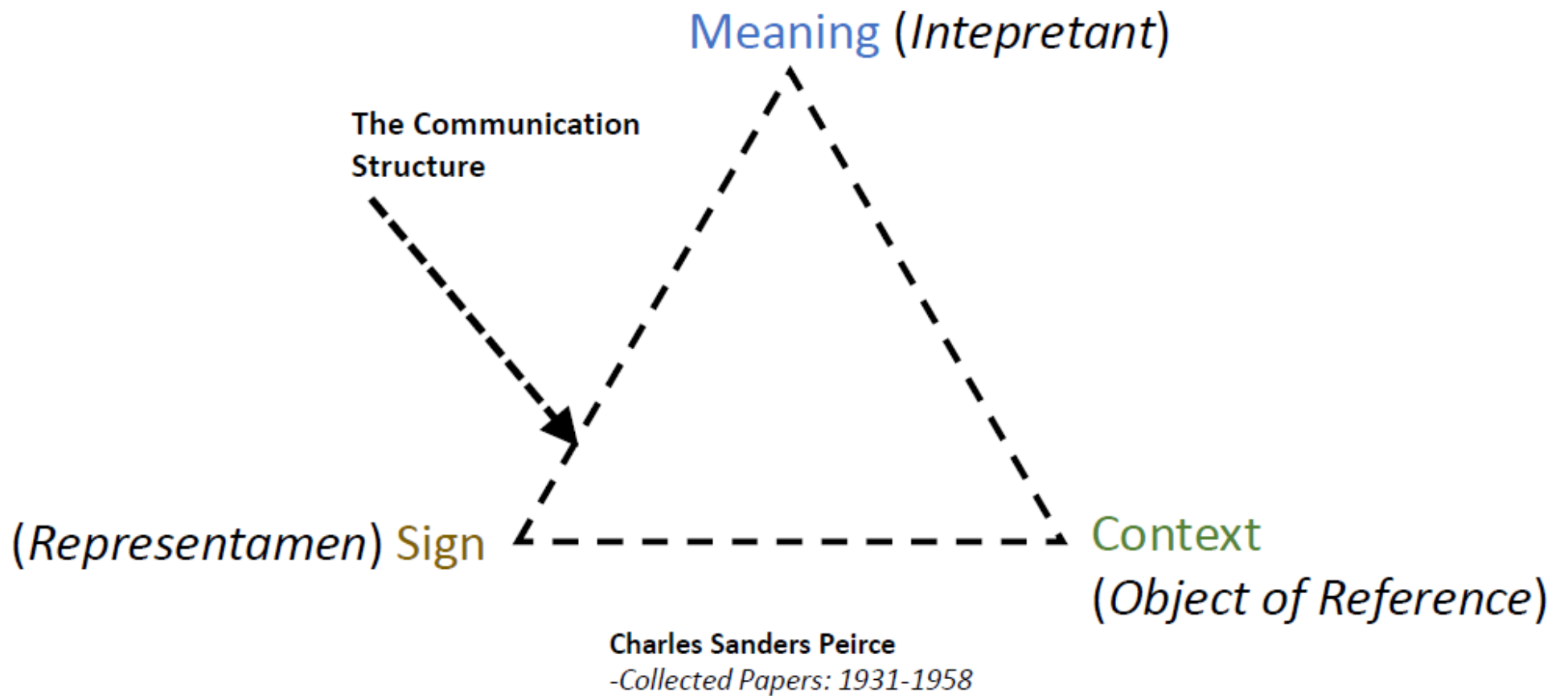


Meaning (*signified*)

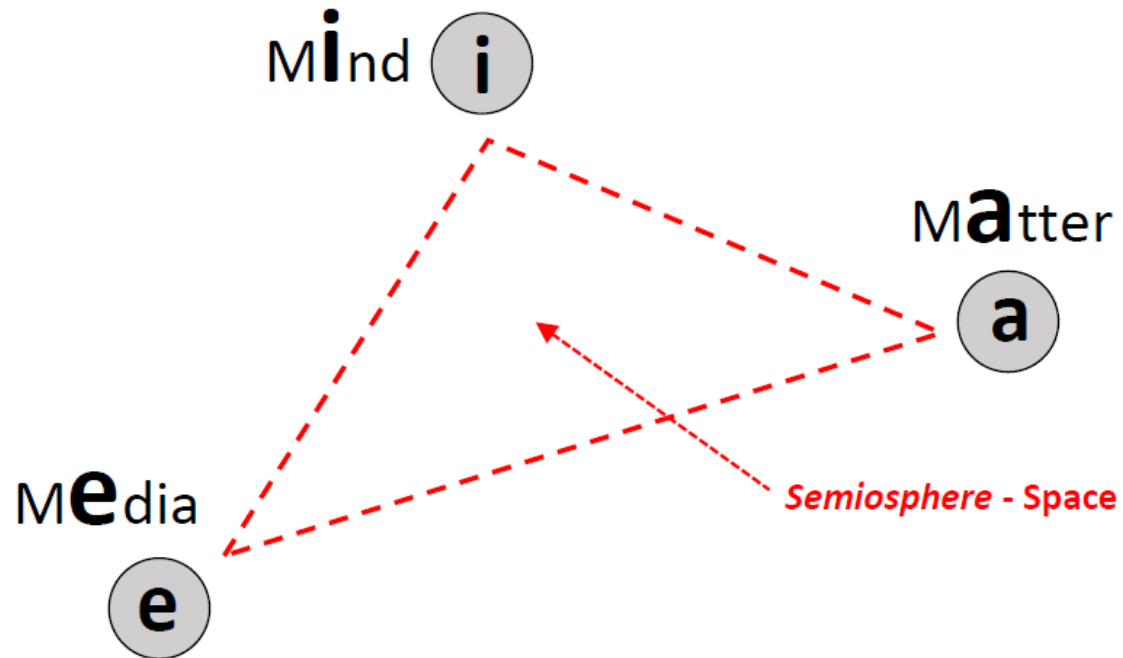
Sign (*signifier*)

Ferdinand de Saussure

-Cours de Linguistic Generale: 1916



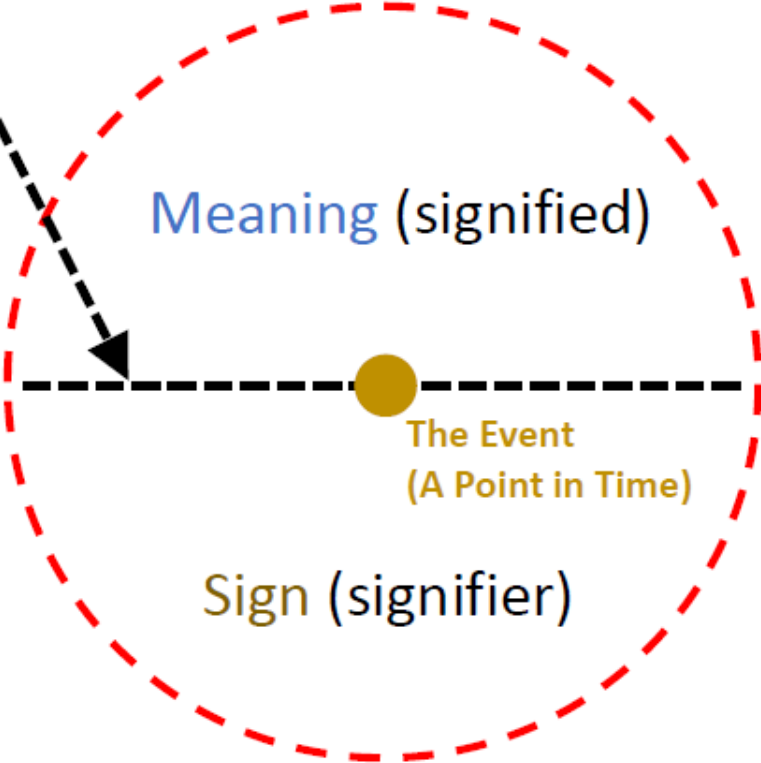
Discussion: *Transformational Systems of Communication*



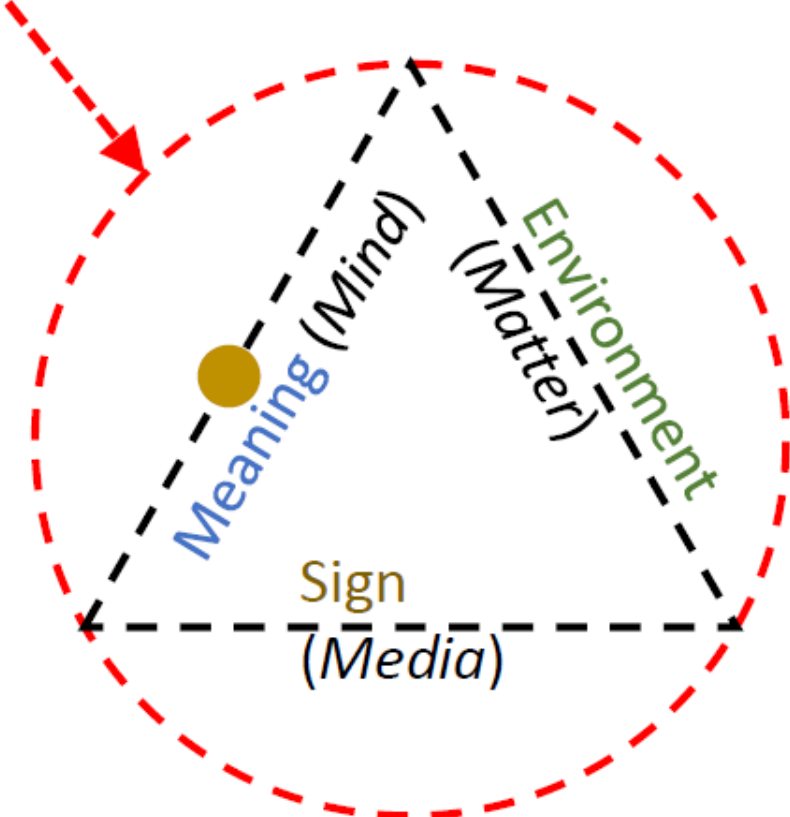
"The shape of a theory of symbolic forms ...[emerges as] collective representations and originate when they are embodied in material objects, things, or beings of every sort- figures, movements, sounds, words, and so on- that symbolize and delineate them in some outward appearance" (Habermas, 1992, p. 51).

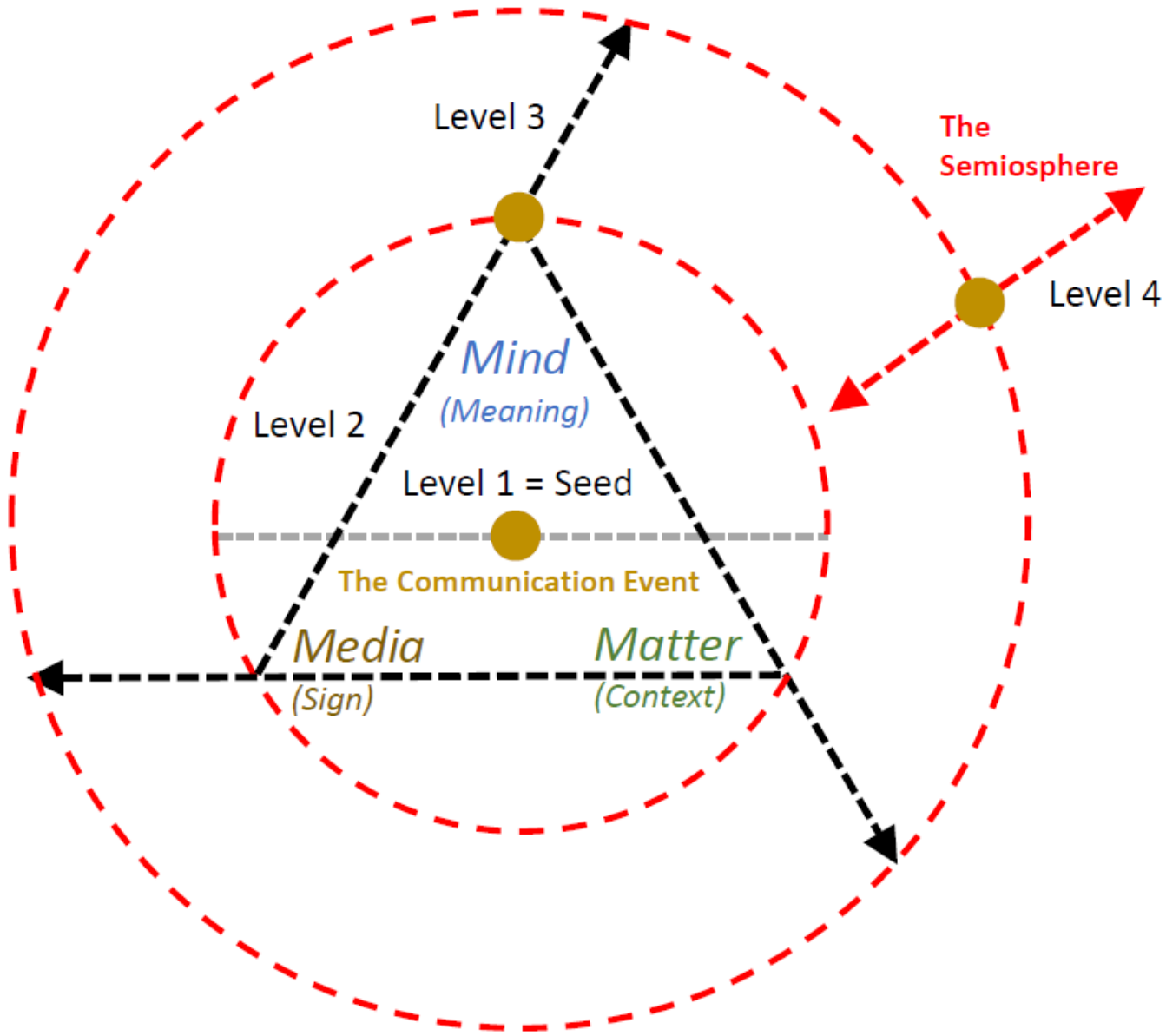
The Framework: *Semiotics of Space and Language*

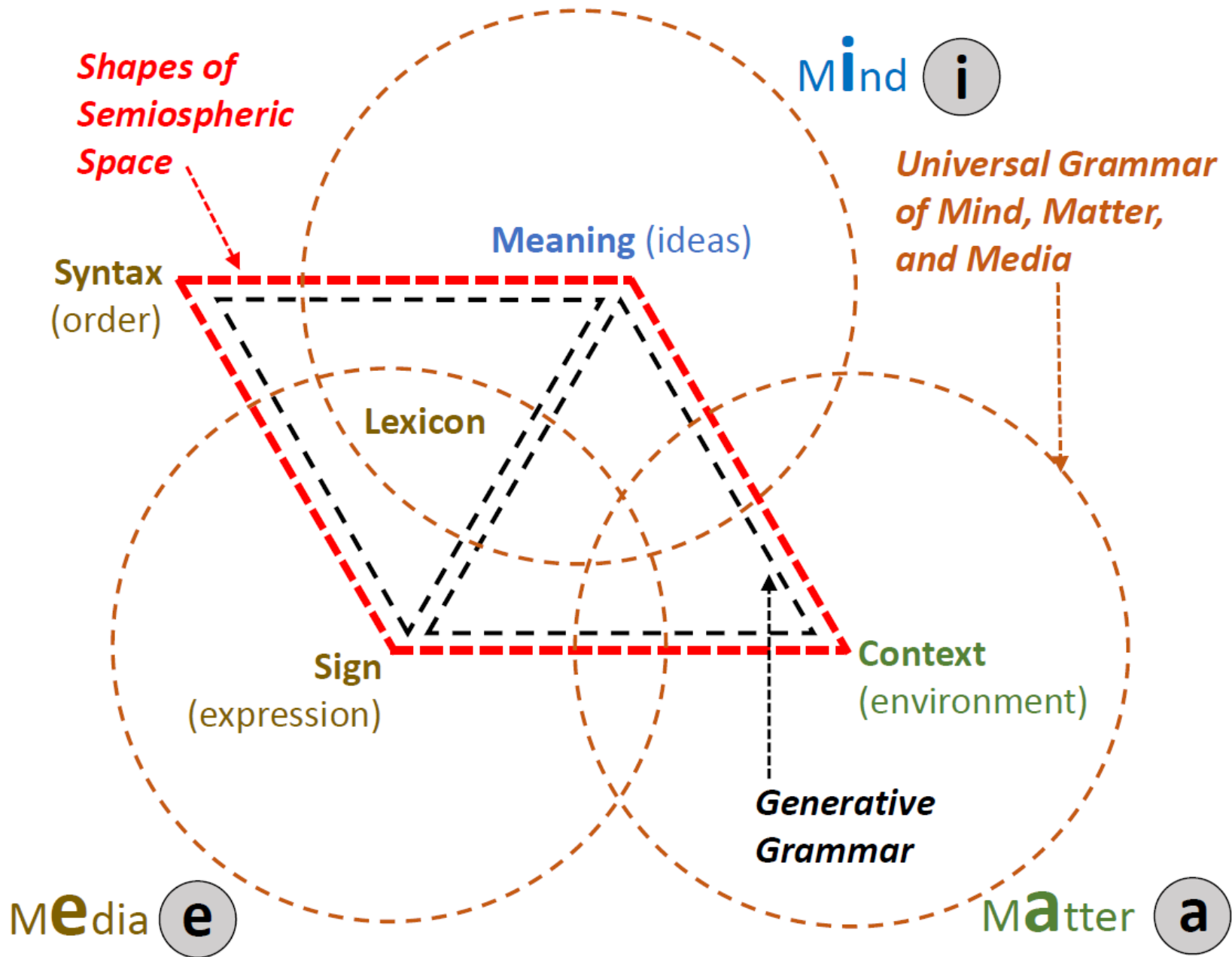
The Communication Structure



The Semiosphere

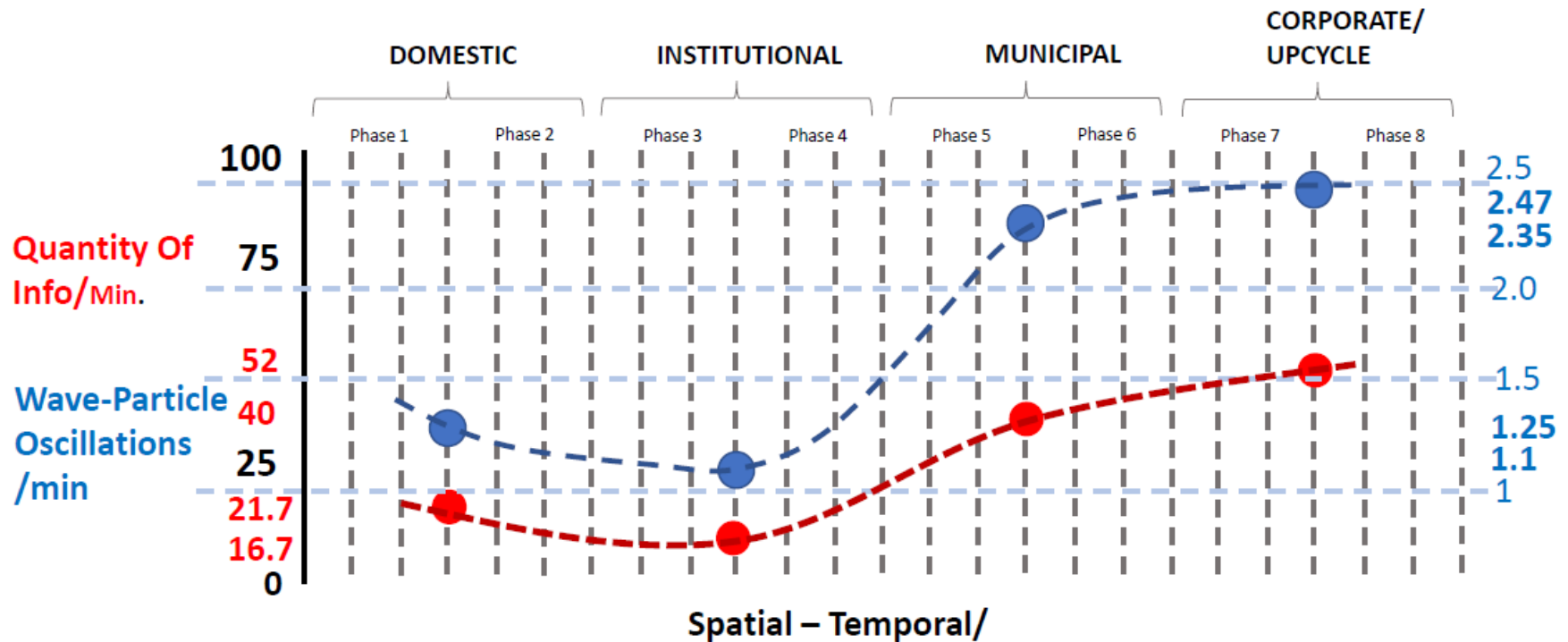






Data Results: *Life Cycle / Information Flow Analysis*

Life Cycle/Material Flow Analysis



- Data tracks the quantity of information as a function of mind, matter, and media (indices)
- Information increases or decreases as does entropy as matter moves along a lifecycle.
- A rate of information per minute can be established as a lifecycle metric.
- Lifecycle studies require reductions into traceable units such as CO2ton across space and time.
- Unique research approach to lifecycle studies: track combined units of mind, matter, and media.

“Where am I?” A narrative inquiry study assessing the success of wayfinding in international airports for non-native language speakers

A Terry Lundy, Florida State University

ABSTRACT

Introduction

Wayfinding is the ability to find a destination successfully, identify your current location, and arrive at your destination while having a cognitive and behavioral understanding of the process (Chang, 2013). Wayfinding is spatial problem-solving that involves identifying your current location and orientation which then serves as the baseline for route planning based on the point of origin. Unfamiliar environments are the primary source of stress for visitors and wayfinding anxiety causes people to make mistakes as stress levels rise compounding feelings of disorientation (Chang, 2013). Individuals who had less freedom to explore during childhood report less comfort as an adult in navigating unfamiliar environments compared to those who were allowed greater freedom of exploration as children (Mendez-Lopez et al, 2020). Children and teenagers who prefer transportation they could control (i.e., bikes, cars) also prefer an allocentric strategy for orientation which has proven more successful in spatial orientation, resulting in a perception that is relative to other objects in the environment. Individuals who use public transit usually employ an egocentric strategy which can cause higher spatial anxiety (Mendez-Lopez et al, 2020). The more time an individual spends in an environment they become familiar with it, developing a cognitive map aiding in spatial orientation, and giving them confidence (Mendez-Lopez et al, 2020). Route planning is only possible for familiar spaces, where each person has a unique view of their environment because of their own unique history of experiences (Lynch, 1960). Successful wayfinding and orientation in new environments must be based on something tangible, according to a wayfinding strategy developed by Lynch. The strategy employs Paths, Edges, Landmarks, Nodes, and Districts, which are grounded in something physical defining the space and making the place familiar (Lynch, 1960).

Graphic design plays an integral role in the layout of the wayfinding signage with an understanding of hierarchy, typography, as well as signage content. Confusion for the visitor resulting in uncertainty and anxiety can be created through bad design using too many destinations or navigable cues for the user (Chen, 2006).

It is important for designers to develop a spatial experience for all users that is welcoming, not a driver of anxiety and confusion. Visitors of other cultures and languages experience airports differently than the native traveler of that given country. This experience can give them a negative impression of the culture (Chang, 2013).

The study was framed by the following questions:

What basic graphic elements & symbols are universally understood?

How can architecture play a role in wayfinding?

How can wayfinding reduce anxiety for users navigating unfamiliar locations?

Methodology & Findings

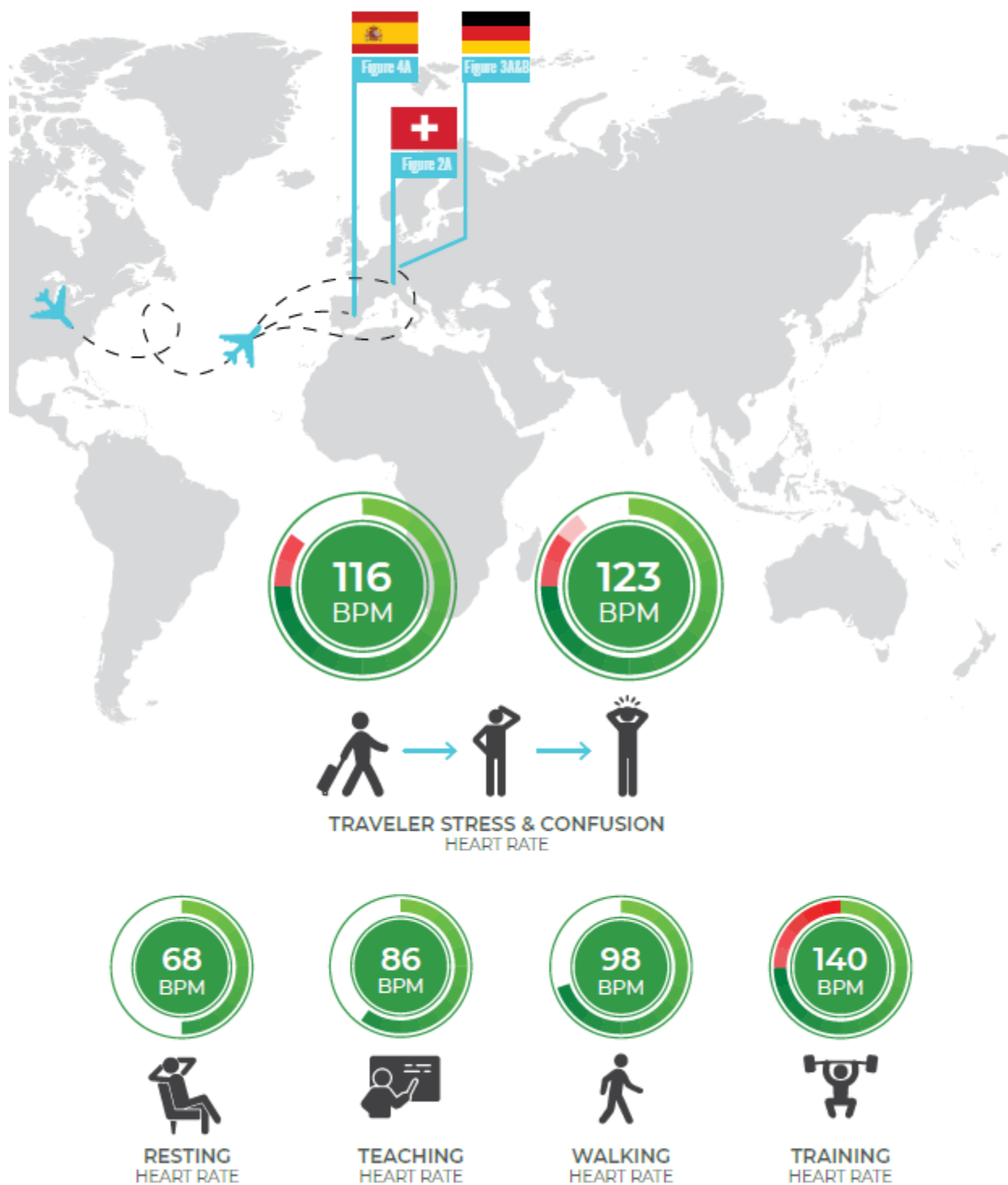
The study was conducted during a teaching session abroad and time spent at three international airports. The PI is not a native language speaker in any of the countries. The PI wore a digital device that tracked the heart rate for the duration of the trip. Prior to the study, data was taken for the PI's resting & walking heart rate, teaching, and high-intensity workout heart rates as a baseline. Highly detailed field notes & photographs were taken during each airport experience giving the PI ample data for the narrative inquiry study of each airport. Using the framework from Al-Sharaa et al, Assessment of Wayfinding Performance in Complex Healthcare facilities: A Conceptual Framework, the wayfinding was assessed.

Navigation that included multiple floors or time constraints proved to be areas of high-stress greatly impacting the heart rate as much as 35% to 128BPM. In areas where iconography was ambiguous or areas of oversigning caused confusion and elevated the heart rate as much as 28% to 116BPM. Some signage included multiple languages helping to reduce any stress caused by language barriers.

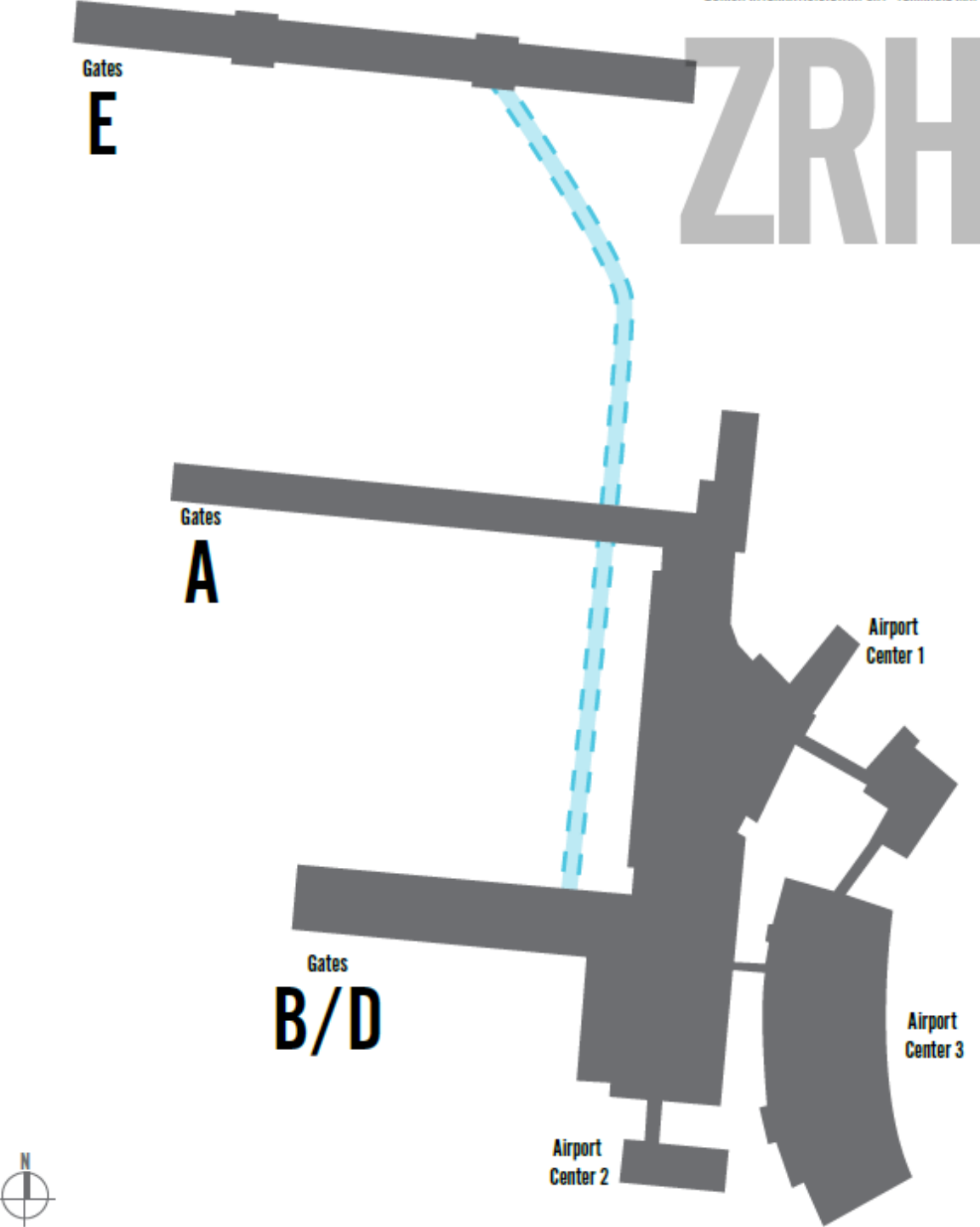
REFERENCES

- Al-Sharaa, A., Adam, M., Amer Nordin, A. S., Mundher, R., & Alhasan, A. (2022). Assessment of wayfinding performance in complex healthcare facilities: A conceptual framework. *Sustainability*, 14(24), 16581. <https://doi.org/10.3390/su142416581>
- Chang, H.-H.(2013). Wayfinding strategies and tourist anxiety in unfamiliar destinations. *Tourism Geographies*, 15(3), 529–550. <https://doi.org/10.1080/14616688.2012.726270>
- Chen, Y. H. S. (2006). Wayfinding recommendations for the navigation of Taipei's subway system through improved graphic design and sign design (Publication No. 1439830) [Masters Dissertation, Iowa State University]. ProQuest Dissertations Publishing. <http://www.proquest.com/docview/1439830>
- Lynch, Kevin. (1960). *The Image Of The City*. MIT Press.

Appendix Figure 1A
HEART RATE DATA INFOGRAPHIC

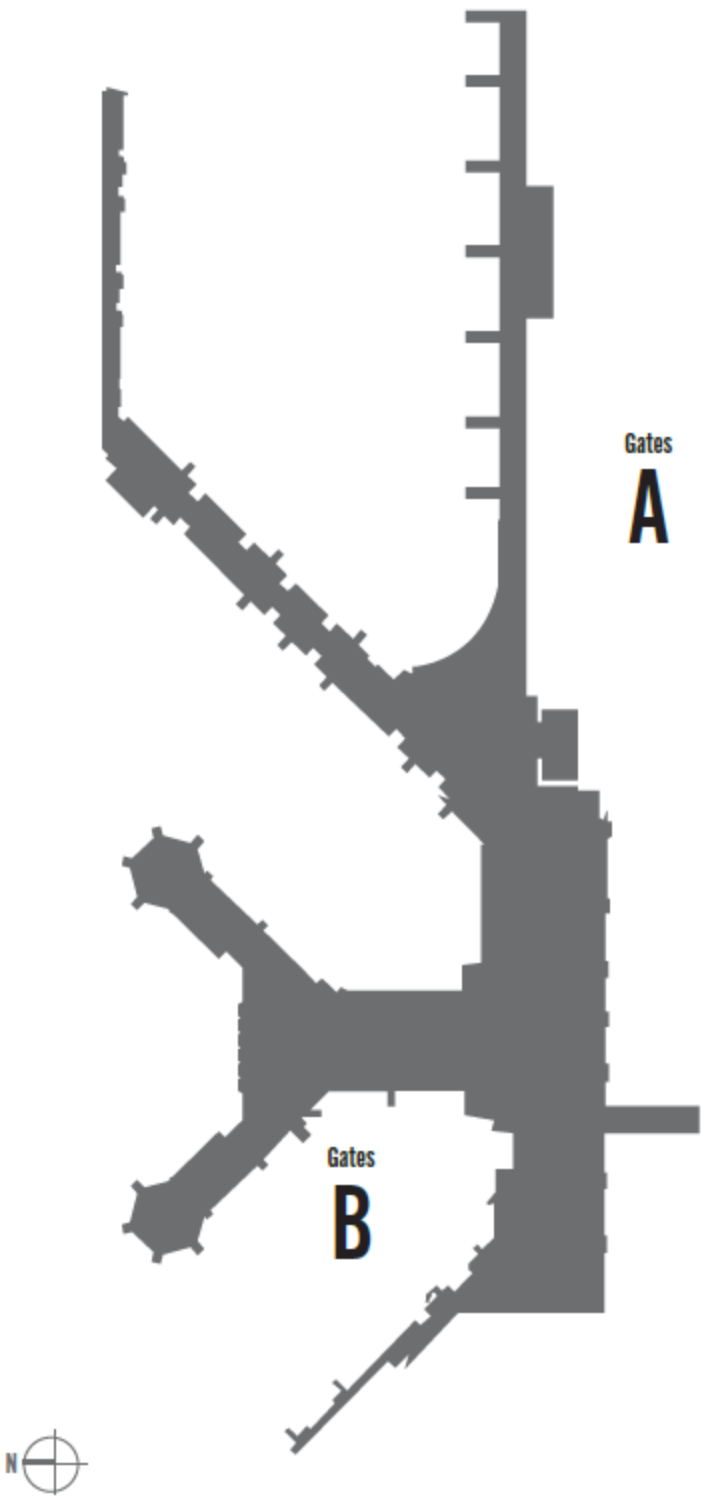


Appendix Figure 2A
ZURICH INTERNATIONAL AIRPORT - TERMINAL MAP



Appendix Figure 3A
FRANKFURT INTERNATIONAL AIRPORT - TERMINAL 1 MAP

FRA



Appendix Figure 3B
FRANKFURT INTERNATIONAL AIRPORT - TERMINAL 2 MAP

FRA



Appendix Figure 4A
VALENCIA INTERNATIONAL AIRPORT - TERMINAL 2 MAP

VLC



Appendix Figure 5A
WAYFINDING EXAMPLES - ZURICH INTERNATIONAL AIRPORT



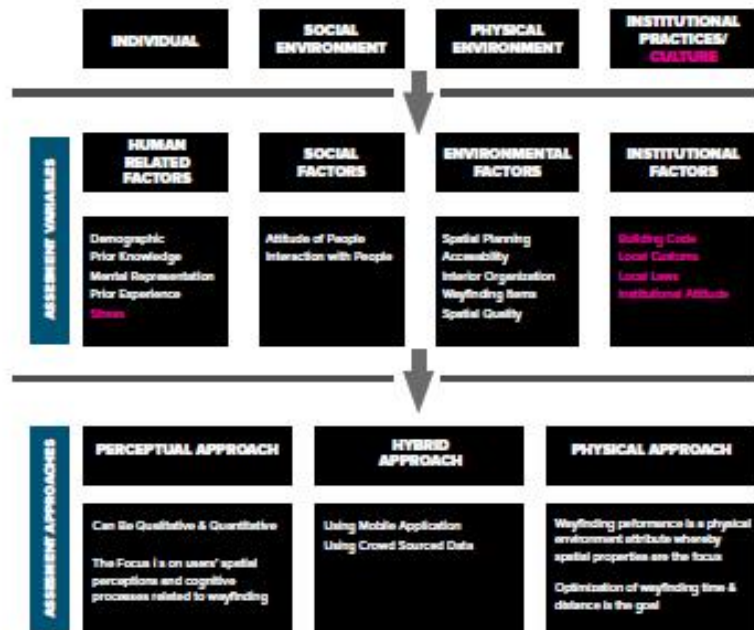
Appendix Figure 5B
WAYFINDING EXAMPLES - FRANKFURT INTERNATIONAL AIRPORT



Appendix Figure 6A
WAYFINDING EXAMPLES - VALENCIA INTERNATIONAL AIRPORT



Appendix Figure 6B
RUBRIC FOR WAYFINDING ASSESSMENT



Auditorium Acoustics: A Case Study of One University Campus

Jennifer Webb, University of Arkansas

Jamie Zakovec, modus studio

Rachel Glade, University of Arkansas

ABSTRACT

Effective teaching and learning depend on effective communication directly impacted by the space in which these interactions occur. The physical environment, its shape and form, layout, materiality, audio-visual technologies, and overall ambient environment influence the efficacy of teaching and learning communications. Students with and without hearing loss are directly influenced, as well as students who speak English as a second language, have communication disorders, or suffer from Music Induced Hearing Loss (MIHL). While the greater majority of studies focus on young children, post-secondary environments are critical. Course content is complex and novel, increasing difficulty and carrying learning consequences (Larsen, Vega, Ribera, 2008). Post-secondary instruction is delivered to independent young adults who do not seek accommodations under the Americans with Disabilities Act or may experience unrecognized/undiagnosed hearing loss due to MIHL.

This project investigated [university's] auditoriums and the efficacy of these environments. This presentation will summarize evidence-based design recommendations for optimal learning environments for students and teachers who are deaf and hearing, document the university's auditoriums in the context of established acoustical design principles and codes, and analyze the efficacy of the auditoriums against the requirements.

Auditoriums seating more than 200 students (N = 10) were identified through classroom scheduling software. Individual faculty (N = 46) teaching 48 unique courses were contacted for participation, and faculty (n = 13) teaching in different auditoriums (n = 9) agreed to participate. Participating faculty completed an informed consent. Data collectors attended classes and sat in one of six locations and documented their position and recorded classroom activities (e.g., faculty speaking, playing video or music, students discussion, general activity such as talking and keyboarding, packing up bags, etc.). A Niosh sound application was used to record ambient noise levels in 10-minute increments (e.g., student arrival and settling down, lecture, wrap up, student departure). The application provides a Decibel A (dBA) calculation, adjusting for human hearing and averaging the sound over the determined interval.

Each auditorium was documented in plan, elevation, reflected ceiling plan, and Noise Reduction Coefficients were estimated using the prescriptive method. Eight auditoriums had complete data for analysis.

The findings reveal that all but one auditorium had background noise levels in some areas that exceeded the recommended 40 dBA (ANSI, 2010). Four auditoriums had areas where the recommended Signal to Noise Ratio (SNR) fell below the recommended 20dB. One auditorium's background noise level ranged between 44.5 dBA and 48.7 dBA, and recorded in-class sound levels ranged between 71.1 dBA and 75.4 dBA. Prolonged exposure to noises exceeding 70 dB can result in permanent hearing damage. An estimated 10% - 35% of auditorium seats were acoustically poor.

This project analyzed the acoustical conditions of auditoriums used in post-secondary instruction. If 20% of auditorium seats are not optimal, students with and without hearing loss are missing important information. Reverberation times, HVAC systems, noisy technical devices, echoes, and deficiencies in sound systems were identified as consistent problems. High student enrollments result in auditoriums filled to capacity, creating a challenging learning environment. Faculty experience fatigue in acoustically poor environments. Projecting one's voice and repeating material, though many faculty imagine they have a "teacher's voice," is physically and cognitively exhausting (Polewczyk & Jarosz, 2020). Mindful design, construction, and maintenance are critical to effective learning environments, impacting students with and without hearing loss and their faculty. A full description of the findings will be presented.

REFERENCES

Larsen, J. B., Vega, A., and Ribera, J. E. (2008). The effect of room acoustics and sound-field amplification on word recognition performance in young adult listeners in suboptimal listening conditions. *American Journal of Audiology*, 17, 50-59.

American National Standards Institute. (2010). ANSI/ASA S12.60-2010, Acoustical Performance Criteria, Design Requirements, and Guidelines for Schools, pg 5.

Polewczyk, I., Jarosz, M. (2020). Teachers' and students' assessment of the influence of schoolrooms acoustic treatment on their performance and wellbeing. *Archives of Acoustics*, 45(3), 401-417.

Augmented Reality Insights for Window Design in Small Living Spaces: Exploring Preferences of Window Size and Placement for Perceived Comfort

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ABSTRACT

Small living spaces are becoming increasingly popular as a solution for affordable housing (Shearer & Burton, 2023) and sustainable ways of living, especially in densely populated urban environments. Previous research has highlighted the importance of factors such as home crowding and housing instability (Gifford, 2007) and a general preference for larger floor areas, higher ceilings, and organized spaces (Stamps, 2011). Conversely, inadequate floor areas, defined as less than 75 square feet, have been associated with elevated stress levels (Chan et al., 2020).

Windows are pivotal to the comfort and livability of compact living spaces. Brightly lit spaces with larger windows are perceived as more spacious and preferred (Bokharaei & Nasar, 2016). Despite the importance, the impact of specific window properties on psychological well-being is largely unexplored. This study uses augmented reality on a physical mockup to explore preferences for window dimensions and placement, and their impact on perceived comfort in small living spaces.

We developed a 64 sq. ft (8' by 8') physical small space mockup in our research lab, and a simulation of an interactive augmented reality (AR) window overlaid on the wall, controlled by Microsoft HoloLens 2 AR headset and handheld controllers, shown in Fig.1. Thirty-six college students participated in this experimental study for research credits. Upon arrival at the lab, participants completed a questionnaire that included demographic information, perceived comfort, and previous AR experience. They were then introduced to the HoloLens 2 headset and controllers through a brief tutorial. Following this, participants entered the mockup room and conducted a cognitive walkthrough, simulating daily activities like moving around, dining, and working as if they resided there. Participants were instructed to adjust the window edges to their desired size and reposition it on the wall using AR. Throughout this interaction, they were encouraged to verbalize their thoughts. The amount of daylight was automatically adjusted based on their manipulations, while sun orientation, time of the day, and artificial interior lighting were kept constant. At the end of the session, each participant took another

questionnaire to evaluate their final levels of perceived comfort. Empatica E4 wristband was also used to record cardiac data to detect pulse using Photoplethysmography (PPG).

Our experiment results show that window size and placement impacted participants' psychological responses and spatial perception. Overall, larger windows not only decreased anxiety and stress levels but also made the space perceptually larger, contributing to a sense of openness. However, some reported lower levels of experienced privacy with larger window sizes. Participants also preferred specific window positions for certain exterior views, daylighting and privacy. This result yields valuable insight that it is crucial to find a balance between maximizing daylight and outdoor views while ensuring privacy in the future design and construction of small spaces. Flexibility or mechanisms for the resident to adjust window openings is also desired to suit individual needs. In our experiment, the use of AR allowed participants to directly customize the window, offering an immersive and interactive experience. AR proved cost-effective and offered broader possibilities than building physical prototypes. However, it didn't completely mimic real-world window conditions. Therefore, future directions of the study include investigating ways to incorporate more real-time environmental factors into the mockup. Additionally, we plan to broaden our sample beyond college students, focusing on low-income groups more pertinent to compact living space and considering potential cultural variations in window preferences.

REFERENCES

Bokharaei, S., & Nasar, J. L. (2016). Perceived spaciousness and preference in sequential experience. *Human factors*, 58(7), 1069-1081.

Chan, S. M., Wong, H., Chung, R. Y. N., & Au & Yeung, T. C. (2021). Association of living density with anxiety and stress: A cross-sectional population study in Hong Kong. *Health & social care in the community*, 29(4), 1019-1029.

Gifford, R. (2007). *Environmental psychology : principles and practice*. Optimal Books, Cop.

Shearer, H., & Burton, P. (2023). Tiny houses: movement or moment? *Housing Studies*, 38 (3). 360-382



Fig. 1 : Mockup of a small space with adjustable window in HoloLens 2

Beyond Aesthetics: Psychological Impact Of Color In Promoting Restoration And Belonging In Higher Education Environments

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ABSTRACT

Stress has been acknowledged as a major obstacle for academic achievement as well as overall wellbeing for higher education students. Recent research paints an alarming picture, pointing to increasingly poor social connections, dwindling motivation, and rising depression rates exacerbated by the COVID-19 pandemic, repercussions of which are still felt throughout many facets of life (Gavurova et al., 2022; Pascoe et al., 2020). Even though there are a lot of discrepancies in terms of focus, the positive impact of color use on occupant psychology and wellbeing is a widely researched subject with many benefits being demonstrated through empirical data (Elliot & Maier, 2014). Although limited, research exists on the effects of color on wellbeing in various youth settings (Kaya & Epps, 2004; Kurt & Osueke, 2014), the findings indicate an opportunity for guiding color use in promoting restoration and belonging in higher education environments. Nevertheless, research on the impact of color within the higher education design context is virtually non-existent. Considering the increasing wellbeing issues in higher education, and the potential positive impact that can be derived through deliberate use of color in higher education settings, this research will investigate the influence of color in promoting mental restoration and the sense of belonging.

The data is collected through a visual environmental preference survey consisting of 24 questions regarding spaces most relevant to higher education environments: lecture/studio spaces, transitional/connective spaces, collaboration spaces, breakout spaces, reflection spaces, socialization/casual spaces. Independent spatial variables are color schemes, extent of color application, as well as luminosity, pattern, and sheen characteristics. Convenience sampling is utilized to create a participant group involving students from a variety of programs situated in multiple different buildings across an R1 university campus (n=140+). The questions focus on changes in relative stress, attention level, sense of belonging, and aesthetic preferences. The statistical analysis (Shapiro-Wilk test, Tukey's HSD, Pearson Correlation Coef.) will investigate differences and correlations between responses to aesthetic preferences, as well as in between other points of focus.

Based on the findings, a guideline for restorative use of color will be proposed with the goal of improving the productivity and mental wellbeing of students occupying contemporary higher education environments.

REFERENCES

Pascoe, M. C., Hetrick, S. E., & Parker, A. G. (2020). The impact of stress on students in secondary school and higher education. *International Journal of Adolescence and Youth*, 25(1), 104-112. <https://doi.org/10.1080/02673843.2019.1596823>

Kurt, S., & Osueke, K. I. (2014). The effects of color on the moods of college students. *Sage Open*, 4(1). <https://doi.org/10.1177/2158244014525423>

Kaya, N., & Epps, H. H. (2004). Relationship between color and emotion: A study of college students. *College Student Journal*, 38(3), 396-405.

Gavurova, B., Khouri, S., Ivankova, V., Rigelsky, M., & Mudarri, T. (2022). Internet addiction, symptoms of anxiety, depressive symptoms, stress among higher education students during the COVID-19 pandemic. *Frontiers in Public Health*, 10, 893845. <https://doi.org/10.3389/fpubh.2022>.

Building an Evidence-Based Environmental Assessment Tool to Link to Quality Outcomes: Measuring the Role of the Interior Environment

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ABSTRACT

Evidence-based design has become a more common framework for creating interior design solutions that are intended to have measurable outcomes (Hamilton, 2003). There are inherent challenges, however, in drawing conclusions about the correlations (or causation) between specific components of the built environment, human experience, and/or measurable outcomes. First, design is never deterministic, and all settings that involve people are dynamic settings. Second, the right tools are required; they must be validated, and they must be able to capture what matters. The designed environment is an important, some would argue critical, component related to the models of senior care (Fazio, 2008). Over five decades of research have demonstrated the impact of the designed care environment specifically for persons living with dementia (PWD) (e.g., Cohen & Weisman, 1991). Over the past three decades, numerous environmental assessment tools have been developed, responding to a changing set of care industry values that increasingly prioritize a holistic, quality-of-life-driven person-centered care (PCC) model over a biomedical approach to long-term care provision (Elf, et al., 2017). PCC has been identified conceptually as best practice for how care should be provided but there has been a lack of corresponding consensus and guidance to address the physical environment as a therapeutic resource (Slater, 2006; Shier, et al., 2014). Further, since care services and their environmental settings have become more distinctive and complex, it is necessary to have tools that can discriminate between different care models. To date, no such (fully validated) tool is available for designers and long-term care providers. One emerging tool is being developed, tested, and validated to fill this gap. The Environmental Audit Screening Evaluation (EASE) tool has an evidence-based structure to provide an evaluative assessment of 130 characteristics for long-term care settings, including those designed to serve PWD.

This research initiative has included a multi-tiered approach to bridging current gaps between environmental assessment tools and their ability to articulate features, or constellations of features, that can distinguish environmental settings along a spectrum of person-centered care delivery. First, a systematic literature review, following the protocols from Elf and colleagues (2017) identified a total of 13 environmental assessment tools for shared residential settings. The results of this review demonstrated variable applicability relative to the number and variety of measures considered. The results of this review also demonstrate that current assessment tools for long-term care environments have limited generalizability or ability to be linked to specific quality outcomes. Next, the EASE tool was administered to 28 living areas (LAs) in 13 nursing homes similar in their operational approach to PCC but with different LA designs. LAs were stratified into three categories (traditional, hybrid, and household) based primarily on architectural/interior features. The EASE scores were compared against three existing tools for construct validity; the Therapeutic Environment Screening Scale (TESS-NH), the Professional Environmental Assessment Protocol (PEAP), the Environmental Audit Tool (EAT-HC). Initial testing of the EASE shows that it has the capacity to begin to distinguish different categories of design approaches as well as capture critical components associated with quality of life and person-centered care. This presentation will first share key findings from a comprehensive literature review of current environmental assessment tools that include those that are dementia specific as well as person-centered. Next, the structure and measurement strategy of the EASE tool will be described. Finally, results will be shared that demonstrate the capacity of the tool to discriminate between models of care.

REFERENCES

- Elf, M., Nordin, S., Wijk, H, & Mckee, K. (2017) A systematic review of the psychometric properties of instruments for assessing the quality of the physical environment in healthcare. *Journal of Advanced Nursing*, 73(12). 2796-2816.
- Fazio, S. (2008) Person-centered care in residential settings: Taking a look back While continuing to move forward. *Alzheimer's Care Today*, 9. p. 155-161.
- Hamilton, D. K. (2003, Nov. 1) The four levels of evidence-based practice. *Healthcare Design*. Available from: <http://www.healthcaredesignmagazine.com/article/four-levels-evidence-based-practice?page=show>.
- Shier, V., Khodyakov, D., Cohen, L., Zimmerman, S., & Saliba, D. (2014). What does the evidence really say about culture change in nursing homes? *The Gerontologist* 54(S1) S6-S16. doi:10.1093/gerant/gnt147

Catalyzing Creativity: An Examination of the Role Artificial Intelligence (AI) in Enhancing Conceptual Thinking in Early Design Studios

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ABSTRACT

The rapid integration of Artificial Intelligence (AI) in the design field holds a significant promise to reshape the domain substantially. According to Kannengiesser & Gero (2019), AI can assist in a myriad of design tasks, such as creating design alternatives, generating visualizations, and refining designs. With the advent of technological advancements, the discourse is shifting from questioning the creativity of AI to exploring how AI can enhance the creative abilities of designers. While the inclusion of AI in early design education has been addressed by researchers (Chan, & Lee, 2020; Tang, et al., 2022), there remains a gap in understanding how AI could influence creative thinking in early design studios.

Traditionally, the evolution of the design process is seen as a step-by-step progression. Hillier et al. (1972) propose a conjecture-analysis model for the design process, arguing that a problem should be pre-structured, either explicitly or implicitly, to be manageable. This model is further elaborated by Darke (1979), who identifies the primary generator as the concept that leads to a solution before the conjecture stage. Given the critical role of this conceptual stage in the design process, understanding the impact of AI on concept generation is crucial. The question arises: how can Creative AI assist design students in grasping creativity, and if so, how can this creativity be evaluated? Researchers emphasize the importance of assessing creativity in the design process rather than just the design product. The design processes can be empirically evaluated using the concept of entropy, as Kan et al. (2005) noted that a higher level of entropy suggests a more creative design process.

This study employed a mixed-method design to assess creativity in both process and product, with the aim of exploring how Creative AI influenced the design process during the concept generation phase. 40 students in early design studios were randomly divided into two groups. Initially, each group received a design brief to create a piece of urban furniture. Then, both groups received another design

brief to design a different piece of urban furniture. For both tasks, the focus was on concept development and documentation through sketches and 3D renderings. In the first design task, only one group had access to a text-to-image generating AI (such as Dall-E, midjourney, and Interior AI) to assist with their concept development. The use of AI was not permitted in the second design task. Following this, three design professionals evaluated the design outcomes using the Creative Product Semantic Scale (CPSS). Additionally, the NASA TLX questionnaire was utilized to measure cognitive load in both conditions for each design task. Five randomly selected students' design processes from each group from each design task were also audio and video recorded for later protocol analysis. This study primarily aimed to address how design and design education could be impacted by AI.

The findings suggest a lower cognitive load in the AI group during the second task compared to the non-AI group. Moreover, the AI group displayed significantly higher creativity in both the final product and design process of the second task compared to the non-AI group, highlighting AI's potential to enhance cognitive efficiency and creativity in design-centric tasks.

REFERENCES

Kannengiesser, U., & Gero, J. S. (2019). Design thinking, fast and slow: a framework for Kahneman's dual-system theory in design. *Design Science*, 5, e10.

Tang, T., Li, P., & Tang, Q. (2022). New strategies and practices of design education under the background of artificial intelligence technology: online animation design studio. *Frontiers in Psychology*, 13, 767295.

Hillier, B. (1972). Architecture and engineering in environmental education. *Architectural Research and Teaching*, 111- 118.

Kan, J. W., & Gero, J. S. (2005). Can entropy indicate the richness of idea generation in team designing. *CAADRIA05*, 1, 451-457.

Challenging our Assumptions: The Efficacy of Biophilic Design Choices when Designing for Attention Restoration

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ABSTRACT

Directed attention, or the ability to attend to oneself and environment is ubiquitous with human consciousness. The world today contains an unprecedented amount of virtual and environmental stimuli to attend to, resulting in many humans struggling to reconcile with the attention demanding and depleting nature of urban environments (Basu et al., 2019). Attention Restoration Theory (ART) research empirically supports the finding that a visual connection to nature refreshes an individual's short-term attention. However, in settings removed from direct nature exposure, meaningful application of ART's properties becomes obscured in interiors (Neilson, 2019). This begs the question, to what degree do indoor biophilic multisensory environments restore attention? How do indoor restorative environments compare to outdoor restorative environments?

Sustaining directed attention is especially difficult for students. Higher education has shifted to a hybrid digital and in- person educational environment in which physical and virtual events of competing importance may exist within the same structure, adding texture to the nature of directed attention in the academic environment (Copeland et al, 2021).

Excessive cognitive fatigue can cost students time, stress, and impair their ability to do what they set out to do with their lives. This study examined how a ten-minute break in three biophilically-enhanced environments might improve directed attention spans in college students during the mid-term weeks of a fall semester. The degree of nature exposure was addressed by adding biophilic sensory stimuli of sound, floral aromas, a nature video, and living plants.

Methods

The mixed methods study captured 27 students' responses through testing, observation, and reflective responses to examine the degree of impact of the restorative interventions. Students were given a ten-minute break where they were encouraged to relax however they would like, so long as they do not use their cell phones or engage in any other work- related tasks. All indoor groups had zero-gravity lounge chairs and yoga mats to rest on. The control group did not have any additional stimuli. The

auditory group and multisensory indoor groups had stereo speakers playing 10 Hz binaural beats. Additionally, the multisensory indoor group had living plants, fragrant flowers, and a nature video. The outdoor group completed a mapped-ten-minute walk in a landscaped area of campus. Following the intervention, participants were asked to describe the break. Responses were coded according to ART's ten properties. Though it was hypothesized that the outdoor group would see the largest improvement in attention spans, the multisensory indoor group had the largest score increase, with the auditory group yielding a p-value of 0.009 lower than the multisensory indoor group. Conversely, the outdoor campus walk and control group did not have a significant improvement in scores.

Conclusion

The preliminary findings and survey responses indicate trends that (1) previous experience with mindfulness encourages attention restoration in settings with low biophilic sensory stimuli, (2) intentionally designed acoustics and physical comfort may offer a higher degree of respite than digital visual stimuli in interior spaces. However, due to the small sample sizes, the degree of influence that natural elements have on restorative experiences on university campuses cannot be clearly determined by the results of this study.

Implications

The captivity that awe-inspiring environmental features have over one's attention is an evolutionary curiosity that transcends cultural boundaries and offers respite in infinite potential scenarios. By prioritizing restorative opportunities in the built environment, building occupants might experience effortless and sustained attention with more ease and autonomous control. The presentation will offer suggestions as to how this might be achieved in interior spaces.

REFERENCES

Basu, A., Duvall, J., & Kaplan, R. (2019). Attention Restoration Theory: Exploring the role of soft fascination and mental bandwidth. *Environment and Behavior*, 51(9–10), 1055–1081.
<https://doi.org/10.1177/0013916518774400>

Copeland, W. E., McGinnis, E., Bai, Y., Adams, Z., Nardone, H., Devadanam, V., Rettew, J., & Hudziak, J. J. (2021). Impact of COVID-19 pandemic on college student mental health and wellness. *Journal of the American Academy of Child & Adolescent Psychiatry*, 60(1), 134-141.e2.
<https://doi.org/10.1016/j.jaac.2020.08.466>

Neilson, B.N., Craig, C.M., Travis, A.T., & Klein, M.I. (2019). A review of the limitations of Attention Restoration Theory and the importance of its future research for the improvement of well-being in urban living. 10.13135/2384-8677/3323

Attention Restoration Properties

ART Properties	Definition of ART Property
<i>Being Away</i>	Being separate and apart from one's usual thoughts and concerns
<i>Compatibility</i>	Feeling enjoyment and congruence in your environment
<i>Extent</i>	Immersion in the environment
<i>Soft fascination</i>	Gently distracted and engaged in a low-stimulation activity, which reduces the internal noise and provides a quiet inner space to relax.
<i>Distraction</i>	The environment should not be distracting because it is highly stimulating, but because it requires little effort to sink into
<i>Deficit of information</i>	A restorative environment does not require the individual to search for information to make sense of it; the individual should already have all the information needed to understand and enjoy the environment
<i>Danger</i>	The environment cannot be dangerous in any sense of the word: whether physically or due to fear of looking foolish or acting inappropriately
<i>Duty</i>	The individual should not feel drawn to the environment out of a sense of duty or responsibility, but out of a desire for enjoyment and restoration
<i>Deception</i>	The individual should not be experiencing a discrepancy between the task they are doing and their true feelings about it
<i>Difficulty</i>	The environment must not be one in which individuals need to prepare or anticipate difficult situations to navigate; Daniel, 2014

Study Responses and Scores

Number	Response	Pre Score	Post Score	Meditated?	Score Improvement
Binaural Acoustic					
1	I laid in a lounge chair for ~10 minutes, closed my eyes and listened to what I assume were meditation sounds. I used the time to relax and reminisce, it was nice.	224	223	1	-1
2	it was very calm and peaceful	224	225	0	1
3	It was relaxing, a nice break from a busy school day.	217	214	0	-3
4	the break was very peaceful and settling. The music helped relax my mind and all the intruding thoughts left. I think I'll start to include similar music into my study habits.	222	224	1	2
5	Relaxing, emersed, calming. Made me realize I need to meditate more often. Felt intune with myself.	210	221	1	11
6	I just sat in a chair and had a snack.	217	218	0	1
7	Very peaceful, the music was very relaxing and I could just take a minute to not have to think about anything and just relax.	210	211	1	1
8	It gave me time to sit back and just think. I haven't really haad a break all day, so it was rewarding.	208	222	1	14
9	The break was in a dimly lit room with calming music in the background. I sat throughout the entire duration of the break and could feel myself relaxing gradually as the time progressed. For about the second-half of the break, I felt myself getting almost tired and felt my eyes closing a couple of times.	215	219	0	4
Multisensory Indoor					
10	The break made me feel relaxed and calm as if I zoned out temporarily, the underwater video was very peaceful as well as the plants in the room	215	212	1	-3
11	It was relaxing	219	224	0	5
12	very relaxing and stress relieving	224	223	0	-1
13	It was very relaxing, provided comfort and a sense of safety.	220	221	0	1
14	Sitting in a chair watching nature videos surrounded by plants.	218	219	0	1
15	It was very relaxing and the videos of the turtles and fish really allowed me to relax	218	220	0	2
16	It was very relaxing, at some points I almost fell asleep and my mind was blank and wandering	215	220	1	5

Study Responses and Scores

Control

17	It was relaxing for me.	219	216	0	-3
18	the break was long	217	220	0	3
19	I did not realize it had been 10 minutes lol. I just mediated	218	217	1	-1
20	Quiet, time to think.	222	218	1	-6
21	Meditative	211	225	1	14
22	The break was pretty relaxing although nature noises would have made it even more so.	221	217	0	-4

Multisensory Outdoor

23	I was able to see a couple spots that I haven't been before like the middle of azalea and magnolia as well as the little hut that is hidden in the woods next to Landis. I also noticed a lot of different plant life that was more diverse than I thought. It was a very peaceful walk overall and was a nice break from classes.	220	223	0	3
24	It was very relaxing, although it was slightly stressful having to follow the map. The nature was very serene though, and I felt like my head was cleared	224	225	0	1
25	The break was a peaceful walk outside around campus, mostly in the shade which was nice since its a bit warm out.	223	221	0	-2
26	I felt like the numbers were faster initially. Although after the first 10 my perception of the speed was that of the speed pre test which it likely was. I feel a bit less attentive.	220	222	0	2
27	The break was a nice change in pace where your mind could get rest.	218	223	0	5

Scholarship of Design Research | Presentation

Co-Designing for Neurodiversity in Museums: Community Engaged Research for Improving Museum Visitability,

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ABSTRACT

Introduction

Museums have been called to focus efforts on underserved visitors such as neurodiverse individuals (NIs) including those who identify with the Autism Spectrum Disorder (ASD) community and often experience heightened anxieties navigating museums. Museum interiors are increasingly becoming hybrid spaces that offer a variety of digital media and sensory experiences and can be challenging environments for NIs who process sensory information in ways that are different from neurotypical visitors (Crane, Goddard, & Pring, 2009). Our project explores designing across the digital-physical spatial continuum to empower NIs to independently prepare for, navigate, and experience museum visits. We use digital twin technologies to co-design a 3D-Story 360° model as a resource for improving museum visitability and enhancing museum interiors for NIs. As a virtual replica of an existing building, a digital twin (DT) can be used to improve a building's physical environment (Dembski et al., 2020). Our project builds on research that suggests making a social story (Kokina & Kern, 2010) more spatial can be beneficial for NIs by providing more contextual information and helping to reduce anxiety from lack of perceived control in a new social context (Rapp et al., 2018),

Co-design Research

Intended to improve museum visitability for neurodiverse visitors, this community-engaged research focuses on co-designing with neurodiverse visitors for a discovery museum using digital twin technologies. This study focuses on the participatory co-creation process involving a team of interior design students designing with a school of neurodiverse students to create a 3D-Story using a virtual replica of the museum (digital twin) that was embedded with information including tags, audio, and video to create a new type of social story to prepare for visiting the museum and serve as a resource during the visit.

First we conducted a co-design workshop with neurodiverse students focused on the design of the 3D-Story 360° model and captured their feedback participating in the co-design workshop through audio and artifacts they created. Next, the neurodiverse students and their teachers visited the discovery museum to experience the physical environment and give additional feedback about the type of information that should be embedded in the 3D-Story. Interior design students recorded observations during the visit. Finally, immediately after the visit, we conducted a focus group with teachers and students about how their experiences during the visit could inform the continued design of the 3D-Story. This study draws on data from the co-design workshop along with the museum visit observations and focus groups.

Emerging Findings and Implications

The emerging findings from the co-design workshop indicate the role of the technological affordances of digital twins in impacting museum visit preparation. Additionally, the participant feedback about the co-design workshop provides insights about engaging with neurodiverse youth and methods for enhancing participation in the co-design process. The museum visit observations and focus group sessions with neurodiverse youth and instructors highlight the role of tools for hybrid interiors.

This study and the emerging findings suggest that digital twin technologies have potential to expand inclusive resources for interior environments such as museums. Shareable and web-accessible, the 360° digital twin museum model with embedded neurodiverse-centered content can provide open-access and lightweight way to communicate building resources to visitors and occupants. As immersive interior environments are becoming more dependent on a convergence of digital and physical experiences, this study identifies strategies for designing interior environments across the digital-physical continuum. Our research also has implications for design education and principles for designing connected and hybrid interior environments.

REFERENCES

- Crane, L., Goddard, L., & Pring, L. (2009). Sensory processing in adults with autism spectrum disorders. *Autism, 13*(3), 215-228.
- Dembski, F., Wössner, U., Letzgus, M., Ruddat, M., & Yamu, C. (2020). Urban Digital Twins for Smart Cities and Citizens: The Case Study of Herrenberg, Germany. *Sustainability, 12*(6), 2307. MDPI AG. Retrieved from <http://dx.doi.org/10.3390/su12062307>
- Langa, L. A., Monaco, P., Subramaniam, M., Jaeger, P. T., Shanahan, K., & Ziebarth, B. (2013). Improving the museum experiences of children with autism spectrum disorders and their families: An exploratory examination of their motivations and needs and us
- Kokina, A., & Kern, L. (2010). Social Story™ interventions for students with autism spectrum disorders: A meta-analysis. *Journal of autism and developmental disorders, 40*(7), 812-826.

Collegiate football facilities and success: Design upgrades of practice facilities and the impact of recruitment and win's in collegiate NCAA football

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ABSTRACT

Every year, scouts of collegiate teams in accordance with the National Collegiate Athletic Association keep track of the recruiting class' athletes for potential college football prospects all over the nation. The scouts form these rankings based off of game tapes and recorded evaluations from events and combines attended by athletes in hopes of getting picked up by a top team (Miravile & White, 2016). The best way to acquire ESPN top 300 recruits is by having a successful football program (Caro, 2012). A successful program is defined as having state of the art equipment and technology required within their training facilities. It's been shown that facility quality is important to not only the recruiting process, but also providing the specific needs of the current athletes. (Petersen & Judge, 2021). This means updating and upgrading the team's facilities every couple of years. The addition of equipment and attributes requires significant spatial changes. Certain teams choose to spend their budgets in different areas, not allowing them to be on the same level of performance as their competition (Langelett, 2003). This often results in losses of games and injury of players. When teams are not promising performance, recruits are likely to go with another team who is demonstrating this and can help them grow and potentially move further into the future (e.g., National Football League) (Dumond, Lynch, & Platania, 2008). It has been shown that team performance has an effect on recruits' decisions. Teams that are ending the season in the top 25 come January are typically rewarded within their recruiting class. This relationship, "...may explain why certain teams are able to continuously be top 25 teams and other teams are never able to rise substantially in their competitiveness" (Langelett, 2003 p. 244). With the allocated budget, teams with consistent loss tendencies can benefit from specific design decisions incorporating the latest technology and equipment in a successful layout (Langelett, 2003). By spending this money, teams are able to incorporate a wide variety of activities, including dining, socializing, studying, recreation, exercise, and relaxation, all under the same facility (Caro, 2012). As a consequence, an addition of resources for collegiate teams will result in a better chance at success.

This study asks, “How does practice facility design to include upgrades impact recruitment and success (measured in win/loss and ESPN top 300 recruits) in collegiate football”

Empirical research analyzes win/loss statistics from 2019-2022 seasons and compares that to schools with recent upgrades. This helps determine a few different collegiate facilities to visit and conduct a case study, including interviews, with. Literature reviews help support the information about the relationship between facilities and success. Interviews will be conducted with local university players about: reasoning for choosing the school they did, if they were top 300, and if there are any amenities currently lacking and could use improvement.

Findings are expected to inform the design of updating facilities for universities and showing how it can have an impact on team’s success whether that be direct performance or the recruitment for future seasons.

This helps universities that are lacking in success by encouraging them to consider upgrades or new facilities for the wellbeing and success of the team and program. With there being a current deficit in research connecting success directly with facilities, future researchers should develop this further with quantitative methods in hopes to add more to the knowledge.

REFERENCES

- Caro, C. A. (2012). College Football Success: The Relationship between Recruiting and Winning. *International Journal of Sports Science & Coaching*, 7(1), 139–152. <https://doi.org/10.1260/1747-9541.7.1.139>
- Dumond, J. M., Lynch, A. K., & Platania, J. (2007). An Economic Model of the College Football Recruiting Process. *Journal of Sports Economics*, 9(1), 67–87. <https://doi.org/10.1177/1527002506298125>
- Langelett, G. (2003). The Relationship between Recruiting and Team Performance in Division 1A College Football. *Journal of Sports Economics*, 4(3), 240–245. <https://doi.org/10.1177/1527002503253478>
- Mirabile, M. P., & Witte, M. D. (2016). A Discrete-Choice Model of a College Football Recruit’s Program Selection Decision. *Journal of Sports Economics*, 18(3), 211–238. <https://doi.org/10.1177/1527002514566278>
- Petersen, J. C., & Judge, L. W. (2021). Reframing the Collegiate Facilities Arms Race: The Looming Impact of NIL and Conference Realignment. *Journal of Applied Sport Management*, 13(2). <https://doi.org/10.7290/jasm13wlu7>

Confusion to Diffusion: Conceptualization via Artificial Intelligence

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ABSTRACT

The power of AI tools has grown exponentially in recent years, especially in the realm of image synthesis (Borji, 2022). Professionals in a variety of disciplines, including interior design, are currently wrestling with what role AI has in their respective industries. The capabilities of diffusion-based, text-to-image platforms and new AI-powered rendering applications exhibit rich potential for use in the design industry, but to what extent and in what ways are these tools useful to interior designers and interior design students? This presentation investigates three common text-to-image platforms and one emerging AI-powered rendering application, evaluating the potential of each as a tool for interior design conceptualization.

Due to the novelty of these types of AI platforms, existing literature regarding their use in interior design is limited. Furthermore, existing studies seem to largely examine the use of AI in residential interiors (Chen, 2023; Ploennigs & Berger, 2023). The case study examined in this presentation is a commercial application, specifically healthcare. This spatial type was chosen because it has a less robust visual image database, allowing exploration of the platforms' capabilities in other realms of the interior design industry.

The methodology for this study includes using student-generated concept statements for a medical office project as the basis for text prompts, entering these text prompts into three common AI platforms (Midjourney, DALL-E 2, and Stable Diffusion), and comparing the results of these text-to-image platforms to that of EvolveLAB's new AI-powered rendering plug-in, Veras. The image set generated by Veras was created using the same text prompts used for the text-to-image platforms, but the Veras application utilized the additional geometric data derived from the associated Revit model for each student project. For each of the four resulting image sets (generated by Midjourney, DALL-E 2, Stable Diffusion, and Veras, respectively), a qualitative content analysis was performed to gauge adherence to the specified text prompt. The resulting image sets were also evaluated and ranked based on pre-established criteria—creativity, applicability to the project type, plausibility, level of detail, and ease of workflow—aimed at measuring the usefulness of each tool for use in interior design conceptualization.

The findings of this study underline the need for further development of these platforms. Each had distinct advantages and disadvantages. Midjourney seemed to have the greatest promise of the text-to-image platforms, despite some clear shortcomings. Veras provided a clear advantage in its ability to base

results on modeled geometry. However, despite giving more control, the workflow eliminated some of the ease and immediacy found with the pure text-to-image platforms. Regarding conceptual development, this tool may be better suited to the exploration of simple forms/spaces, rather than complex interior environments.

Overall, given the potential exhibited here and in contemporary studies, further exploration of AI in interior design education is a worthwhile endeavor. The Council for Interior Design Accreditation charges educators with exposing students to “evolving communication technologies” (CIDA, 2022, 9f) and “current and emerging issues that are shaping contemporary society and the world” (CIDA, 2022, 4d). The exploration of AI in the interior design studio certainly provides a rich context for this type of exposure.

REFERENCES

Borji, A. (2022). Generated faces in the wild: Quantitative comparison of Stable Diffusion, Midjourney and DALL-E 2. arXivpreprint <http://arxiv.org/abs/2210.00586>

Chen, J., Shao, Z., & Hu, B. (2023). Generating interior design from text: A new diffusion model-based method for efficient creative design. *Buildings*, 13(7), 1861. <https://doi.org/10.3390/buildings13071861>

CIDA. (2022, January). CIDA Professional Standards 2022. Council for Interior Design Accreditation. <https://static1.squarespace.com/static/5c9ae7530490796e32442342/t/61def12b98890e3d27744c59/1642000683919/Professional+Standards+2022.pdf>

Ploennigs, J., & Berger, M. (2023). Ai Art in Architecture. *AI in Civil Engineering*, 2(8). <https://doi.org/10.1007/s43503-023-00018-y>

Decoding Perceptions of the Creative Environment: The Role of Personality Traits, Cognitive Styles, and Discipline

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ABSTRACT

Organizations that thrive in today's rapidly evolving landscapes are faced with the challenge of establishing workspaces that cultivate creativity. "But as the physical and technological structures for omnichannel collaboration have spread, evidence suggests they are producing behaviors at odds with designers' expectations and business managers' desires" (Bernstein & Waber, 2019, p.82). While opinions on how to best support the creative environment vary, the need for more nuanced research remains.

While many scholars have explored the role of the socio-physical environment on creativity (Amabile et al., 1996; Lee & Lee, 2023; Stokols et al., 2002), a vast majority of studies were designed to elucidate a universal conception of the creative environment. This fails to consider the potential for individuals to interpret these environments in diverse ways. Isaksen and Kaufmann (1990) noted, "It is quite plausible that individuals within the same workgroup would not assign similar meaning to their work environment" (p. 129). The current study addresses this gap by examining how individuals with different personalities, cognitive styles, and disciplinary backgrounds define their ideal creative environment.

RESEARCH QUESTIONS

- 1- What profiles of personality traits and cognitive styles characterize students in Architecture, Art, Construction Management, and Interior Design?
- 2- How do students from different disciplines define their ideal creative environment?
- 3- How are perceptions of the creative environment related to different personality traits and cognitive styles?

METHODOLOGY

The study used two standardized psychometric tests and a developed survey to understand how personality and cognitive style influence perceptions of the creative environment.

Participants: Included (n=200) Architecture, Art, Construction Management, and Interior Design students enrolled at a Southeastern AAU institution. The slate of disciplines, from artistic to technical, were selected to maximize cognitive diversity within a spectrum of allied design fields.

Profiling Personality Traits: The Adjective Check List (ACL) was used to inventory the personality traits of each participant. The ACL is a standardized self-report instrument composed of 300 adjectives that commonly describe diverse personality attributes. Respondents chose self-descriptive adjectives, which are compiled into a personality profile.

Profiling Cognitive Style: The Herrmann Brain Dominance Instrument (HBDI) identified participants' preferred thinking styles. The HBDI consists of 120 questions categorizing four thinking styles: Analytical, Intuitive, Synthetic, and Sequential.

Creative Environment Survey: Developed, pilot-tested, and administered to identify how each participant defined their ideal creative environment for working in their specific discipline. Included two open-ended questions and 30 scale items describing characteristics of the creative environment identified in the literature (collaboration, challenge, change, energy, informality, noise, play, etc.).

FINDINGS

The data revealed significant differences in cognitive styles by major ($p=.005$), with no significant differences in personality traits. Additionally, perceptions of the creative environment significantly varied by major for the following dimensions: playful vs. serious ($p < .001$), consistent vs. dynamic ($p = .002$), energetic vs. calm ($p=.003$), and accommodating vs. demanding ($p = .007$). The cognitive style data corroborated these findings. Finally, perceptions of the creative environment significantly varied among introverts and extroverts on collaboration ($p=.013$), control ($p=.008$), energy ($p=.05$), and noise ($p=.009$). Collectively, these results emphasize that perceptions of the creative environment are far from uniform. As a result, designers, researchers, and organizational leaders should consider more nuanced approaches when devising strategies to shape creative behavior and space.

REFERENCES

- Amabile, T., Conti, R., Coon, H., Lazenby, J., & Herron, M. (1996). Assessing the work environment for creativity. *The Academy of Management Journal*, 39(5), 1154-1184.
- Bernstein, E. & Waber, B. (2019). The truth about open offices: There are reasons why they don't produce the desired interactions. *Harvard Business Review*, 97 (6), 82-91.
- Isaksen, S., & Kaufmann, G. (1990). Adaptors and Innovators: Different Perceptions of the Psychological Climate for Creativity. *Studia Psychologica*, 32(3), 129-141.
- Lee, J. & Lee, S. (2023). Relationships between physical environments and creativity: A Scoping Review. *Thinking Skills and Creativity*. 48. 101276. 10.1016/j.tsc.2023.101276.

Design Feedback: Two-dimensional versus Virtual Reality Interfaces

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ABSTRACT

The transformative potential of Virtual Reality (VR) in interior design has garnered significant attention in recent years. Thanks to its immersive and interactive nature, VR promises a paradigm shift in how feedback is solicited and incorporated into the design process (Kalantari & Neo, 2020). However, empirical findings on the value of design feedback in VR are inconclusive. Compared to the two-dimensional (2D) interface of drawings and renderings, VR was found to be either a better predictor of design outcomes (Carrasco & Chen, 2021) or a complementary one that only captured certain aspects of the design shown (Agirachman & Shinozaki, 2021). These unsettling results set the stage for this study. We hypothesized that design feedback reflects different levels of engagement between the interfaces. For instance, VR showcases more engaging design features that permit detailed feedback on spatial arrangements and material specifics than the overall design impression provided by 2D drawings and renderings (Agirachman & Shinozaki, 2021; Carrasco & Chen, 2021; Reyes, 2018). These premises translated into the following research questions:

RQ1a. Does engagement differ between 2D and VR interfaces?

RQ1b. Does the quality of design feedback differ between 2D and VR interfaces?

RQ2. Are there differences between 2D and VR interfaces (such as engagement) that affect the quality of design feedback?

This study used the between-group design (n=100) to compare design feedback for a furniture showroom between 2D and VR interfaces; each condition had 50 Amazon MTurk workers. Each MTurk worker completed an online questionnaire administered on Qualtrics. The questionnaire included a consent form, demographic questions, the design presentation in either a 2D or VR interface, a text-entry box for feedback, and 5-point Likert items from the Engagement in Meaningful Activities Survey (EMAS) (Goldberg et al., 2002 as cited in Reyes, 2018). The 2D interface comprised a floor plan and multiple renderings, while the VR interface was a 360-degree interactive tour (Figure 1). No identifiable information was collected. All MTurk workers resided in the United States and received a \$3 compensation. We reported descriptive statistics for demographic questions (Figures 4-6), t-tests and

non-parametric Kruskal-Wallis H tests for EMAS results in 2D and VR interfaces, and feedback categories following Hattie and Timperley's (2007) codebook (Table 1).

Most MTurk workers were males (62%), with a bachelor's degree (86%), from 25 to 40 years old (69%), and were in management and administration occupations (47%). T-tests for EMAS results showed no significant difference in self-reported engagement (Figure 3) between 2D and VR interfaces (RQ1a). Feedback quality varied between the two conditions (RQ1b) and was categorized as task feedback (FT), process feedback (FP), self-regulation feedback (FR), and praise (FS). FR and FP represent complex feedback (design assessments and heuristics), FT is fundamental (explicit instructions), and FS is generally not preferred (Hattie & Timperley, 2007). MTurk workers in the 2D condition mainly provided FP, whereas those with VR gave a blend of FR and FT, indicating a mix of primary and advanced feedback quality (Figure 2). We also found significant correlations between demographics and self-reported engagement in two conditions—which might explain the feedback variances (RQ2). EMAS results varied by gender and occupation with the 2D interface and by occupation and degree with the VR interface. All Bonferroni-corrected p values were close to zero (<.01). Our study reinforces existing literature regarding the general overview (spread) and specific details (depth) of design feedback in 2D and VR interfaces (Agirachman & Shinozaki, 2021; Carrasco & Chen, 2021; Reyes, 2018), while also introducing the novel factor of demographic influence. Using both interfaces, thus, may yield the most comprehensive and beneficial design feedback.

REFERENCES

Agirachman, F. A., & Shinozaki, M. (2021). Design evaluation in architecture education with an affordance-based approach utilizing non-virtual reality and virtual reality media. *Technology | Architecture+ Design*, 5(2), 188–206.

Carrasco, M. D. O., & Chen, P.-H. (2021). Application of mixed reality for improving architectural design comprehension effectiveness. *Automation in Construction*, 126, 103677.

Hattie, J., & Timperley, H. (2007). The Power of Feedback. *Review of Educational Research*, 77(1), 81–112. <https://doi.org/10.3102/003465430298487>

Kalantari, S., & Neo, J. R. J. (2020). Virtual environments for design research: lessons learned from use of fully immersive virtual reality in interior design research. *Journal of Interior Design*, 45(3), 27–42. <https://doi.org/https://doi.org/10.1111/joid.12171>



Figure 1. Two testing conditions: 2D (left) and VR (right) interfaces of the same furniture showroom design project. Certain textual information was blanked out for peer review.

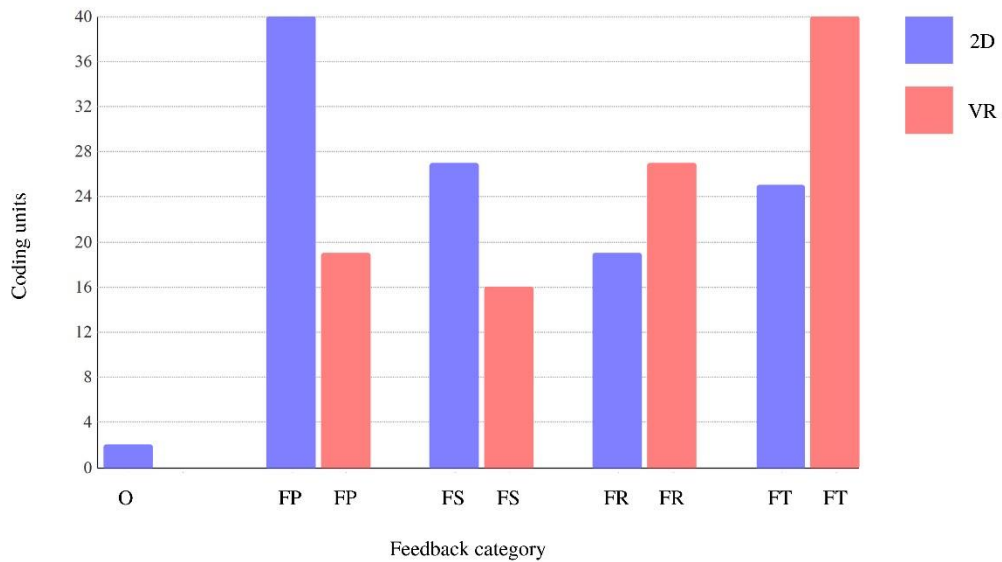


Figure 2. The distribution of feedback categories across two testing conditions: 2D and VR interfaces.

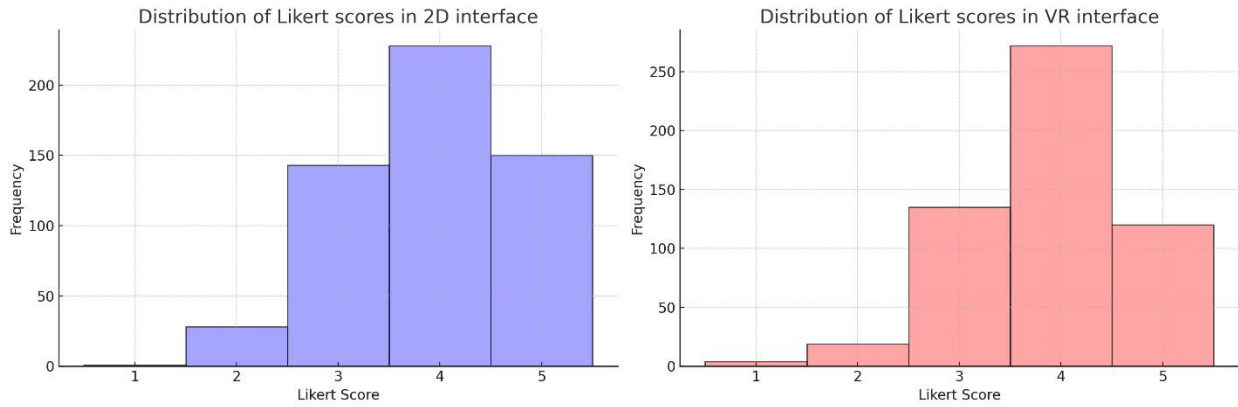


Figure 3. Histograms of Likert item scores in two testing conditions: 2D (left) and VR (right) interfaces. Bins show aggregated scores from 11 EMAS items across 50 workers per condition. We removed one item from the original instrument as it was irrelevant to the study.

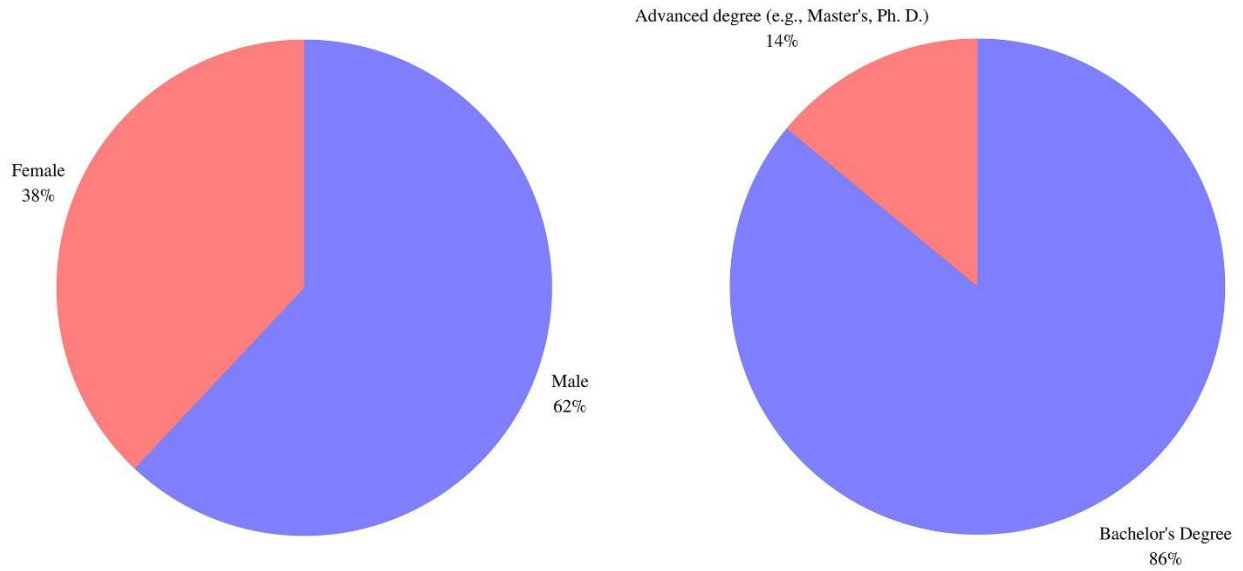


Figure 4. Participants' demographics: gender and highest degree.

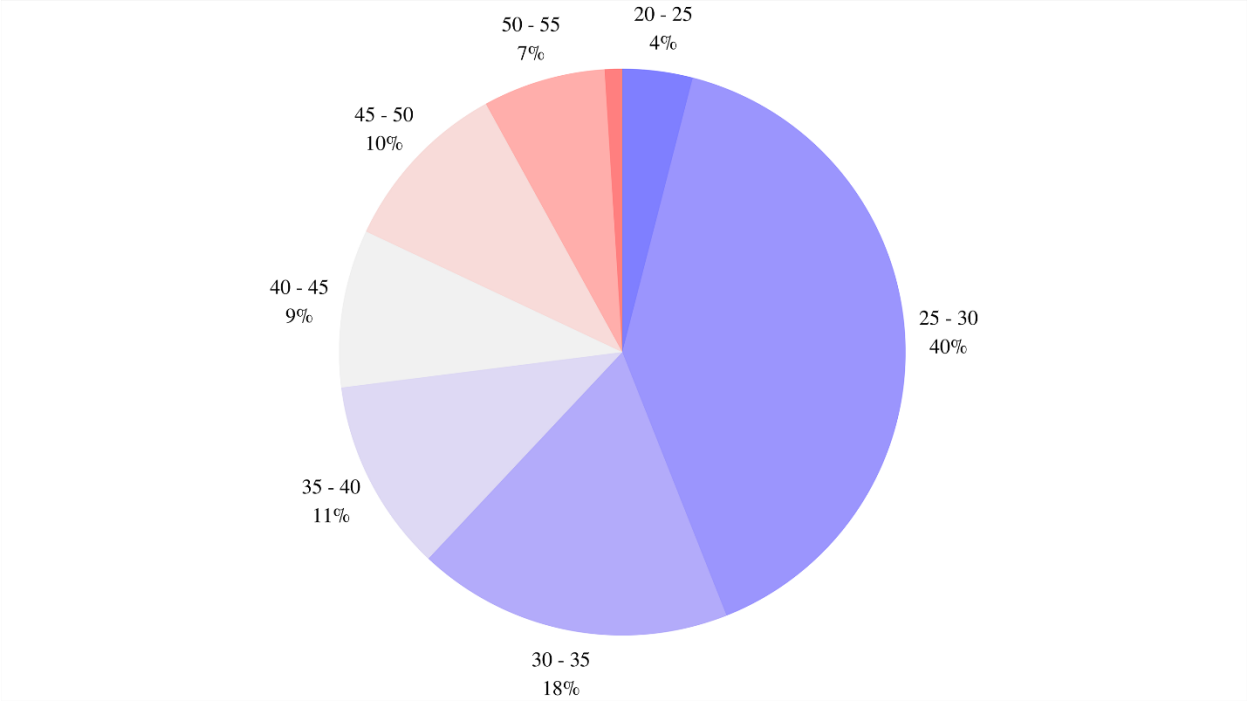


Figure 5. Participants' demographics: age groups.

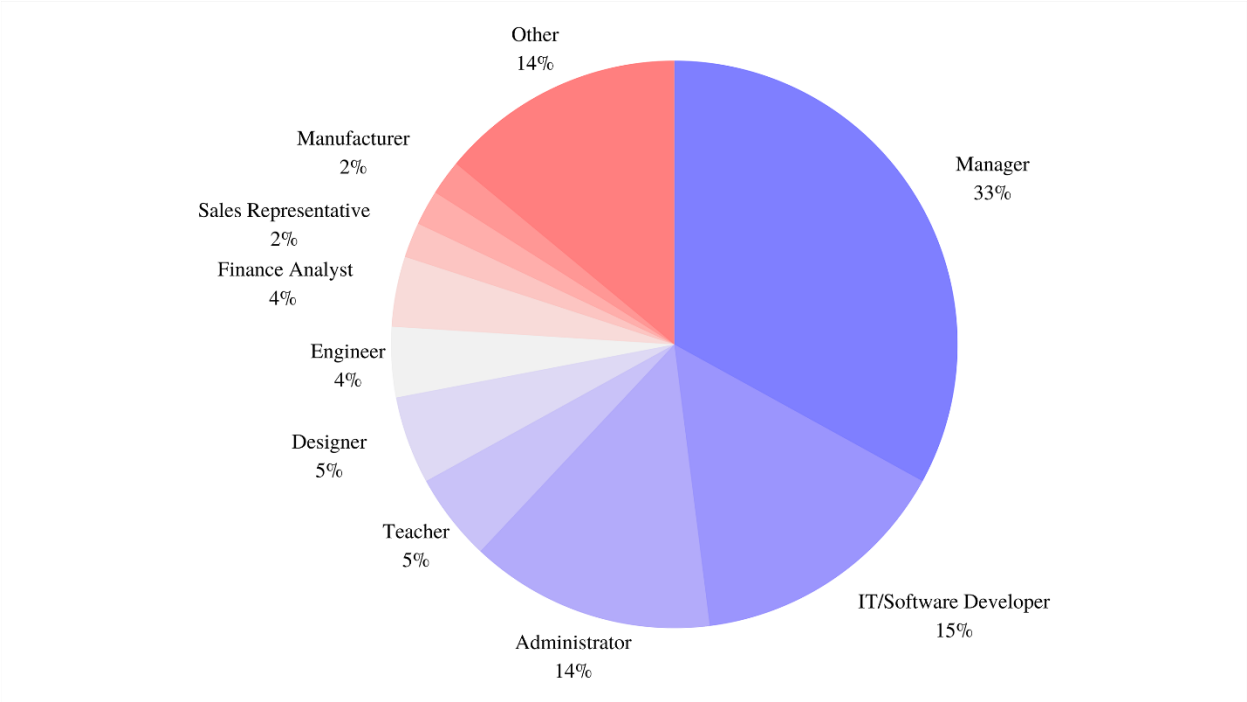


Figure 6. Participants' demographics: occupations.

Table I. Feedback category codebook.

	Definition	Quote
Task Feedback (FT)	<p>Comment on specific aspects of the design, including:</p> <ul style="list-style-type: none"> • Whether design elements are correct or incorrect regarding design principles, client preferences, or functionality. • Specific recommendations for improving the design. • Direct changes to the design without explanation. 	<p>“The contrast between the hues, which is strong and brilliant, produces a beautiful visual impression.”</p>
Process Feedback (FP)	<p>Comment on the design process, including:</p> <ul style="list-style-type: none"> • Design heuristics or strategies for a more effective design. • Assessments on conceptualization, space planning, lighting design, material selection, etc. 	<p>“The floor plan effectively utilizes the available space, providing a clear flow for customers to navigate through the showroom.”</p>
Self-regulation Feedback (FR)	<p>Comment on the designer’s self-assessment, including:</p> <ul style="list-style-type: none"> • Enforcements on design knowledge to motivate further exploration of the design. • Interpretations of the design as a client to encourage clarification and enhancement. 	<p>“I can see myself purchasing both for my home or office.”</p>
Self/Praise Feedback (FS)	<p>Express personal evaluations without specific design aspects.</p>	<p>“Very good design, and it looks nice.”</p>
Other (O)	<p>Any instance of feedback that did not fit into the categories above.</p>	<p>“There is one receptionist at the table.”</p>

Scholarship of Design Research | Presentation

Development and Evaluation of Veterans Healthcare Environments: Implication for Female Veterans

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ABSTRACT

There are two million female veterans in the United States (US Department of Veterans Affairs, 2022). Veterans are often diagnosed with mental health challenges, the most common being post-traumatic stress disorder (PTSD). There has been an increase in VA healthcare use amongst both male and female veterans, however, there is still an underutilization of VA services for female veterans (Maisel et al., 2015). When designing a healthcare facility, historically there has been little consideration of the impact the design of the healthcare environment has on the quality and safety of patients (Reiling et al., 2008). Efforts to improve patient and staff healthcare environment conditions could be accomplished using evidence-based design. Minimizing environmental stressors for patients can be the first step in improving the healthcare environment for patients. Interior design attributes such as color, lighting, layout, and imagery could be used to control stressors (Joseph, 2006). There is currently limited research in evidence-based design for those who suffer from PTSD. Current treatment options for PTSD can include medication and most commonly cognitive behavioral treatment (CBT) (Nuamah et al., 2021). The purpose of this study is to better understand the needs and preferences of male and female veterans to enhance the design of a veterans healthcare environment. Although this study is focused on improving the mental health and well-being of female veterans, gathering data from male and female veterans may show the different needs, emotions experienced, and preferences of design when in a veteran healthcare environment between males and females. The study was conducted in three phases: a) a needs assessment focus group and survey, b) the development and redesign of an existing veteran healthcare waiting room, and c) an evaluation of user perceptions. Phase one consisted of participants taking a needs assessment focus group and survey. The focus group questions included open-ended questions on preferences for interior design attributes of veteran healthcare environments. For instance, we asked participants, "What design elements are important to you as a

veteran and why?" The needs assessment survey was created using Qualtrics and consisted of demographic questions and Likert scale questions with a few open-ended questions. The first group of the Likert scale questions consisted of asking participants to rank their emotions experienced (calm, secure, tense, comfortable, etc.) when in a veteran healthcare environment they often visited. The second group of the Likert scale questions asked participants to rank interior environmental design attributes from least important to most important for a veteran healthcare environment. The focus group had 16 participants, 8 male and 8 female veterans. The needs assessment survey had 30 participants, 15 male and 15 female veterans. Content Analysis was used to analyze the focus group data, and a 2x2 ANOVA was used to analyze the survey data. Preliminary findings from the needs assessment showed differences between male and female veterans in terms of their preferences for design attributes in veteran healthcare environments. This research offers critical insights into the architectural and environmental design considerations essential for optimizing healthcare facilities to cater to the unique needs of both male and female veterans, thereby contributing to the enhancement of their overall healthcare experience.

REFERENCES

U.S. Department of Veterans Affairs, V. H. A. (2022, March 28). Va.gov: Veterans Affairs. Facts and Statistics. Retrieved April 3, 2023, from <https://www.womenshealth.va.gov/materials-and-resources/facts-and-statistics.asp>

Maisel, N. C., Haskell, S., Hayes, P. M., Balasubramanian, V., Torgal, A., Ananth, L., ... & Frayne, S. M. (2015). Readying the workforce: evaluation of VHA's comprehensive women's health primary care provider initiative. *Medical Care*, 53(4), S39- S46.

Reiling, J., Hughes, R. G., & Murphy, M. R. (2008). The impact of facility design on patient safety. *Patient safety and quality: An evidence-based handbook for nurses*.

Joseph, A. (2006). *The role of the physical and social environment in promoting health, safety, and effectiveness in the healthcare workplace*. Concord, CA: The Center for Health Design.

Does proximity still matter in the office? Ways designers manage project communication in hybrid work environment.

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ABSTRACT

Since 2020, the COVID-19 pandemic turned widely held assumptions about remote work on its head. The ensuing press coverage on hybrid work and return-to-work has not abated, leaving open to debate questions about the need for the physical workplace. The transforming dynamics of the workplace calls for research: How significant is physical space? When does being in spatial proximity to one another matter? Do evidence-based findings on the value of being together at work hold true now? Can classic results on the importance of workplace proximity be applied to hybrid work? For instance, the Allen Curve repeatedly demonstrates that when employees work less than 10 meters (approximately 30 feet) from one another, their level of communication increases (Allen, 1977).

Further, employees physically close to one another in the office prefer communicating with each other (Verbrugge, 1983). They are well-positioned to form professional relationships (McPherson et al., 2001). That is, physical proximity within a shared office promotes face-to-face communication. Research also consistently demonstrates a relationship between physical proximity in the workplace and the frequency of face-to-face communication, including face-to-face interaction and electronically mediated technologies (Sangwan et al., 2020). Indeed, Spiliopoulou and Pen (1999) found that electronically mediated communication, while aspatial, occurred more frequently when co-workers were situated more closely together at work.

Yet, is the role of spatial proximity evolving at work today? The nascent literature on hybrid work does not contain a universally agreed-upon definition of the construct or evidence-based findings. To address this gap, the first author examined communication patterns and proximity in the hybrid workplace in a study on design teams. Does proximity still matter in workplaces, and what could be its impacts in a hybrid context on project team communication? It was hypothesized that the physical nearness of team members contributes to the level of communication and is also mediated by individual preferences, work roles, and the project task, including time sensitivity. The findings that will be shared represent approximately 60 interviews, part of a broader mixed methods study, using surveys and interviews, of architects and interior designers who shared their experiences from two

hybrid office locations of a large commercial firm in the southeast United States. Findings to be shared are primarily qualitative; however, there will be quantitative data relating to proximity variables.

A deductive content analysis based on semi-structured interviews revealed proximity, team roles, and communication modalities: 1. Proximity: For design teams, the importance of physical proximity varies by work task and personal preference. 2. Centralized Space, Materials, and Technology: Design teams appear to prioritize in-office work within spaces that support detailed visualization, high-level creative thinking, and team-based problem-solving for activities such as visioning sessions, design conceptualization, and materials selection. 3. Communication Media: For design teams, the availability of communication media (e.g., video conferencing, phone screen sharing, etc.) creates a flexible hybrid work environment but sometimes inadvertently leads to potential misunderstandings and the hierarchy of unspoken rules. Overall findings reveal communication channels shaped by individual preferences, technology, and the task at hand, which can inform ways to strengthen efficacy in the hybrid workplace.

REFERENCES

- Allen, T. J. (1977). *Managing the flow of technology: Technology transfer and the dissemination of technological information within the R&D organization*. MIT Press, Cambridge, MA.
- McPherson, M., Smith-Lovin, L., & Cook, J. M. (2001). Birds of a feather: Homophily in social networks. *Annual Review of Sociology*, 27, 415–444.
- Sangwan, R. S., Jablolkow, K. W., & Defranco, J. F. (2020). Asynchronous Collaboration: Bridging the Cognitive Distance in Global Software Development Projects. *IEEE Transactions on Professional Communication*, 63(4), 361–371.
- Spiliopoulou, G., & Penn, A. (1999). Organizations as multi-layered networks: Face-to-face, e-mail and telephone interaction in the workplace. *Second International Space Syntax Symposium*, 1, 13.1–13.24.

Emotional Responses in Virtual Interiority: Exploring the VREED Dataset

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ABSTRACT

Virtual interiority illustrates the transient experience in occupants' perception of the physical space and its digital counterpart (Nash et al., 2021; Vahdat, 2022). Technology like Virtual Reality (VR) facilitates this transition with physical and emotional presences delivered via the simulation of both static (e.g., shapes, materials) and dynamic (e.g., light, sound) elements of reality. Designers of the built environment often consider virtual interiority as a mockup of real-life designs. However, they should recognize that this digital realm exerts ontological influence on occupants, introducing a similar yet different image of the reality they seek feedback on (Brivio et al., 2021; Vahdat, 2022). The overarching question is whether both physical and, more significantly, emotional presences remain consistent across various VR technologies. Evidence of emotional responses to time-intensive and costly computer-generated simulations is ample. However, research on emotional responses to the more affordable 360-degree panorama is scarce (Brivio et al., 2021). Hence, this study aimed to mend this literature gap by answering two research questions:

RQ1. To what extent does a 360-degree panorama induce emotional responses?

RQ2. What factors influence the emotional responses elicited by a 360-degree panorama?

The author analyzed a subset of the public "VR Eyes: Emotions Dataset" (VREED) by Tabbaa et al. (2021). This subset includes general demographics and ratings (n=33) from the Self-Assessment Manikin (SAM) for different emotions, both before and after exposure to a 360-degree panorama of resort interiors (Figure 1, appendix) via a VR headset. The author conducted paired t-tests for SAM ratings pre- and post-exposure (RQ1) and Pearson's correlations between demographics and SAM post-ratings (RQ2). Participants were 18 to 61 years old, mostly Caucasian (67%). About 58% had no prior exposure to VR, and 70% indicated a mild propensity for motion sickness. Joy, happiness, calmness, and relaxation were prominent emotional responses with the widest rating density on a 100-point scale (Figure 2, appendix). But these emotions did not significantly deviate from the participants' baseline conditions. Moreover, paired t-tests indicated decreased valence, plus increased arousal and anxiousness post-exposure to the 360-degree panorama (Table 1, appendix). Valence represents the appeal or repulsion of an event, and the significantly lower ratings signaled a shift toward negative emotions. Moreover, arousal measures the intensity of emotion and is associated with anxiousness in

this case. Hence, participants became more agitated. The author found no significant correlations between participants' demographics and their SAM post-ratings.

The findings present a compelling observation. The 360-degree panorama of resort interiors in VREED was piloted (n=21, separate from the 34 participants in the analysis) and chosen due to the positive emotions (e.g., joy, calmness) it induced. But following exposure to this selected panorama, the SAM ratings showed increased negative emotions, both in type and intensity. Demographic differences between participants showed no influence on their induced emotions.

Such findings contradicted the study of Brivio et al. (2021), with the exposure to a relaxing 360-degree panorama reduced anxiousness in participants. Nonetheless, Somarathna et al. (2022) highlighted that 360-degree panorama has an accuracy rate of over 70% in predicting both arousal and valence. Anxiousness also stands out among the prominent emotions induced, alongside joy, relief, and fear. The findings underscore that virtual interiority, even as a 360-degree panorama, exerts ontological influence on occupants. Designers should be aware of this when using such tools to mockup real-life designs, as seemingly relaxing environments might unexpectedly evoke negative emotions without other factors.

REFERENCES

- Brivio, E., Serino, S., Negro Cousa, E., Zini, A., Riva, G., & De Leo, G. (2021). Virtual reality and 360 panorama technology: a media comparison to study changes in sense of presence, anxiety, and positive emotions. *Virtual Reality*, 25, 303–311.
- Nash, A., Geck, K., & Miller, A. (2021). Virtual interiorities. *Interiority*, 4(2), 207–222.
- Somarathna, R., Bednarz, T., & Mohammadi, G. (2022). Virtual reality for emotion elicitation—a review. *IEEE Transactions on Affective Computing*. doi: 10.1109/TAFFC.2022.3181053
- Tabbaa, L., Searle, R., Bafti, S. M., Hossain, M. M., Intarasisrisawat, J., Glancy, M., & Ang, C. S. (2021). Vreed: Virtual reality emotion recognition dataset using eye tracking & physiological measures. *Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies*, 5(4), 1–20.

Table I. Paired t-tests for the pre-and post-ratings of emotional responses.

Variable (<i>nn</i> = 3333)	t-value (<i>ddd</i> = 3333)	p-value
Valence	-10.94	<.001*
Arousal	11.96	<.001*
Joy	-1.09	.29
Happiness	-0.64	.53
Calmness	0.7	.49
Relaxation	0.67	.51
Anger	1.24	.22
Disgust	-1.58	.12
Fear	0.67	.51
Anxiousness	3.47	.0015*
Sadness	0.16	.88
Dizzy	1.58	.12

Note. Emotional responses were continuous numerical variables ranging from 0 to 100. Statistical significance* at 95% confidence level ($pp < .005$).



Figure 1. Screenshots of the 360-degree panorama which can be accessed here:

<https://www.youtube.com/watch?v=ondCdFcaJgA&index=11&list=PLidVUxLLu5K0MnmJQSDt4O7deMSwmyPQ>

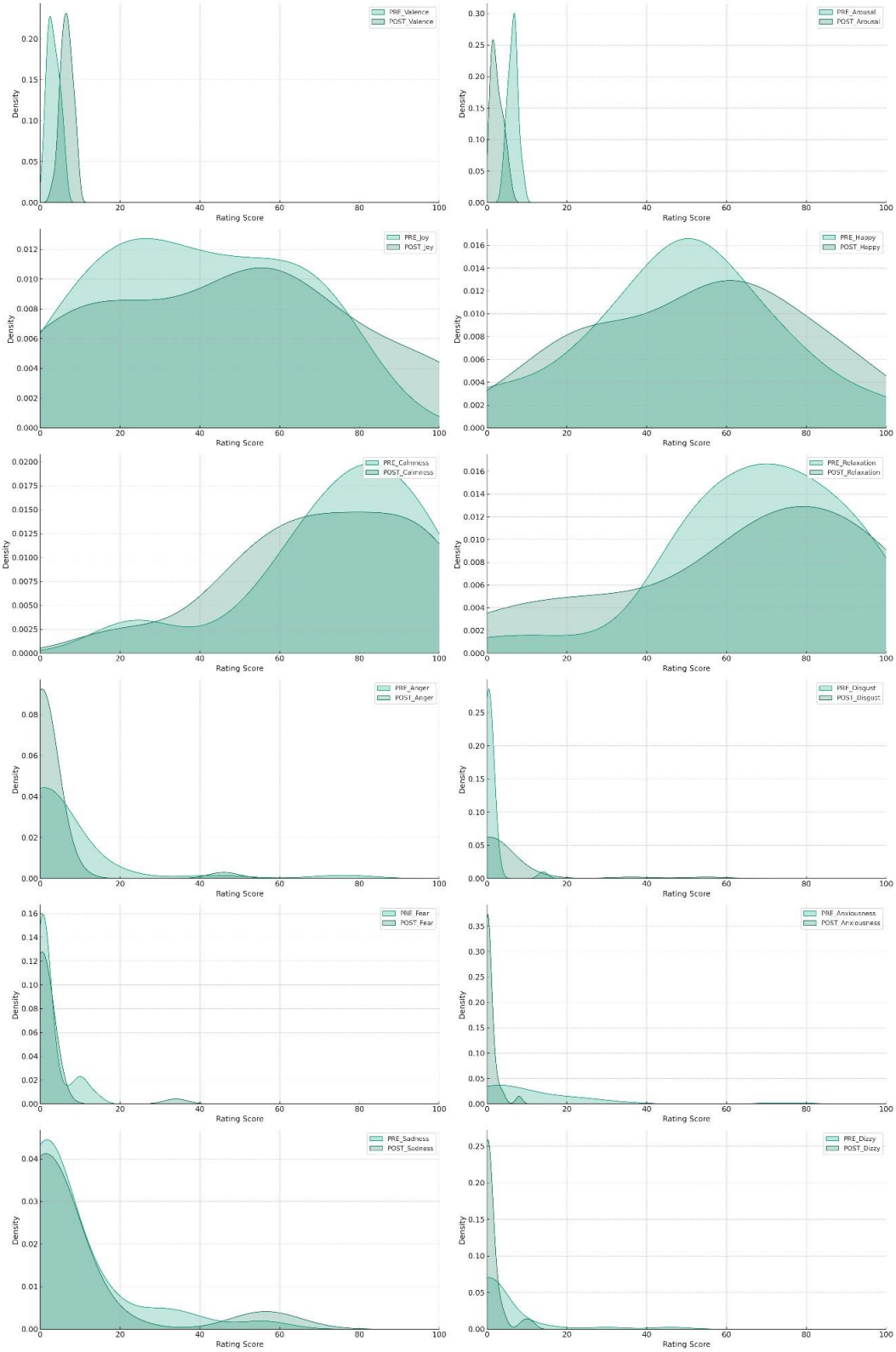


Figure 2. Density graphs of emotional responses. The x-axis represents the rating (from 0 to 100), while the y-axis represents the density across participants (pre- and post-exposure). High peaks represent values that occur more frequently, while lower areas represent less frequent values.

Enhancing Design Creativity in Virtual Environments: A Comparative Study with Design Students

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ABSTRACT

In the contemporary landscape, an abundance of virtual reality (VR) applications and devices empowers and leads designers to craft within fully or partially immersive environments. However, the pertinent question arises: Are designers able to harness their creative potential to the fullest extent when utilizing VR devices during the design process?

According to previous studies a VR-based design environment equipped with technological features can further amplify designers creativity. Nevertheless, there is a scarcity of studies that specifically focus on the degree of immersion within which designers operate and its impact on their creative output. This study investigates how different levels of VR immersion impact the design creativity of 60 interior design students. The participants were divided into three conditions: actual, passthrough, and fully immersive. In the actual condition, participants carried out tasks in a physical environment, while in the passthrough condition, participants carried out tasks in a semi-virtual environment while donning VR headsets that provided them with a view of the physical surroundings overlaid with virtual elements like multiple screens, a virtual keyboard, and a virtual board. In the fully immersive condition participants were in an entirely virtual environment, devoid of any connection to the physical surroundings. The participants were tasked with creating student-friendly furniture for a midwestern university campus. The challenge was to enhance student interaction while maintaining functionality and aesthetics, all within a limited timeframe (15 minutes).

Following the experiments, the creativity of participants' design solutions underwent evaluation by three experienced design professionals using an evaluation scale inspired from Creative Solution Diagnosis Scale (CSDS). The CSDS, a 27- item scale grounded in a theoretical model of functional creativity, encompasses five primary criteria: Relevance & Effectiveness, Novelty, Elegance, and Genesis.

Descriptive data analysis yielded compelling insights into the creative outcomes of the participants. Notably, those in the passthrough condition exhibited considerably higher levels of creativity (CSDS

Mean: 3.40 ± 0.35). This outcome underscores the potential of the passthrough condition, which seamlessly combines elements of both physical and virtual reality, to facilitate and stimulate innovative design thinking. Furthermore, an analysis of variance revealed a significant difference in design creativity between the passthrough condition and the actual condition ($p < 0.001$), emphasizing the promise of VR-enhanced design processes. However, there were no statistically significant differences between the passthrough and fully immersive conditions ($p = 0.34$), suggesting that both VR conditions may offer comparable creative advantages. These findings align with previous research that has posited an augmentation of design creativity within VR-based environments (Chandrasekera & Yoon, 2015; Wei et al., 2015).

In summation, this study provides valuable insights into the realm of interior design education and practice. The results underscore the potential of VR, particularly the passthrough condition, as a tool for nurturing creative thinking among design students. This research contributes to a growing body of evidence advocating for the integration of VR technologies in design education and professional contexts, heralding a more innovative and imaginative future for the field of design.

REFERENCES

Obeid, S., & Demirkan, H. (2023). The influence of virtual reality on design process creativity in basic design studios. *Interactive Learning Environments*, 31(4), 1841-1859.

Chandrasekera, T., & Yoon, S. Y. (2018). The effect of augmented and virtual reality interfaces in the creative design process. *International Journal of Virtual and Augmented Reality (IJVAR)*, 2(1), 1-13.

Chandrasekera, T., & Yoon, S. Y. (2015, September). The effect of tangible user interfaces on cognitive load in the creative design process. In *2015 IEEE International Symposium on Mixed and Augmented Reality-Media, Art, Social Science, Humanities and Des*

Chang, Y. S., Kao, J. Y., & Wang, Y. Y. (2022). Influences of virtual reality on design creativity and design thinking. *Thinking Skills and Creativity*, 46, 101127.

Enhancing Inclusive Gathering Spaces: Investigating Interior Factors to improve Social Interaction for Students with Autism Spectrum Disorder (ASD) in University Housing

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ABSTRACT

Background

Interior designers often overlook the importance of designing for individuals with mental and developmental disabilities, such as Autism Spectrum Disorder (ASD). However, as more people are being diagnosed with ASD, there is a demand for spaces that meet their unique needs. Students with ASD are an increasingly significant group in higher education but are underrepresented. These students face challenges in college life, from academic success to adapting to new environments and social interactions. Additional social cues and communication difficulties make it harder for them to connect with their peers.

This study focuses on the lack of consideration for students with Autism Spectrum Disorder (ASD) in university housing. While higher education institutions accommodate students with disabilities, they have not sufficiently addressed the challenges faced by students with ASD living with their peers. It is vital to study the spatial characteristics that contribute to feelings of depression, social isolation, and cognition to create a better environment. Social interaction is crucial for college success but especially challenging for students with ASD. The study examines how physical factors in gathering spaces like lounges or lobbies can improve social interaction for students with ASD. Guidelines will be provided for design practitioners to develop these spaces accordingly.

Purpose

The purpose of this study is to address the challenges faced by students with Autism Spectrum Disorder (ASD) living in University Student Housing and to recommend physical factors of student housing interiors that improve the sense of community and social interaction for students with ASD to relevant designers.

Methodology

Through this study, semi-structured interviews will be conducted on a one-to-one basis with on-campus residents who have self-identified as students with ASD. The questions in the interview will start with the interviewees' on-campus housing experiences, overall satisfaction with gathering places, and suggestions for improvement. After that, the interviews will focus on explore the impact of five physical factors (acoustics, lighting, room and furniture layout, materials and color and furniture) on their comfort level in gathering spaces such as lobbies and lounges. Participants will be recruited via a roster method and invited to participate through their university email addresses. The interviews will be conducted by a panel of experts including housing and residence life professionals, a disability services professional, and researchers. To maintain confidentiality, each student's identity will be coded with a pseudonym. The interviews will take approximately 30 minutes and will be conducted in a private office. Afterwards, professional transcriptionists will transcribe the interview audio files. The data will be analyzed using content analysis, with reliability enhanced through peer debriefing, an audit trail, and using the data organization tool Dedoose.

Discussion

This study addresses the significance of designing for neurodiversity and establishing a supportive atmosphere for students with Autism Spectrum Disorder (ASD) in higher education. The findings can serve as a guide to creating an inclusive environment that enhances social interaction and develops a sense of community among students with ASD. Furthermore, it contributes to future research efforts that can build upon these findings and delve into other design considerations that may further enhance the overall college experience for students with ASD. Ultimately, designers and educational institutions can strive to create more inclusive and supportive environments that foster the success and well-being of students with ASD in higher education.

REFERENCES

- Accardo, A., Kuder, S., & Woodruff, J. (2019). Accommodations and support services preferred by college students with autism spectrum disorder. *Autism*, 23(3), 574-583.
- Centers for Disease Control and Prevention (2023). Prevalence and characteristics of autism spectrum disorder among children aged 8 years—Autism and Developmental Disabilities Monitoring Network, 11 sites, United States, 2020. *MMWR Surveillance Summaries*, 72(2), 1-14.
- Gelbar, N., Shefcyk, A., & Reichow, B. (2015). A comprehensive survey of current and former college students with autism spectrum disorders, *The Yale Journal of Biology and Medicine*, 88(1), 45-68.
- Grabsch, D., Melton, H., & Gilson, C. (2021). Understanding the expectations of students with Autism to increase satisfaction with the on-campus living experience, *The Journal of College and University Student Housing*, 47(2), 25-43.

Evaluating the Effectiveness of Multicultural Maintenance Workforce Safety Training in Virtual Reality

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ABSTRACT

In the context of an increasingly globalized world, workforce mobility is escalating, necessitating a high degree of adaptability to diverse occupational settings. Within the Architecture, Engineering, and Construction (AEC) industry, the safety of a multi-ethnic workforce faces challenges stemming from bureaucratic constraints, linguistic barriers, and cultural disparities. (Wang et al., 2018). This study focuses on exploring alternate modalities of providing safety instructions to construction industry workers to ensure their health, safety and wellbeing.

Due to linguistic and cultural diversity, multilingual AEC industry workers in the United States frequently face particular difficulties when receiving safety training (Zacharatos et al., 2005). The AEC industry has a high rate of fatalities and injuries, which makes it necessary to provide thorough safety training to help employees recognize, prevent, and handle workplace hazards (Wang et al., 2018). However, differences in language, culture, and prior work experiences make it difficult for these individuals to understand safety regulations. Safety training programs that are specifically designed for their cultural and linguistic backgrounds can improve understanding and adherence to safety procedures by placing an emphasis on participation, interactivity, cultural relevance, and practical significance. Previous studies have suggested that virtual reality (VR) training, as an immersive learning strategy, may improve self-efficacy and intrinsic motivation while enhancing the efficiency of safety training programs (Adami et al., 2021).

To address the challenges of literacy and linguistic barriers, thereby enhancing the accessibility and engagement of safety training for workers in the AEC industry with limited English proficiency, this study proposes the utilization of pictorial aids, video-based instruction, and three-dimensional virtual reality safety training modules.

In this study, a total of 60 participants were randomly allocated to one of three experimental conditions: pictorial safety modules, video-based safety modules, and virtual reality-based safety modules. The role of intrinsic motivation is emphasized as a critical factor for effective learning, with worker engagement in gamified tasks posited to influence the overall efficacy of the training program. Prior to the commencement of the training, participants completed a pre-training survey that gathered data on basic demographics, prior experience, and levels of intrinsic motivation. Upon the conclusion of the training, a post-training survey was administered, focusing on self-efficacy and safety knowledge. Work task performance was assessed based on time and error rates, providing valuable insights into the impact of the training modalities on actual job performance (Kraiger et al., 1993).

The results of the study indicate that VR training emerges as a particularly effective modality for the delivery of safety training within the Architecture, Engineering, and Construction (AEC) industry. The data suggests that VR-based training modules not only enhance knowledge retention but also improve self-efficacy and intrinsic motivation among workers, thereby underscoring its potential as an optimal training tool tailored to the specific needs and challenges faced by professionals in the AEC sector.

REFERENCES

- Li, X., Yi, W., Chi, H. L., Wang, X., & Chan, A. P. (2018). A critical review of virtual and augmented reality (VR/AR) applications in construction safety. *Automation in Construction*, 86, 150-162.
- Zacharatos, A., Barling, J., & Iverson, R. D. (2005). High-performance work systems and occupational safety. *Journal of applied psychology*, 90(1), 77.
- Adami, P., Rodrigues, P. B., Woods, P. J., Becerik-Gerber, B., Soibelman, L., Copur-Gencturk, Y., & Lucas, G. (2021). Effectiveness of VR-based training on improving construction workers' knowledge, skills, and safety behavior in robotic teleoperation. *Ad*
- Kraiger, K., Ford, J. K., & Salas, E. (1993). Application of cognitive, skill-based, and affective theories of learning outcomes to new methods of training evaluation. *Journal of applied psychology*, 78(2), 311.

Evidence-Based Multisensory Environments Design Considerations for Neurodivergent People

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ABSTRACT

Background: Multisensory environments (MSEs) have received increasing recognition as beneficial therapeutic spaces for individuals with neurodivergent conditions, including autism spectrum disorder (ASD), attention deficit hyperactivity disorder (ADHD), learning disabilities, intellectual disability, and more. Neurodivergent populations often exhibit sensory processing disorder (SPD), affecting approximately 5% to 16% of Americans. SPD causes them to react to environmental sensory stimuli with either hyper or hyposensitivity. As a result, they may exhibit behaviors (e.g., self-stimulation or aggression) that prevent them from fully participating in society. Sensory integration theory has explored diverse patterns of sensory dysfunction and interventions for mitigating these non-preferred behavioral responses. Among these interventions, MSE is a particularly promising intervention, which is a physical space that allows those with SPD to explore diverse sensory stimuli depending on their unique sensory needs. Notably, MSEs have shown positive therapeutic impacts on behaviors, as well as psychological and social well-being among the neurodivergent population (Case-Smith et al., 2015; Ellis & Yi, 2023). However, despite the documented benefits, evidence-based approaches for MSE design have remained under-researched (Unwin et al., 2022, 2023).

Objectives: This study examines three objectives: (1) analyzing the characteristics of existing sensory equipment within multisensory environments (MSEs) and sensory-based interventions, (2) synthesizing evidence of how the sensory stimuli impact neurodivergent individuals' experiences and their therapeutic outcomes, and ultimately, (3) providing evidence-based design recommendations for creating effective MSEs and sensory-based interventions for neurodivergent people.

Methods: This study follows a deductive content analysis process (Elo & Kyngas, 2007). Data for this study were descriptions and photos of sensory equipment, sensory intervention, and MSE design sourced from relevant articles, journals, and MSE manufacturers' and stakeholders' websites. The content was coded using qualitative thematic analysis tool according to the predetermined key themes, including visual, auditory, tactile, olfactory, vestibular, and proprioceptive environmental stimuli.

Results: Within each thematic category, this research elucidates evidence-based MSE and sensory intervention design strategies. Additionally, the findings establish key principles for overall MSE design, such as encompassing sensory input modulation based on users' preferences and sensitivities, customizable sensory experiences, safety considerations, accessibility enhancements, and the potential for stimulating/calming therapeutic impacts.

Conclusion: The evidence-based MSE design strategies identified in this study provide a valuable guide for stakeholders including designers, researchers, and manufacturers seeking to maximize the therapeutic potential of MSEs for neurodivergent people. Well-designed MSEs have promising potential to improve neurodivergent people's sensory processing outcomes, help them control non-preferred behaviors, and, ultimately, enhance their quality of life. Furthermore, indirect societal benefits of MSEs extend to facilitating the neurodivergent population's independent living and integration into regular classrooms and the workforce, thereby contributing to the creation of an inclusive environment that embraces the diversity of all individuals.

REFERENCES

- Case-Smith, J., Weaver, L. L., & Fristad, M. A. (2015). A systematic review of sensory processing interventions for children with autism spectrum disorders. *Autism, 19*(2), 133–148. <https://doi.org/10.1177/1362361313517762>
- Elo, S., & Kyngas, H. (2007). The qualitative content analysis process. *Journal of Advanced Nursing, 62*(1), 107–115. <https://doi.org/10.1111/j.1365-2648.2007.04569.x>
- Unwin, K. L., Powell, G., & Jones, C. R. (2022). The use of Multi-Sensory Environments with autistic children: Exploring the effect of having control of sensory changes. *Autism, 26*(6), 1379–1394. <https://doi.org/10.1177/13623613211050176>
- Unwin, K. L., Powell, G., Price, A., & Jones, C. R. (2023). Patterns of equipment use for autistic children in multi-sensory environments: Time spent with sensory equipment varies by sensory profile and intellectual ability. *Autism, 13623613231180266*. <https://doi.org/10.1177/13623613231180266>

Evolving brick-and-mortar store: Integration of mobile app experience and physical store experience

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ABSTRACT

As cultural and technological changes impact consumer behavior, the retail industry is going through a major shift in retail channels across the digital and physical environments. The advances in technology and the emergence of digital native consumers are accelerating the use of multiple channels in the customer journey (Kahn et al., 2018). Though online channels, such as mobile app and website, provide better access to shopping without time and physical constraints, scholars point out the critical role of an offline channel in the retail industry (Haridasan & Fernando, 2018; Singh & Jang, 2022). With the benefit of offering social interaction and a tangible shopping experience, a brick-and-mortar store is evolving to integrate online channels and emphasize the tangible experience that other digital environments cannot replace. The question of how to incorporate the digital environment into physical retail environments has been discussed by scholars, resulting in different strategies, such as omnichannel, multichannel, and phygital, depending on the hierarchy within the platforms and degree of integration (Savastano et al., 2019). These different concepts of integrating online and offline channels have been studied by scholars but focusing on demonstrating the effectiveness of customer satisfaction and success in business.

Interior architects question how a design of both mobile app and brick-and-mortar store can contribute to the seamless integration between online/offline channels. An initial interview with the director of store space design-merchandising in Walmart revealed that the conversation between interior architects and mobile developers rarely happens even though both work for the same goals, leading us to our research question.

Thus, this research aimed to 1) determine the current state of customer experience when they use mobile apps in brick- and-mortar stores, 2) reveal the gaps between the physical store and mobile app experience in creating a seamless user experience, and 3) suggest the design opportunity that can be

improved upon in designing brick-and-mortar store to better provide an integrated user experience across physical and digital environments.

A qualitative approach was implemented utilizing case studies of two of the most successful retailers operating online and offline channels: Amazon and Walmart. The study subject was narrowed to fashion retail, which can reveal the benefit of physical stores encouraging active participation and interaction with products in the shopping process compared to other utilitarian products. Public observations of the Walmart Incubation store in Springdale, AR, and the Amazon Style store in Los Angeles, CA, were implemented. Without any intervention to the user's experience, observation focused on how users navigated the space and interacted with their mobile app and in-store technology. Furthermore, an in-depth interview with the director of store space design-merchandising from Walmart and the district store manager of Amazon style was conducted to gain more insight into future implementation. The result was documented in visual representation, including user journey map and diagrams with photos. The meaningful quotes were also summarized from the interview analysis. Comparison between the two retailers suggests new insights into the future implementation of designing digital and physical environments. This presentation will open the discussion about the possibility of collaborating with mobile app and digital environment developers in designing brick-and-mortar stores. With interior architects and educators living in an era of digitalization, this conversation will contribute to reassuring the meaning of tangible spatial experience in physical space and its sustainable existence by creating synergy with digital environments.

REFERENCES

- Haridasan, A. C., & Fernando, A. G. (2018). Online or in-store: Unravelling consumer's channel choice motives. *Journal of Research in Interactive Marketing*, 12(2), 215–230. <https://doi.org/10.1108/JRIM-07-2017-0060>
- Kahn, B. E., Inman, J. J., & Verhoef, P. C. (2018). Introduction to Special Issue: Consumer Response to the Evolving Retailing Landscape. *Journal of the Association for Consumer Research*, 3(3), 255–259. <https://doi.org/10.1086/699389>
- Savastano, M., Bellini, F., D'Ascenzo, F., & De Marco, M. (2019). Technology adoption for the integration of online–offline purchasing: Omnichannel strategies in the retail environment. *International Journal of Retail & Distribution Management*, 47(5), 474–492. <https://doi.org/10.1108/IJRDM-12-2018-0270>
- Singh, S., & Jang, S. (2022). Search, purchase, and satisfaction in a multiple-channel environment: How have mobile devices changed consumer behaviors? *Journal of Retailing and Consumer Services*, 65, 102200. <https://doi.org/10.1016/j.jretconser.2020.102200>

Examining the impact of physical work environment features on millennial new employees' job satisfaction: a mixed method study

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ABSTRACT

Background: Previous research has documented increased rates of turnover among millennials, particularly in new employees who have been working for less than two years (Kuron, Lyons, Schweitzer, & Ng, 2015; Brown et al., 2015). This trend is associated with marked differences in the working preferences and characteristics of millennial employees, as well as the stress of adapting to a new work environment. A smooth onboarding process for new employees is important for both individual and organizational development and established a foundation for future success. Job satisfaction is the most critical predictor of new employees' onboarding outcomes. Both Individuals and organizations can benefit from employees' higher job satisfaction, which correlated with higher job performance and organizational commitment, lower job stress and turnover. While psychosocial environment has a well-documented influence on job satisfaction, some environmental psychologists, architects and interior designers have been concerned with the influence of physical work environmental factors on job satisfaction (J A Veitch, Geerts, Charles, Newsham, & Marquardt, 2005; Judge et al., 2001). However, the relationship between physical work environment satisfaction and millennial new employees' job satisfaction remains largely unexamined. Therefore, this study focus on investigating whether workplace design factors will affect millennial new employees' job satisfaction.

Methodology: A mixed methods study was conducted to answer the research question: What physical work environment factors affect new employees' job satisfaction? The qualitative research is motivated by the need to deeply understand how new employees experience the new work environment. Two online focus groups were held via Zoom with six participants in the first group and five in the second group. All participants were millennials and identified themselves as IT industry employees. Nine participants stated that they experienced a new work environment within the last two years. After the completion of two focus groups, the moderator and the assistant moderator agreed that the sample size was large enough to obtain data saturation. After qualitative analysis, this study developed a toolkit

based on the focus group findings to test the relationship between physical work environment satisfaction and job satisfaction. The independent variables were satisfaction with functional space and layout, ambient conditions, personal control, FFE, flexibility, technology, ambience, privacy, and nature and windows. Participants were asked to indicate how satisfied they were with these nine elements via a 52 items five-point Likert scale questionnaire (1 = highly dissatisfied, 2= dissatisfied, 3=neutral, 4= satisfied, and 5= highly satisfied, N/A= do not have this feature in office). The dependent variable was job satisfaction. In total, 252 responses were collected for this survey.

Findings: After open coding, axial coding, and selective coding in NVivo, the qualitative analysis identified six design factors affecting job satisfaction. They are: 1) socializing and relaxing space, 2) ergonomic furniture, 3) nature and windows, 4) technology, 5) personalize surroundings, 6) lighting. After qualitative analysis, 252 responses were collected for quantitative analysis. All the participants were millennial new employees who work in the IT industry in the US. A multiple regression was carried out to investigate whether satisfaction with nine physical work environment elements could significantly predict millennial new employees' job satisfaction. The online survey findings confirm that satisfaction with IEQ criteria explained 50.4% of the variation of job satisfaction. Using the enter method it was found that satisfaction with functional space and layout ($\beta = .28$, $p < .001$), FF&E ($\beta = .17$, $p = .04$), and ambience ($\beta = .37$, $p < .001$) significantly increased job satisfaction.

REFERENCES

- Kuron, L. K. J., Lyons, S. T., Schweitzer, L., & Ng, E. S. W. (2015). Millennials' work values: differences across the school to work transition. *Personnel Review*, 44(6), 991–1009. <https://doi.org/10.1108/PR-01-2014-0024>
- Judge, T. A., Thoresen, C. J., Bono, J. E., & Patton, G. K. (2001). The job satisfaction–job performance relationship: A qualitative and quantitative review. *Psychological Bulletin*, 127(3), 376.
- Veitch, J. A., Geerts, J., Charles, K. E., Newsham, G. R., & Marquardt, C. J. G. (2005). Satisfaction with lighting in open-plan offices: COPE field findings. *Proceedings of Lux Europa*, 2005, 414-7

Exploring perceptions of digital technology for creative ideation among professional interior designers

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ABSTRACT

Digital tools in creative ideation involve ever-changing technology that helps increase productivity, reduce mental load, improve communication, and increase novel and creative outcomes. Integrating these digital tools into the interior design creative process has been an important step for professional designers, but mastering one technology doesn't mean they can perform a successful digital transformation in other situations. This study explored the attitudes and beliefs of professional interior designers about creativity and technology during their ideation process. Considering the potential factors that impact designers' ideation process at work, such as professional experience, types and sizes of firms, sectors, etc., this research also compared the perception differences among the professionals.

The study conducted an online survey of professional interior designers working in the United States. The measurements for the survey had three parts: 11 items of the Technology-confidence scale (adapted from the Short Scale of Creative Self), 23 items of the Runco Ideational Behavior Scale (RIBS), and 18 items about the perception of technology use at work on a 5-point scale. Demographic information of the survey participants (i.e., age, firm sizes, length of professional experience, certifications, type of organization, etc.) was also asked. The research collected and included 174 responses through a snowball sampling by distributing the online survey link to colleagues of the first presenter and then expanding the number of participants to include partner firms between August and September of 2023. All participants currently work in a professional setting, have worked for at least one year, are above 18, and have a minimum of a two-year degree.

As a result, the majority of the participants completed Bachelor's or graduate degrees from CIDA-accredited programs and worked in commercial design areas as non-managing designers or upper-level managers. The average work experience of the total 174 participants was 15.30 years (SD = 12.30), with

40.8% NCIDQ certified. The statistical analysis showed significant correlations between technology confidence and creative ideation ($r=.234$, $p=.002$) as well as creative ideation and the perception of technology uses ($r=.211$, $p=.006$). Among the wide range of firm sizes, the 'less than ten employees' group ($n=40$) had lower technology confidence and perception of technology uses but higher creative ideation than the other three groups (i.e., 10-99 employees, 100-999 employees, and more than 1000 employees). The group difference in the perception of technology use was statistically significant ($F=4.638$, $p=.001$). The professional designers with less than or equal to five years of experience ($n=45$) showed higher technology confidence and creative ideation than the other three groups (i.e., 6-15 years, 16-25 years, and 25+ years). The group difference was statistically significant in the technology confidence ($F=3.161$, $p=.026$) and perception of technology uses ($F=3.754$, $p=.012$) by their length of professional experiences. Although the difference was not significant, the designers with more than 25 years of experience ($n=41$) reported the highest score in the uses of creative ideation at work ($M=3.74$, $SD=0.59$). The study identified that attitudes about technology use differed among professional designers with their work situations, such as roles and responsibilities. Regarding the links between creative ideation behaviors with confidence and perception of technology, this research highlights the need for proper resources and training in interior design education and organizations to improve the creative performance of designers. The research also calls for further studies on the advantages and challenges interior designers may face while incorporating current and new digital tools to support more novel and creative performance.

REFERENCES

- Neeley, T., & Leonardi, P. (2022). Developing a Digital Mindset: How to lead your organization into the age of data, algorithms, and AI. *Harvard Business Review*, May-June, 50–55.
- Lee, Y. S. (2016). Creative workplace characteristics and innovative start-up companies. *Facilities*, 34(7/8), 413–432.
- Jaussi, K. S., Randel, A. E., & Dionne, S. D. (2007). I Am, I Think I Can, and I Do: The Role of Personal Identity, Self-Efficacy, and Cross-Application of Experiences in Creativity at Work. *Creativity Research Journal*, 19(2–3), 247–258.

Furniture, Advertising, and Decolonization: The Evolution of Furniture Design in Shanghai, China (1912-1949)

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ABSTRACT

This paper uses furniture advertisements to explore interactions between Eastern and Western design forms in semi-colonial Shanghai during the Republic of China (1912-1949). It argues that furniture design and advertising provided a significant site for East-West cultural exchange, hybridization, and decolonization.

The study analyzes over 700 historic furniture advertisements from influential Shanghai newspapers between 1912 and 1949, a period marked, alternatively, by semi-colonization, anti-imperialism, and a search for local identity. Through a thematic analysis of this textual and visual information, this paper identifies three distinct trends in furniture design, representing “cross-cultural hybridization” (Tai, 2009). The first trend (1910s) celebrated Western design, which was introduced to Shanghai during its colonization in the late Qing Dynasty (1845-1912) but rendered it in traditional Chinese materials and construction techniques. The second trend (late 1910s to late 1920s), which aligned with the anti-imperial sentiment of Shanghai society after the founding of the Republic of China, celebrated local craftsmanship, referencing traditional Chinese furniture design, and highlighted local production. These two trends led to the creation of a truly integrative third trend, the “Modeng” style, which blended Eastern and Western design elements and became a hallmark of Shanghai design and culture after the 1930s.

Research on Chinese furniture typically focuses on material characteristics, artistic styles, and manufacturing techniques without delving into the complexity of cultural exchange; the evolution of Chinese furniture is construed as a simple, one-sided process of westernization. In contrast, this study follows in the footsteps of design scholars who examine the socio-cultural implications of furniture consumption in the 20th century, including Meltem Gurel’s examination of modern furniture and Western identity in Turkey, and Charlotte Benton’s exploration of the fusion of modern furniture design and local craftsmanship in Japan (Gurel, 2009; Brenton, 1998). This study brings this

examination of cultural exchange to a Shanghai context, looking at how the development of furniture design in Shanghai represented a complex hybridity rather than a passive reaction to Western cultural influences. Importantly, it highlights how local furniture manufacturers' efforts to promote the unique cultural identity of Shanghai through a synthesis of global cultural influences provides a microcosm of the city's decolonization process.

By examining the evolution of furniture advertisements through the lens of cultural interactions, this study provides a deeper understanding of how the Shanghai furniture industry interacted with Western influences, reflecting efforts to negotiate, resist, and integrate global cultural influences in Shanghai. It provides interior designers and scholars with valuable insight into the significance of furniture design as a site for examining cross-cultural interactions, shedding light on the contribution of the furniture industry to the process of decolonization in Shanghai, China.

REFERENCES

- Bergère, M.-C. (2010). *Shanghai: China's gateway to modernity*. Stanford University Press.
- Benton, C. (1998). From Tubular Steel to bamboo: Charlotte Perriand, the migrating chaise-longue and Japan. *Journal of Design History*, 11(1), 31–58. <https://doi.org/10.1093/jdh/11.1.31>
- Cheang, S. (2017). Selling China: Class, gender, and orientalism at the department store. *Visual Merchandising*, 117–136. <https://doi.org/10.4324/9781315084220-7>
- Gurel, M. O. (2009). Consumption of modern furniture as a strategy of distinction in Turkey. *Journal of Design History*, 22(1), 47–67. <https://doi.org/10.1093/jdh/epn041>

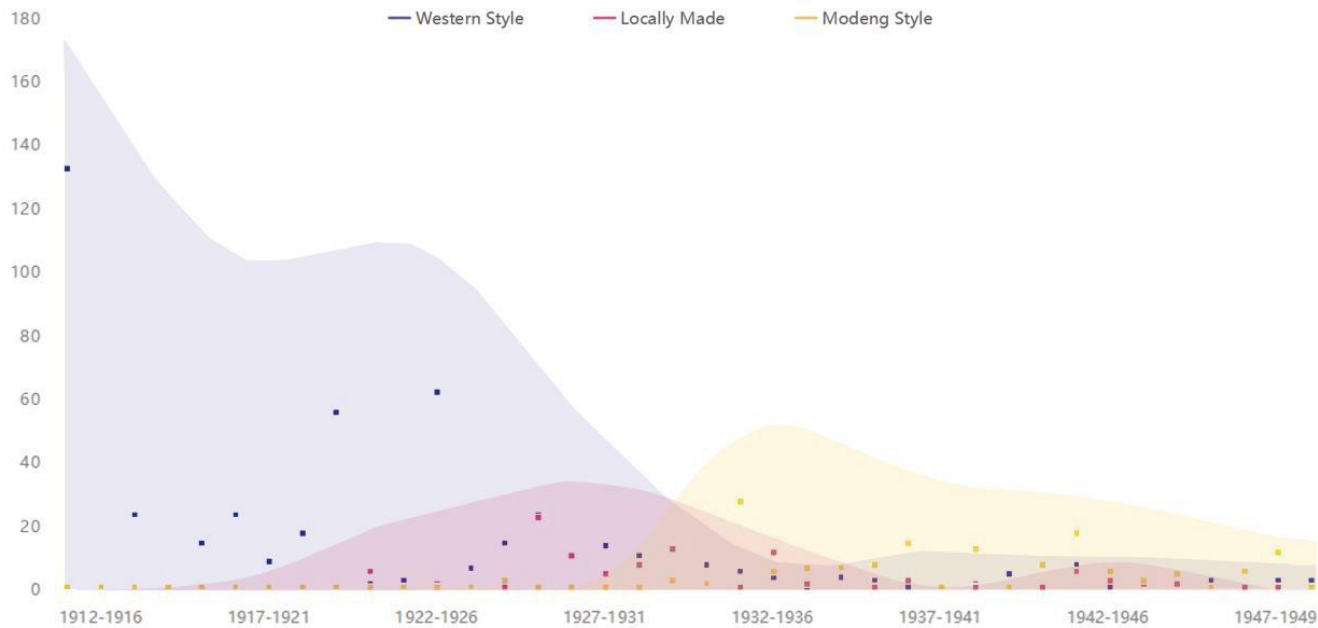


Figure 1. The curve illustrates the changing frequency of three themes – Western Style (purple), locally made (red), and Modeng Style (yellow) per five years. The dots represent the frequency of three theme per year, which is less stable and show more fluctuation. Drawing by author, 2023.

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Figure 2. Three pieces of furniture advertisement published in newspaper. To the upper left is the Fook Hong Loong Furniture Company, “Newly Opened Fook Hong Loong Furniture Company” (Xinkai Fu Kang Long Waiguo Muqihao), *The News*, Mar 29, 1912, Index of National News Papers and Journals. To the lower left is Shui Ming Chang Furniture Company, “Shui Ming Chang Furniture Company” (Shui Ming Chang Muqichang), *The News*, Sep 28, 1927, Index of National News Papers and Journals. To the right is Chun Tai & Son Furniture Company, “Chun Tai & Son Furniture Company” (Maoquantai Muqi Gongsi), *The News*, Jan 10, 1936, Index of National News Papers and Journals.

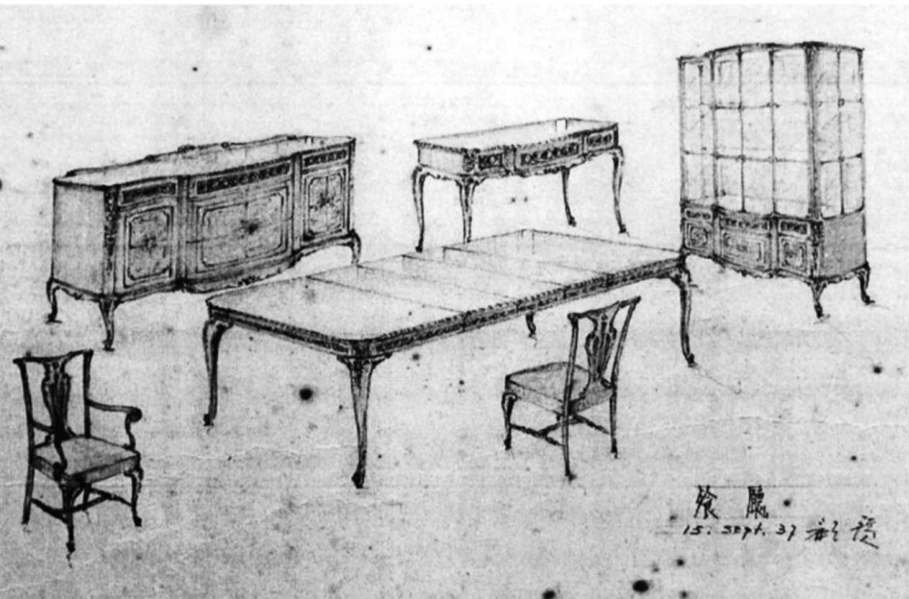
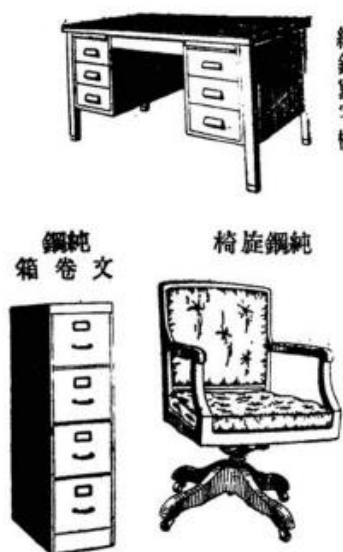


Figure 3. Historical furniture drawing showing dining tables and chairs influenced by the West. Sep 15, 1937. From Design Galleries of Jinghua Woodcraft Manufacturing in 1947. *Design Galleries of Jinghua Woodcraft Manufacturing in 1947*, See: Chen, “Study on the Styles of Chinese,” 93.



Figure 4. Front entrance of the National Goods Exhibition shows traditional Chinese characteristics: symmetrical front façade with three bays, upturned eaves, intricate carvings, and a plaque with calligraphy characters stating, “National Goods Exhibition.” Kai Wang, “Opening of the National Exhibition: Shanghai government showroom attached to the National Exhibition site” (Guohuo Zhanlanhui Kaimu: Guozhan Huichang Nei Fushe Chenlieshi Zhi Neiwaiguan,) *The Young Companion (Liangyou)*, November 1928, 12.



「救國！」的聲浪，傳遍國中。救國的確健方法，還是在提倡國貨。

純鋼傢具，向來只有舶來品，價格超出普通購買力以上，自銀價慘跌後，更有「望洋興嘆」之概。

幸有大華鐵廠，一本其為社會服務之宗旨，不惜鉅資，購置新式機器，採用科學方法，實行大量生產，精造各種純鋼傢具，堅固巧妙，足以壓倒舶來品，而價格切合民生實況，請駕臨

南京路虹廟對面 **大華鐵廠** 參觀

怎樣救國！

Figure 5. A furniture advertisement titled “how to save our country!” that promoted local furniture from Diaward Steel Furniture Co, “How to Save Our Country” (Zenyang Jiuguo), *The News*, Oct 7, 1931, Index of National News Papers and Journals.

Figure 6. A furniture advertisement promoting local chrome chairs from Diaward Steel Furniture Co. From “New Chrome Sofa and Chair from Diaward Steel Furniture Co.” (Dahua Tiechang Xin Chupin Keluomi Shafayi), *Weekly Report of the Chinese National Products Association* (Zhonghua Guohuo Chanxiao Xiehui Meizhou Huibao), February 1937, 1.

中華國貨產銷協會

每週彙報

張子樞

特種會協銷產貨國華中
號五二一路口滬海上
期四第十 卷三第
日一十二月四年六十二國民
版出三期星連年

場 春 國 力 華 發 生 產

本會會員大華鐵廠，專製各種鋼鐵傢具，及寫字間用品，素負盛名。其所製各種鋼床，構造堅固，式樣新穎，為購用者所稱道。最近精製各種克羅味傢具，係由著名傢具專家精心設計，質料高貴，電鍍精密，美觀耐用，為國貨出品中之冠。該廠發行所原設南京路四二五號，近因增加生產，擴充營業起見，遷發



羅味家用物品，如克羅味沙發椅，克羅味三人沙發，克羅味短几等，更大量製造，以期



又聞該廠發行所擬於本年五月間，舉行一克羅味傢具展覽會，所有該廠出品之全部克羅味餐室傢具，臥室傢具，起居室傢具等，均將分別陳列，以供眾覽云。

成本減輕，售價低廉，使一般家庭，均能購。置圖示該廠最近出品之一斑。

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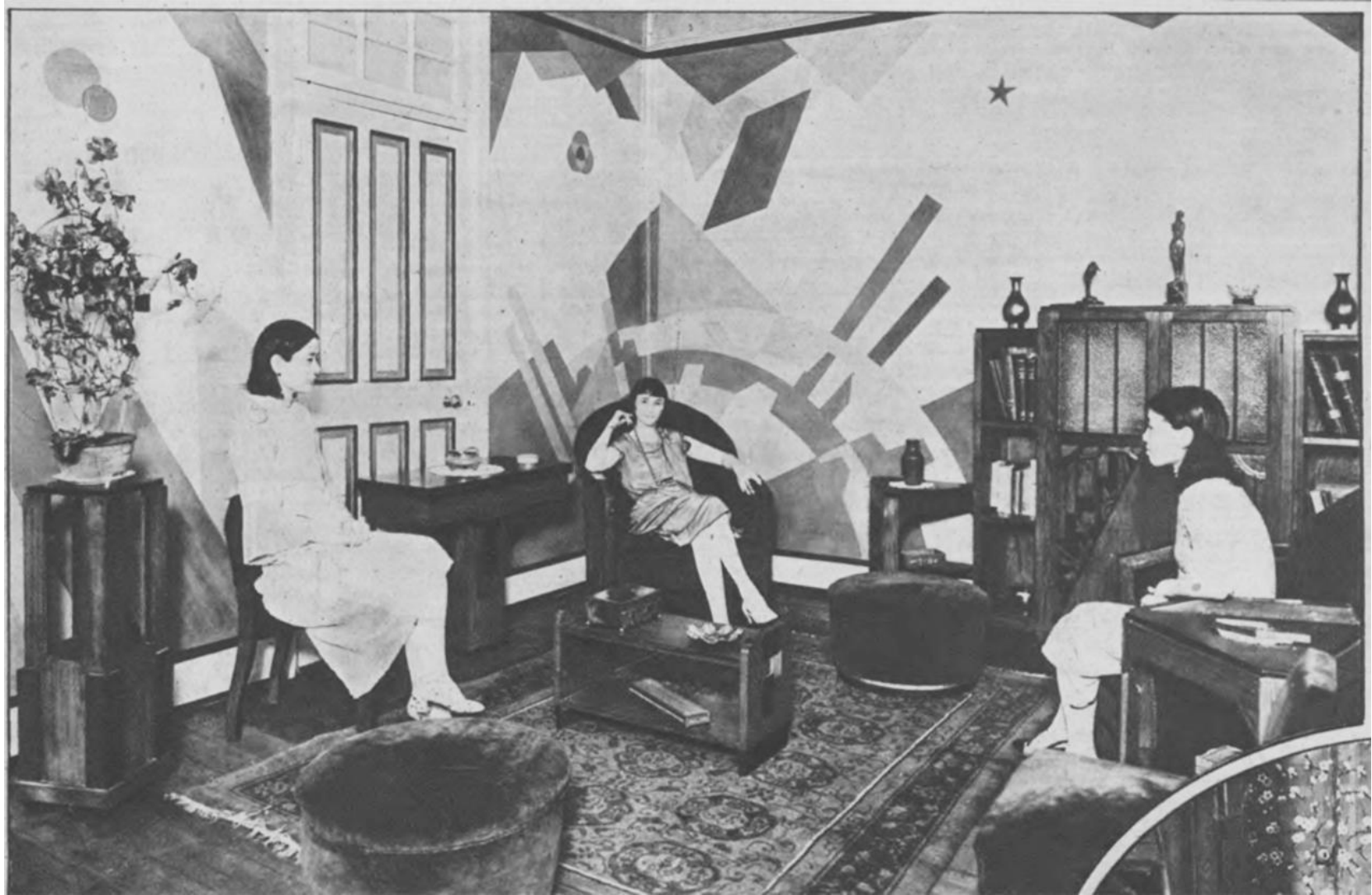


Figure 7. Image of a parlour design by Studio d'Art, with the lady in the centre being designer Huang Zhong's wife. "The latest house furnishings: living room - new wall patterns and chairs and furniture" (Zuixinshi Zhuzhai Chenshe: Keting, Qiangbi Tuan Ji Taiyi Jiasi Kuanshi Xinying), *The Young Companion (Liangyou)*, October 1930, 26.

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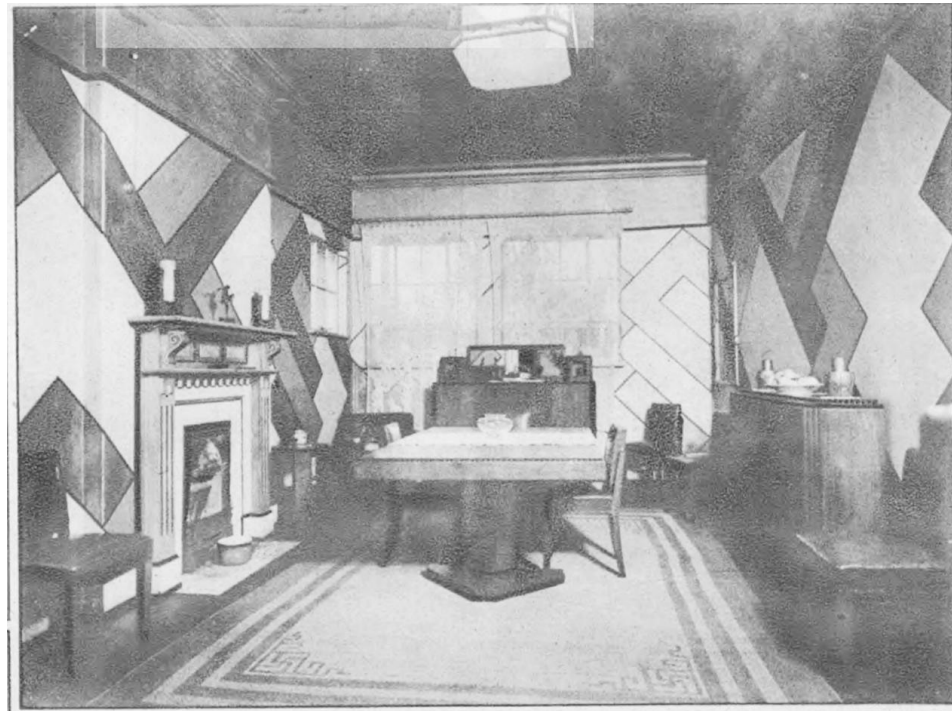
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Figure 8. Three pieces of furniture advertisement that promote Modeng style. Left: Moucheong Wooden Ware Company, “The annual winter sale at the Moucheong Wooden Ware Company” (Maoshang Muqihao Yinianyidu Dongji Dajianjia), *The News*, January 24, 1942, Index of National News Papers and Journals. Upper right: King Shun Hing Company, “The new furniture bed of the artful “(Meishuhua De Xinjiaju), *The News*, January 22, 1939, Index of National News Papers and Journals. Bottom right: China Construction and Decoration Company, “The News: You Can Pay in Instalments for the Purchase of Modern Woodwork” (Xinxiaoxi Modeng Muqi Ke Fenqi Fukuan), *The News*, December 3, 1932, Index of National News Papers and Journals.

Figure 9. A parlour design by Studio d'Art. “The new installation of housing: the elegant and clean parlour”(Zhuwu Zhi Xin Zhuangzhi: Yajie Jingsu De Huikeshi) , China (Shanghai) (Zhonghua, Shanghai), October 1931, 24.



Generative AI as a Design Tool for Adaptive Reuse: Investigating Opportunities and Limitations

JC Stewart IV, Kansas State University

Kutay Guler, Kansas State University

ABSTRACT

Generative AI models that focus on image generation and manipulation, such as Stable Diffusion, Midjourney, and DALL-E, went through a huge transformation from generating clumsy and inconsistent images to those that can deceive trained eyes in the span of only two years (Cao et al., 2023). The latest generative AI models can take text input and produce convincing images that are original, in the sense that the model isn't copying the training data set (Gozalo-Brizuela & Garrido-Merchan, 2023). This ability of very quickly and reliably produce images based on user input has many implications for the design process, as many permutations of the same idea, even the most out-of-the-box ones, can be quickly explored, with little time and effort. In addition to text input, these generative AI models enable the user to feed back the image output, or even utilize multiple sketches, drawings, renderings, and photographs or images, fully or partly manipulated, as input. Considering how Pinterest has been a dominant design inspiration tool (Filgo & Martinsen, 2017), it is not difficult to speculate that generative AI is a contender, that is getting more adept by the day.

Though it is not a recent concept, adaptive reuse has garnered traction towards the end of 20th century (Plevoets & Van Cleempoel, 2013), and it has been gaining prevalence as the immense impact of the building sector on environmental, cultural, and economic sustainability is better understood. The quote by Viollet-le-Duc "To restore a building is not to preserve it, to repair or to rebuild it; it is to reinstate it in a condition of completeness which may never have existed at any given time" (Jokilehto, 1999, p.151) captures the essence of adaptive reuse and the principal difference with conservation: the needs, demands, and taste of the modern user are significantly different than when the building was built, therefore a creative new approach is necessary. Accordingly, generative AI models present a unique opportunity here for reiterating through countless design ideas, incorporating many modern solutions, while being able to preserve the identity and essence of the building.

In order to collect data, a visual design preference survey was prepared. The survey features 24 questions focusing on evaluating AI-generated and real-world adaptive reuse design examples based on

the following two overarching criteria: conserving and transforming identity as well as supplying aesthetic and functional design inspiration. Convenience sampling is utilized to create a participant group involving graduate architecture and interior design students and professionals (n=100+). The statistical analysis (Shapiro-Wilk test, Tukey's HSD, Pearson Correlation Coef.) will include looking into differences and correlations between conservation, transformation, aesthetics, and function. Based on the findings, a framework for utilizing generative AI models as design tools for adaptive reuse projects will be proposed, with the goal of helping designers understand where the weaknesses and strengths of generative AI tools lie supported with empirical data.

REFERENCES

- Cao, Y., Li, S., Liu, Y., Yan, Z., Dai, Y., Yu, P. S., & Sun, L. (2023). A comprehensive survey of AI generated content (AIGC): A history of generative AI from GAN to chatGPT. arXiv. <https://doi.org/10.48550/arXiv.2303.04226>
- Filgo, E. H., & Martinsen, M. (2017). Reframing Pinterest: Information literacy for interior design students. *Internet Reference Services Quarterly*, 22(2-3), 107-121.
- Gozalo-Brizuela, R., & Garrido-Merchan, E. C. (2023). ChatGPT is not all you need. A State of the Art Review of large Generative AI models. arXiv. <https://doi.org/10.48550/arXiv.2301.04655>
- Jokilehto, J. (1999). *History of Architectural Conservation*. Butterworth-Heinemann.

Hampers, Hideaways, and Hidden Chimneys: Examining the Enduring Presence of Craft in the Hallway

Kelley G. Robinson, Florida State University

ABSTRACT

Relevance: The interior hall, which adjoins rooms in an early to mid-twentieth-century bungalow or minimal traditional style house, is often a place of movement. This circulation space serves as an access point to adjacent private areas for occupants. Designs among these house types vary, yet hallways reveal evidence of skilled craftsmanship in hidden boiler chimneys, thresholds to mosaic tiled floors, and nostalgic ironing board cabinets. **Problem:** Our methods of communication and consumption are in constant flux, but some aspects of our interior spaces are slow to change, if at all. One example is a phone nook contrasted with a mobile phone. A phone's reach has not been limited by a cord for some time, yet houses of this earlier era were built with modern, innovative methods that addressed utilitarian and aesthetic needs. Why have these interior details endured? Do budgetary constraints prevent them from changing? Is there meaning associated with these features? **Context:** Many of the five-to-six room homes described above were constructed by "common-house builders" and comprise a significant portion of domestic space in the United States (Hubka, 2013, p. 37). Cromley (2022) summarizes how early twentieth-century contractors developed strategies to create efficiencies in the small bungalow floor plan by designing a hall adjoining the private zones of the house.

Examination of this circulation space requires further study to understand its use regionally and the layers of significance surrounding it. One method for interpreting meaning from buildings utilizes investigative techniques that closely align with material culture studies, where artifacts inform discovery (Carter & Cromley, 2005). In vernacular architecture research, buildings hold similar value to artifacts as the principal focus, coupled with written documentation and stakeholders' oral accounts, which help researchers synthesize and decipher meaning (Carter & Cromley, 2005). These scholars use this framework to examine buildings through the lens of time, space, form, function, and technology as a tested approach to these investigations (Carter & Cromley, 2005). **Methods:** This study employed qualitative methods using the vernacular architecture framework approach with a specific focus on the dimensions of form and function. The research is part of a larger study in North Florida, where 99 homes built between 1927 and 1954 were mapped due to the presence of an exterior building material. In 2023, the author mailed letters of interest to the 99 addresses, which contained a QR code for contact information. Twenty-five interviews were conducted at participants' homes, yielding a 25% response

rate. The author photographed portions of each residence and transcribed the semi-structured interviews. Outcomes: This presentation will highlight the oral histories and extant interiors in the hallways studied. Many of these details absent in today's new housing inventory are present in other spaces or capacities, and the author will discuss the findings related to emerging patterns and participants' perspectives. It will provide a record of interior features that endure while underscoring distinctions between the construction of domestic spaces both during and post war-time efforts. Significance: This research lends insight into the perspectives of multiple homeowners, where access can be limited due to the nature of this type of data collection (Carter & Cromley, 2005). It also employs an existing framework used in a related discipline and views it through the lens of interior design. Additionally, this type of study is applicable to other geographic regions for comparison in future research. Moreover, it enhances our understanding of the details that endure societal change and building adaptation while offering a glimpse into how houses bring their occupants joy and meaning.

REFERENCES

Carter, T., & Cromley, E. C. (2005). *Invitation to vernacular architecture: A guide to the study of ordinary buildings and landscapes*. The University of Tennessee Press.

Cromley, E. C. (2022). *Experiencing American houses: Understanding how domestic architecture works*. The University of Tennessee Press.

Hubka, T. C. (2013). *Houses without names: Architectural nomenclature and the classification of America's common houses*. The University of Tennessee Press.

Appendix



Figure 1. View of a phone nook from a home constructed in 1927. Photograph provided by the author, 2023.



Figure 2. Ironing board cabinet from a house built in 1939. Photograph provided by the author, 2023.



Figure 3. View of a built-in shelf in a house constructed in 1939. Photograph provided by the author, 2023.

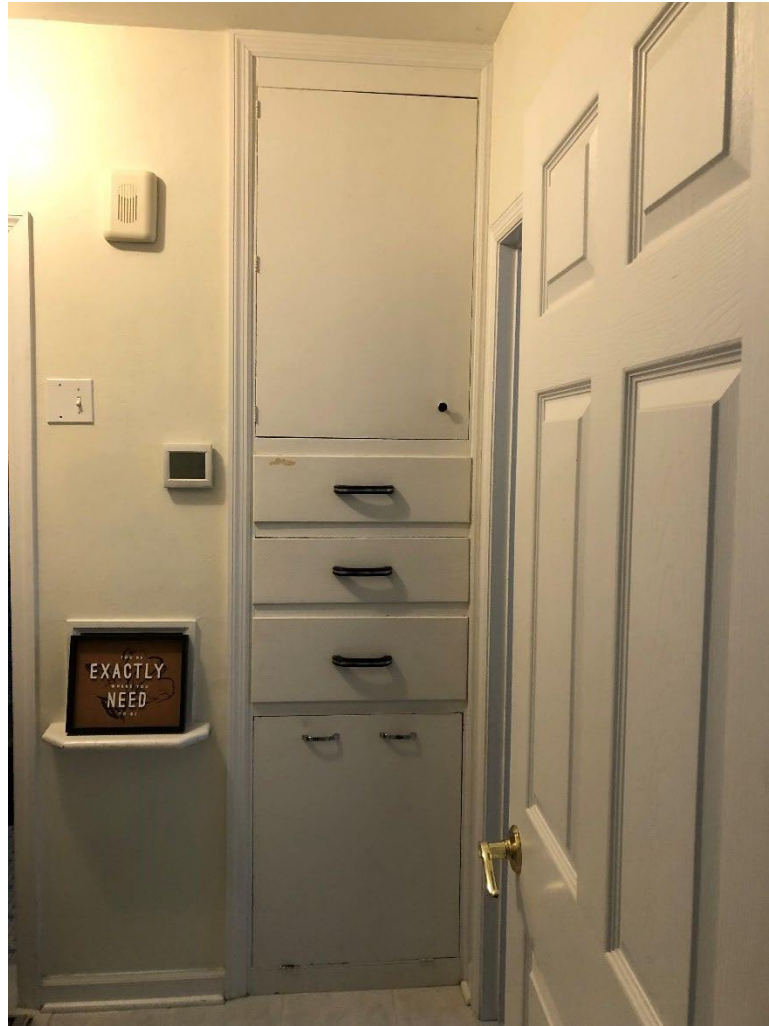


Figure 4. View of built-in cabinets with hamper in a house built in 1945. Photograph provided by the author, 2023.

Horror Vacui and the Amalgam of Styles: A Retrospection of a Residential Design Identity

Adrian Perez Del Monte, University of San Carlos

ABSTRACT

The current societal and architectural landscape of a developing country in Southeast Asia is a product of almost five hundred years of colonial reciprocation between its local culture and foreign influences (Cabalfin, 2016). The influx of imported goods brought by colonialization and globalization paved the way for collecting and acquiring products and services from different parts of the world. This movement encourages people to experience and interact with other cultures making it easier to comprehend and replicate foreign design concepts leading to design impersonation. While it is true that the high demand for foreign-inspired residential buildings is a product of globalization and commercialization, the fast-changing landscape of the built environment has fostered an array of design practices in residential building design. A number of these built structures referred to the historical past, integrated with tradition and technological advancements, likewise, radical innovation using established knowledge. One of its profound implications, on both aesthetics and functionality, is an aversion to empty spaces or horror vacui (Mortelmans, 2005), the fondness for filling spaces with forms and things, patterns and textures, colors and shapes, that fosters visual overload and design crowding. These labor-intensive, and detail-dominated spatial dynamics are applied to both interior and exterior components of a house creating design diversity and personalization of the space.

Looking into the practice of residential design, a case study was conducted among Filipino Residential Interior Designers through interviews and focus group discussions. The data collected anchored on understanding practitioners' design process, including the culture and traditions of designing residential houses in the Philippines.

This study inferred that horror vacui as an amalgam of forms and things to fill up space in this contemporary time through the confluence of styles and the necessity to connect. It was observed that a typical house in this developing country has a wall covered with family memorabilia, including diplomas, family photos, and an altar filled with religious icons. These accessories and artifacts, mostly useless, in a way, venerate a deceased loved one, and/or it signifies individuality and the desire to stand out. Respondents reiterated that having access to varying styles due to the open market and globalization makes the concept of horror vacui to proliferate. In addition, the idea of having more parallels to wealth and having sparsely decorated spaces suggests privation.

Moreover, the data suggest that most, if not all, respondents believed that foreign cultures influence their current residential designs. Among the rationales involved travel and tourism, cultural immersion, academic foundation, economic convenience, and overarchingly, its historical attachment. As observed, these rationales are primarily associated with the sociopsychological perceptions of Filipinos that anything foreign is better than their own (David, 2013).

This peculiar design practice is part of systems of beliefs passed on to generations, some are vestiges of colocalization, and design practitioners are expected to get accustomed. Although not exclusive to a developing country in Southeast Asia, the need to be aware and understand such practices is warranted for cultural understanding. This presentation will underline the amalgam of styles, localized or otherwise, that continues to be a driving force in this developing country's current residential designs. The confluence between the local culture and foreign culture in residential design practice will also be discussed and how the cross-cultural adjustments are manifested and received by design professionals.

REFERENCES

- Cabalfin, E. (2016). Conquest and Resistance: Intersections of Colonialism and Modernity in the Twentieth-Century Philippine Modern Architecture. *Journal of Southeast Asian Architecture*, 13, 62–73.
- David, E.J.R. (2013). *Brown skin, white minds: Filipino-/American postcolonial psychology*. Information Age Publishing, Charlotte, NC.
- Mortelmans, D. (2005) Visualizing Emptiness, *Visual Anthropology*, 18:1, 19-45.

House as a Transformative Setting: The Story of a Very Ordinary Apartment

Nadya Kozinets, University of Louisiana at Lafayette

ABSTRACT

This paper delves into the transformation of residents' daily life within the ostensibly static housing typology of multi-story apartments, spanning decades of social and economic change in Ukraine. It explores changes, encompassing shifts in meaning and significance for residents, and assesses the typology's adaptability to the future. The method of inquiry employed is photo analysis to explore historical aspects of the interior design discipline. This analysis entails the examination of a series of images depicting interior scenes, focusing on their content to illustrate historical precedence.

The historical development of this housing typology, informally known as 'khrushchevki' from the Soviet era, is drawn upon and contributes to extensive multidisciplinary research. These apartments, constructed through prefabricated modular, large-panel building methods, presented challenges such as its diminutive size, constrained and inflexible spatial layouts, low ceilings, subpar construction materials, poor acoustics, limited privacy, low energy efficiency, and inadequate storage. Yet, during the Soviet era, this typology held significant meaning for its residents.

After the collapse of the Soviet Union in 1991, independent Ukraine inherited the aging and inadequate housing stock. Urgent improvements were needed to enhance living conditions as the government-promised renovations lagged.

Residents embarked on "transition without transformation," known as Euro-style remodeling, modernizing outdated materials and finishes. Vinyl, plastic laminate, drywall, dropped ceilings, and neutral paint replaced old wood frames. Glazing balconies and loggias expanded living space.

Despite these changes, apartments tended to maintain uniform aesthetics. This adaptive strategy resembled vernacular architecture, with residents making exterior modifications like balcony additions.

Interior spaces were less adaptable due to neighboring walls. Presently, the most popular strategy involves reconfiguring or combining adjacent interior rooms to create a more open space.

The single-family apartment's transformative importance cannot be understated. It elevated living standards and became synonymous with normalcy and accumulating sentimental value.. The typology has remained relatively unaffected by three decades of economic and social transformation. However, its meaning transformed from positive to negative connotations.

Findings: Despite economic and social transformation, the single-family apartment remained somewhat static, primarily altered by individual residents. It has retained its 'normal' status but

acquired a negative stigma. Several lessons can be drawn from the Soviet era single-family apartment typology.

- It documents the design history of Soviet-era residential architecture and underscores modularity as an efficient solution during crises
- It provides the historic context for economic micro-housing and starter home trends.
- It provides an insight to the homogenization and uniformity in residential multi-story residential architecture across US cities.
- It highlights the demand for modular, economically constructed houses and emphasizes that compact size can work with proper design considerations.

Since the onset of the 2022 Russian invasion, this residential typology has faced substantial losses, exacerbating Ukraine's largest housing crisis in history.

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REFERENCES

Badger, E. (2022, September 25). Whatever happened to the starter home? New York Times. Retrieved October 23, 2022, from <https://www.nytimes.com>

Bulakh, T. (2020). The enchantment of imaginary Europe: Consumer practices in post-Soviet Ukraine. In: Scarborough, C., Mincyte, D. and Gille, Z. (Eds.), *The Socialist Good Life: Desire, Development, and Standards of Living in Eastern Europe* (pp. 162-183). Bloomington: Indiana University Press.

Filyuk, K. (2021). "Eurorenovation (euroremont): The art of concealing" in E. Neves (Ed.) *WALKING AROUND THE SUN. MACHINES, SPIDERS AND BUCCANEERS. NOTES ON EUROPE. THE DOGMATIC SLEEP (1)*, 30-35. Porto: CEAA/ESAP-CESAP.

Holland, O. (July 26, 2022). What's it like living in Soviet-era housing today?. CNN. <https://www.cnn.com/style/article/what-is-it-like-living-in-soviet-era-housing-today/index.html>

Implications of Neurodiversity for Interior Design - Focusing on Special Needs of Occupants with Epileptic Conditions

Jain Kwon, Colorado State University

Brinley Shultz, Design Practitioner at Boulder Associates

ABSTRACT

Issue

This exploratory study investigated the impact of interior environmental factors on the spatial experience of neurodivergent individuals, specifically those with epileptic conditions. Neurodiversity in built environments refers to the differences in individuals' internal brain functions toward their surroundings. Despite the breadth of neurodiversity and complex environmental impacts on neurodivergent individuals' comfort, safety, and well-being often seem overgeneralized in various domains. Despite the growing attention in academia and industry, guidelines or standards concerning neurodiversity are still minimal in interior design or related fields, e.g., Universal Design Principles (n.d.), CIDA Professional Standards (2022), and NAAB Guidelines (2023). In recent years, the WELL Equity Rating (2022; 2023) has provided practical strategies concerning neurodivergent occupants, especially in the Inclusive Design (ED) and Health Benefits and Services (EB) criteria. Despite more yet to be specified, it is a significant improvement and a meaningful contribution to the environmental design profession.

Of various neurological conditions, research on the direct impact of interior environmental factors on epilepsy is significantly lacking despite the prevalence of about 50 million worldwide (WHO, 2023); 1.2% of the US population (95% CI* = 1.1-1.4) in 2015, which is about 3.4 million (3 million adults and 470,000 children) (CDC). Epilepsy often seems overgeneralized or assumed to be hypersensitivity. The currently available information about interior environments for people with epilepsy is focused on how to prevent injuries from seizures or falls, e.g., adjusting furniture arrangements or removing flickering lights, rather than promoting their overall well-being. Given the near absence of precedent studies, this exploratory study focused on subjects' lived experiences in their daily living and tasks in interior environments.

Methods

The pilot study used mixed methods: in-depth interviews using an open-ended questionnaire, a semi-structured questionnaire, and an image tool. The research tools were developed based on the literature review on epilepsy and patient experience. The study used a sample of four individuals at the ages of 19, 42, 50, and 66. The small sample size was purposefully determined for in-depth research. Due to the sensitivity of the research topic, the mode of interview was determined—face-to-face or virtually—based on each subject’s preference. Visual stimuli were displayed via screen- share and on a 14-inch or 15-inch screen, depending on each subject’s computer size.

Outcomes

Findings from this study include both known triggers and those yet to be studied:

- Two subjects said, “pops” (meaning focal points) in task-oriented environments can be uncomfortable and distracting, while another subject said she needs a few focal points that visually stand out of ‘blend space,’ as she can look at them when she starts feeling a pre-seizure symptom and tries to ease it.
- Certain types of visual contrast (e.g., light and shadows of tree leaves moving) often feel uncomfortable.
- Dim lighting or darkness can cause epileptic reactions, as do flashing, flickering, or intense lights directly from above the head.
- Repetitive visual stimuli or patterns while in motion can cause a seizure, e.g., walking up/down long stairs looking at identical steps with no landing to break up the pattern.
- Tight space (e.g., doctor’s offices, exam rooms) with blurry images, whether geometric or natural, on wallpaper feels uncomfortable.

The study findings suggest that design approaches to supportive environments for neurodivergent occupants must be based on empirical research to avoid risking their well-being by overgeneralizing their needs. This study may open a dialogue around the critical quest for specialized knowledge in the interior design profession. This presentation includes research details and an exemplary design application of the findings.

REFERENCES

- Center for Disease Control and Prevention (March 29, 2023). Epilepsy data and statistics.
<https://www.cdc.gov/epilepsy/data/index.html>
- Centre for Excellence in Universal Design (n.d.). What is Universal Design.
<http://universaldesign.ie/What-is-Universal-Design/>.
- Council for Interior Design Accreditation (2022). CIDA Professional Standards 2022.
<https://www.accredit-id.org/professional-standards>
- International WELL Building Institute (2023), WELL Equity Rating, Q1-Q2 2023.
<https://v2.wellcertified.com/en/equity-rating/concepts>

Scholarship of Design Research | Presentation

K-12 Public School Librarians' Perceptions of School Library Design Variables,

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ABSTRACT

Research indicates a significant relationship between K-12 school library programs and student academic achievement (Lance & Kachel, 2018). Actively engaged librarians and well-resourced libraries are strongly associated with student academic success. Examination of school library facilities and their design variables can contribute to our understanding of this relationship, however, limited studies have been performed on this.

This study utilized the Ecological Systems Theory (Jaeger, 2016) that the library is interconnected within the school and the community. Evidence suggests that occupants are influenced by interior variables, such as lighting, space, security, technology, and furniture (Fildaro, 2021). These variables influence occupants in a classroom so it can be assumed that they may also influence occupants in a library. The purpose of this study was to investigate school librarians' perceptions of the library design variables and factors of their school library programs, professional practices, and school. This study seeks to answer the following research questions:

RQ1: What are optimal library designs according to school librarians?

RQ2: Which variables of the library space do school librarians prioritize?

RQ3: What relationships exist among school librarians' programs, professional practices, and school attributes regarding the library design?

Method

Research Design

This exploratory, mixed methods study used an online survey of K-12 public school librarians. University IRB exempt status was obtained. Participants were recruited with an email containing the Qualtrics link sent through the American Library Association (ALA).

Survey Instrument

Non-identifiable information from n = 190 school librarians about the school, their libraries, and their perspectives of library design variables was collected. Participants ranked the importance of design variables for the effectiveness of a library on a Likert Scale of 1 (not important) to 5 (highly important) and on design variables according to priority of importance. Participants could also provide comments. A pilot study to n = 9 librarians provided content validity. Cronbach's alpha provided internal consistency.

Data Analysis

Results were input into SPSS. Analysis began with descriptive statistics for participant demographics and Likert-type and ranked survey items. Cluster analysis was performed on each survey section to determine if significant relationships exist. Cluster analysis analyzed participant demographic frequencies using Chi-square tests of independence to determine whether school or school library factors may have influenced results. Qualitative coding methods from Saldaña (2014), analyzed participants' comments, confirming the quantitative analyses.

Results

Frequencies suggests participants considered each design feature somewhat to highly important for effective school libraries, but some variables had a divided response. For example, responses for charge stations and electric outlets showed that a significant percentage of participants (37% for outlets and 42% for charge stations) were either neutral or not important. A significant percentage indicated large-group presentations and/or having display options to be neutral (36% for space for large-group presentations and 34% for display options). A few security features had mixed responses, including inventory control, traffic control, storm shelters or safe rooms, and panic buttons, yet security overall was important.. No consensus was found on lack of ADA compliance, poor library location, and inadequate technology. Square footage, library location, and technology over storage and security was prioritized. See appendix for results.

This study provides information on how school libraries may be designed to best support school library programs and students. Study findings will be made available to architecture firms who are interested in following a research-based approach to school library design.

REFERENCES

Filardo, Mary (2021). 2021 State of Our Schools: America's PK–12 Public School Facilities 2021. Washington, D.C.: 21st Century School Fund.

Jaeger, E. L. (2016). Negotiating complexity: A bioecological systems perspective on literacy development. *Human Development*, 59, 163–187. <https://doi.org/10.1159/000448743dew>.

Lance, K. C., & Kachel, D. E. (2018). Why school librarians matter: What years of research tell us. *Phi Delta Kappan*, 99(7), 15–20. <https://doi-org.libproxy.uco.edu/10.1177/0031721718767854>

Saldaña, J. (2014). Coding and analysis strategies. *The Oxford handbook of qualitative research*, 581-605. <https://sampo.github.io/Faq/Saldana2014.pdf>

Title: K-12 Public School Librarians' Perceptions of School Library Design Variables

Table 1

Participant Responses on Importance of School Library Design Features

Design Feature	1	2	3	4	5	Mean
	<i>n</i> (%)	<i>n</i> (%)	<i>n</i> (%)	<i>n</i> (%)	<i>n</i> (%)	
Availability of electric outlets	21 (11.052)	15 (7.895)	35 (18.421)	34 (17.895)	66 (34.737)	4.61
Availability of network drops	0 (0.000)	1 (0.526)	0 (0.000)	11 (5.789)	162 (85.263)	3.64
Quality of WiFi connection	0 (0.000)	0 (0.000)	1 (0.526)	11 (5.789)	162 (85.263)	4.92
Accessibility of WiFi connection	0 (0.000)	0 (0.000)	1 (0.526)	12 (6.316)	160 (84.211)	4.92
Patron charge stations	18 (9.474)	17(8.947)	44 (23.158)	50 (26.318)	44 (23.158)	3.49
Space for teaching classes	0 (0.000)	4 (2.105)	11 (5.789)	32 (16.842)	126 (66.316)	4.62
Space for independent study/reading	2 (1.053)	5 (2.632)	30 (15.789)	45 (23.684)	91 (47.895)	4.26
Spaces for book displays	0 (0.000)	2 (1.053)	14 (7.368)	47 (24.737)	110 (57.895)	4.53
Space for large-group presentations	5 (2.632)	22 (11.579)	41 (21.579)	48 (25.263)	57 (30.000)	3.75
Adequate space for traffic flow	0 (0.000)	2 (1.053)	10 (5.263)	53 (27.895)	108 (56.842)	4.54
Adequate storage space	1 (0.526)	2 (1.053)	16 (8.421)	42 (22.105)	112 (58.947)	4.51
Adequate number of bookshelves	0 (0.000)	0 (0.000)	4 (2.105)	26 (13.684)	141 (74.211)	4.80
Height of bookshelves	0 (0.000)	1 (0.526)	16 (8.421)	48 (25.263)	108 (56.842)	4.52
Display options for subcollections/special collections	2 (1.053)	16 (8.421)	47 (24.737)	47 (24.737)	50 (26.316)	3.80
Availability of windows	5 (2.632)	7 (3.684)	32 (16.842)	57 (30.000)	72 (37.895)	4.06
Accessibility features	0 (0.000)	1 (0.526)	8 (4.211)	44 (23.158)	120 (63.158)	4.64

Note. The percentage values reflect the percentage of *n* = 190 participants. Some participants did not respond to all questions.

Table 2*Participant Responses on Importance of Security Features*

Security Feature	1	2	3	4	5	Mean
	<i>n</i> (%)	<i>n</i> (%)	<i>n</i> (%)	<i>n</i> (%)	<i>n</i> (%)	
Visibility of school library spaces	0 (0.000)	1 (0.526)	13 (6.842)	38 (20.000)	120 (63.158)	4.61
Placement of entry/exit points	0 (0.000)	3 (1.579)	13 (6.842)	43 (22.632)	113 (59.474)	4.55
Inventory control	12 (6.316)	23 (12.105)	45 (23.684)	44 (23.158)	48 (25.263)	3.54
Traffic control	2 (1.053)	11 (5.789)	37 (19.475)	66 (34.737)	54 (28.421)	3.94
Secure lockdown locations	3 (1.579)	7 (3.684)	10 (5.263)	29 (15.263)	123 (64.737)	4.52
Storm shelters/safe rooms	7 (3.684)	17 (8.947)	30 (15.789)	50 (26.316)	68 (35.789)	3.90
External emergency exit	9 (4.737)	8 (4.211)	21 (11.053)	47 (24.737)	87 (45.789)	4.13
Panic button	23 (12.105)	16 (8.421)	37 (19.474)	38 (20.000)	58 (30.526)	3.53

Note. The percentage values reflect the percentage of $n = 190$ participants. Some participants did not respond to all questions.

Table 3*Ranking of School Library Design Features According to Perceived Importance*

Design Feature	1	2	3	4	5	6	Mean Rank
	<i>n</i> (%)	<i>n</i> (%)	<i>n</i> (%)	<i>n</i> (%)	<i>n</i> (%)	<i>n</i> (%)	
Square footage	33 (17.368)	43 (22.632)	30 (15.789)	30 (15.789)	18 (9.474)	14 (7.368)	2.99
Storage space	6 (3.158)	13 (6.842)	27 (14.211)	37 (19.474)	53 (27.895)	32 (16.842)	4.27
Location of the library	72 (37.895)	21 (11.053)	18 (9.474)	18 (9.474)	13 (6.842)	26 (13.684)	2.74
Technology infrastructure	24 (12.632)	49 (25.789)	43 (22.632)	24 (12.632)	22 (11.579)	6 (3.158)	2.93
Security	16 (8.421)	10 (5.263)	17 (8.947)	27 (14.211)	33 (17.368)	65 (34.211)	4.46
Accessibility/ADA compliance	17 (8.947)	32 (16.842)	33 (17.368)	32 (16.842)	29 (15.263)	25 (13.158)	3.59

Note. The percentage values reflect the percentage of $n = 190$ participants. Some participants did not respond to all questions.

Table 4*Cluster Centers with ANOVA Results*

Variable	Cluster 1	Cluster 2	<i>F</i>	<i>p</i>
Importance of School Library Features ($n_{\text{cluster 1}} = 85, n_{\text{cluster 2}} = 79$)				
Availability of electric outlets	4.85	4.42	18.46	< 0.001
Availability of network drops	4.39	2.86	72.44	< 0.001
Quality of WiFi connection	4.98	4.90	4.38	0.038
Accessibility of WiFi connection	4.94	4.89	1.37	0.243
Patron charge stations	3.84	3.20	11.63	< 0.001
Space for teaching classes	4.78	4.46	8.711	0.004
Space for independent study/reading	4.67	3.82	43.23	< 0.001
Spaces for book displays	4.80	4.25	28.94	< 0.001
Space for large-group presentations	4.33	3.13	65.06	< 0.001
Adequate space for traffic flow	4.74	4.34	17.05	< 0.001
Adequate storage space	4.74	4.28	16.48	< 0.001
Adequate number of bookshelves	4.92	4.68	11.54	< 0.001
Height of bookshelves	4.61	4.41	3.67	0.057
Display options for subcollections/special collections	4.26	3.30	48.39	< 0.001
Availability of windows	4.38	3.78	15.15	< 0.001
Accessibility features	4.78	4.49	9.73	0.002
Importance of Security Features ($n_{\text{cluster 1}} = 47, n_{\text{cluster 2}} = 123$)				
Visibility of school library spaces	4.49	4.65	2.07	0.152

Placement of entry/exit points	4.11	4.71	27.91	< 0.001
Inventory control	2.68	4.71	38.52	< 0.001
Traffic control	3.19	4.22	51.89	< 0.001
Secure lockdown locations	3.68	4.85	82.20	< 0.001
Storm shelters/safe rooms	2.68	4.37	125.99	< 0.001
External emergency exit	2.94	4.59	124.64	< 0.001
Panic button	1.96	4.14	167.13	< 0.001
Ranking of Negative Effects ($n_{\text{Cluster 1}} = 70, n_{\text{Cluster 2}} = 92$)				
Inadequate space for patrons	2.83	1.99	19.93	< 0.001
Inadequate space for the collection	3.21	2.70	6.45	0.012
Lack of security features	5.20	4.20	18.45	< 0.001
Lack of accessibility/ADA compliance	4.44	3.41	23.46	< 0.001
Poor location for the library	1.50	5.43	1092.86	< 0.001
Inadequate technology infrastructure	3.81	3.25	5.36	0.022
Ranking of Importance ($n_{\text{Cluster 1}} = 60, n_{\text{Cluster 2}} = 108$)				
Square footage	3.05	2.96	0.12	0.729
Storage space	4.05	4.40	2.62	0.108
Location of the library	4.88	1.56	405.52	< 0.001
Technology infrastructure	2.90	2.95	0.06	0.808
Security	3.43	5.04	45.92	< 0.001
Accessibility/ADA compliance	2.68	4.09	37.62	< 0.001

Learning through Nature: Design Strategies to Improve Learning Environments for All Learners

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ABSTRACT

Learning through Nature: Design Strategies to Improve Learning Environments for All Learners

Play is important for the social, physical, and cognitive development of all children. For children who are neurodiverse, the opportunity to participate in play in a shared environment with peers is vital for the development of future life skills. In recent years, natural outdoor environments have received attention as ways to reduce stress, improve sensory processing, social interaction, and many other benefits for all children including those more sensitive to environmental stimuli.

Sensitivity to environmental stimuli is a common complaint for many individuals with neurodiversities, and previous studies have identified sensory processing difficulties as initiating sensory triggers. Auditory and tactile sensitivities are the most prevalent followed by visual sensitivities. The sense of smell, proprioception/vestibular, and taste may also trigger negative responses for some individuals. Individuals with sensory processing difficulties may react negatively when an environment contains too much sensory stimulation or too little.

The purpose of this study was to develop evidence-based design recommendations for all individuals including those with sensory processing sensitivities. Previous studies have focused primarily on indoor classroom design and features. This study expands on previous studies by viewing the benefits of the outdoors as an extension of the learning environment. Through the design recommendations, all individuals (not just those with sensory sensitivities) benefit from an environment conducive for living, working, and learning.

Method

Sensory Integration (SI) theory provided the framework for this study with consideration for children's play theory, biophilic design, and sensory restoration theory. After a thorough investigation of literature, IRB approval was obtained. Data was collected using a mixed-methods approach including 1) interviews, 2) site analysis and observations (5 sites) and 3) surveys. Over 600 individuals with sensory integration disorder and their caregivers participated in the study.

Findings/Relevance to Interior Design

Through the data analysis, eight predominant themes emerged to organize the findings. This information was organized into eight guidelines 1) Structuring the Unstructured, 2) Crossing the Threshold, 3) Spaces within Spaces, 4) Active Engagement, 5) Thinking in Pictures, Seeing in Detail, 6) Sensory Diversity, 7) Stepping Stones to Social Interaction, and 8) Releasing the Imagination. Each of these guidelines have been further defined with strategies to implement the guidelines.

While this study focused on individuals who are neurodiverse, the purpose of this investigation was to provide inclusive design guidelines across a broad spectrum of diversity. Through the implementation of these guidelines, environments for individuals with sensory sensitivities and the general public benefit. If accepted, this presentation will explain each recommendation and provide practical examples for integration into interior and outdoor spaces. For example, the guideline of "Spaces within Spaces" includes three strategies: 1) Prospect and refuge where opportunities are provided for children to remain physically separate from but visually connected to activities, 2) tones of connectivity allows for different levels and forms of sensory connectivity such as visually connected but acoustically muted, etc., and 3) retreat or secret spaces to allow for retreat from multiple stimuli. Each strategy will provide illustrations of intentionally designed spaces to support the guidelines and strategies.

REFERENCES

Gaines, K., Bourne, A., Pearson, M., & Kleibrink, M. (2016). *Designing for autism spectrum disorders*. Routledge.

Mostafa, M. (2008). An architecture for autism: Concepts of design intervention for the autistic user. *International Journal of Architectural Research*, 2(1), 189-211.

Mostafa, Magda. "Expanding Normal: Towards A More Inclusive Approach to Designing the Built Environment". *Open House International* 38, no. 1 (2013): 4-6.

Porter, N. (2012). Promotion of pretend play for children with high-functioning autism through the use of circumscribed interests. *Early Childhood Education Journal*, 40, 161-167.

Let us play hide-and-seek! Family life in Frank Lloyd Wright's Prairie Houses

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ABSTRACT

Frank Lloyd Wright's Prairie period, which emerged around the turn of the twentieth century, is one of the most extensively studied phases of his career. It was during this period that Wright developed his architectural language—horizontal lines, broad eaves, and open, light-filled interiors—which connected his buildings to the American Midwestern landscape and would characterize his subsequent works. Architectural typologies and spatial layouts of Prairie houses have been the subject of a substantial body of computational, qualitative, and historiographic inquiries (Ostwald & Dawes, 2013; Hildebrand, 1991). Other studies situated Wright's Prairie houses within the broader evolution of domestic spaces around the turn of the century (Behbahani et al., 2016; Ramani, 1999). While these studies largely emphasize societal and cultural shifts, they often overlook the lifestyles and family dynamics of individual inhabitants.

This mixed methods study adopts historiographic and space syntax approaches to explore a less studied subject—the role of the family and children within Wright's Prairie residences. The researchers examine six of Wright's Prairie-style houses designed between 1901 and 1910 to investigate how their interior room allocations and spatial configuration qualities, such as depth of layout, visual integration, and ease of navigation, support family social activities (e.g., playing music, reading, and amateur theater performances) and children play and care.

This inquiry is grounded in Wright's conception of Prairie single-family residences, which were almost the exclusive focus of his work during this period. In a 1901 article titled "A Home in a Prairie Town" published in *Ladies' Home Journal*, Wright, then a father of five, presented his vision for the future of American suburban residences, describing them as being conducive to family life: "The ground plan <...> is arranged to offer the least resistance to a simple mode of living, in keeping with a high ideal of the family time together" (Wright, 1901).

The architectural designs of Wright's single-family Prairie houses were celebrated for their open plan, where interconnected rooms formed a continuous and unified interior space, and as a result, served as a means for desegregating discrete activities of the house inhabitants and gathering family members together. The spatial attributes supportive of interpersonal socialization are low depth of layout, high

level of visual accessibility, and streamlined navigational pathways. The analysis of the Prairie house layouts exhibits low to moderate presence of these qualities, suggesting that Wright's designs reduced the possibility that the family members would be visually aware of each other's presence, thus decreasing chances for spontaneous socialization. The authors contend that contrary to the accepted views that Wright's 'open plan' of merged dining, living, and other common rooms brought the family together, the Prairie houses were less supportive of serendipitous gatherings, making it a necessity to deliberately seek such activities as family reading or playing music. Yet, low visual integration and the presence of multiple alcoves, partitions, and discreet passages made these houses a perfect place for games like hide-and-seek.

This paper offers previously unexplored insight into the interplay between the design of Wright's Prairie residences and familial interactions, highlighting the trajectory that shaped the development of American domestic interiors throughout the twentieth century.

REFERENCES

Behbahani, P. A., Ostwald, M. J., & Gu, N. (2016). A syntactical comparative analysis of the spatial properties of Prairie style and Victorian domestic architecture, *The Journal of Architecture*, 21(3), 348-374, DOI: 10.1080/13602365.2016.1179661.

Hildebrand, G. (1991). *The Wright space: Pattern and meaning in Frank Lloyd Wright's houses*. University of Washington Press.

Ostwald, M. J., & Dawes, M. (2013). Prospect-refuge patterns in Frank Lloyd Wright's Prairie houses: Using isovist fields to examine the evidence. *Journal of Space Syntax*, 4(1), 136–159.

Ramani, A. (1999). Understanding space syntax theory in relation to indoor environments: Analyzing Frank Lloyd Wright's "destruction of the box" through contrasting a Queen Anne house with Wright's Robie and Kaufmann houses. <https://krex.k-state.edu/handle/2097/36126>



Mueller, Louise F., "Darwin D. Martin and son Darwin R. seated in barrel chair in the Martin House library,"
Courtesy of University Archives, University at Buffalo, State University of New York.



Mueller, Louise F., "Darwin R. and Dorothy Martin in front of the Martin House reception room fireplace,"
Courtesy of University Archives, University at Buffalo, State University of New York.

Makeshifting' and the Black Interior: An Examination of Temporary, Cyclical Interiors and Objects, Created to Thrive and Overcome Marginalization

Asha Kutty, UNC Greensboro

Kimber Thomas, Library of Congress

ABSTRACT

Makeshifting, as defined by Thomas, involves logical, material, and temporary responses to discrimination, oppression, racism, or scarcity. It demands viewing interiors and objects as multifunctional and requires ongoing innovation (Thomas, 2020). This paper explores two distinct types of Black interiors that illustrate the concept of makeshifting: homes of elderly women in Crossroads, Mississippi, and storefront churches in Milwaukee, Wisconsin. The paper reveals how makeshifting is central to both, despite their geographical and functional differences.

In Crossroads, elderly Black women shared stories that mirrored the passing of the offering plate between pews, stories of survival and resilience. These narratives often revolved around their ability to make do with what they had, to "make a way out of no way" in the face of adversity. These tales of makeshifting, born out of necessity, are less visible in archival records because they were considered part of everyday life rather than something to celebrate or document. Yet, these stories shed new light on the daily experiences of rural Black communities in the South. They reveal that making, makeshifting, and working with available materials provided a quiet means for rural Black women, in particular, to assert some control over their lives in the challenging socio-economic conditions of sharecropping and the harsh social realities of the Jim Crow era. These women at the Crossroads were masters of utilizing material objects to navigate their world.

For example, they ingeniously used Sears Roebuck catalogs as wallpaper and repurposed Prince Albert tobacco tins as hair rollers. Their engagement in makeshifting was not merely a survival tactic; it served to organize the cultural and community logics that helped them reimagine their circumstances and resist the systemic inequalities that plagued them in the early twentieth century.

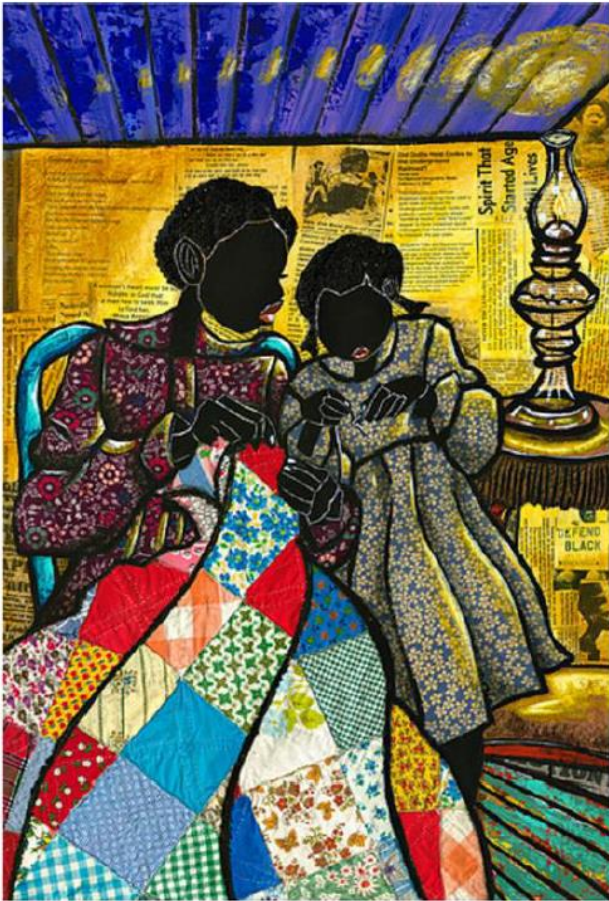
Storefront churches in Milwaukee similarly illustrate makeshifting as a means of maintaining identity and agency in unconventional spaces. Setup in vacant commercial storefront, these churches defy conventional norms associated to churches, in their spatial settings and material aspects. Among the

seven churches studied, each one differed in their outlook to the world, and this in turn accounted for unique interior arrangements. They allow for degrees of personhood where a sense of identity and agency thrives through modes of expressivity that originated as alternatives to the dominant culture. They challenge conventions concerning where people should worship, defy the "normal" degree of religious presence in a given area, (there were about 35 storefront churches in the neighborhood being studied) and embrace the patching and piecing of architectural and interior interventions within their spatial settings. Their opportunistic nature enables them to adapt and reconstitute themselves in response to changing circumstances.

In today's contemporary moment, where Black people must constantly adapt and construct alternate ways of being, it is essential to explore and understand the creative strategies employed to reclaim Black life in America, both in the past and present. Makeshifting, despite its often ad hoc and impermanent nature, has been fundamental to Black communities. These adaptive processes persist, offering a means to regain control over their lives amid the challenges of racial segregation, confinement, discriminatory urban policies, and economic disinvestment. At the heart of their oppression always lay the potential for liberation, and through the phenomenon of makeshifting, these marginalized communities have demonstrated extraordinary creativity and resilience. They have found a way to navigate urban, architectural, and interior environments, expressing the depth of their belief in family, personhood, worship, communion, and the preservation of their cultural heritage.

REFERENCES

Kimber, Thomas. 2020. "Makeshifting: Black Women and Creative Resiliency in the Rural South." *Southern Cultures* 26, no. 1: 120-137. Chappell Hill: The University of North Carolina Pre



21: Leroy Campbell's "Second Hand," from his "Gullah" Collection. Mixed media on canvas. Created 2015. courtesy Leroy Campbell.



12: Sewing a quilt. Gees Bend, Alabama. April 1937. Retrieved from the [Library of Congress](#).



Leroy Campbell's "Between Meals," from his "Family" Collection. 23x41". Mixed media on wood. Created 2014.

Oral Histories of Times During Jim Crow in Crossroads.

Art and historical photographs depict the oral histories of the women interviewed.

Makeshifting was time consuming precisely because it involves patching and piecing. When the women at the Crossroads remembered "papering up the house," they remembered doing so to cover the cracks and holes in the walls, to facilitate cooling, to keep the bugs out, to brighten the dim rooms, and to add beauty to spaces that symbolized their dispossession.



Proposed Exhibition

An installation, that honors the stories given by the black women at the rural Crossroads; that demonstrated the ways in which the inequalities of power, for black folks, have historically and continue to manifest materially; that highlights the role of architecture and interiors in black (southern) life; and that presents objects as ancestors that help narrate Black history.



Milwaukee's Storefront Churches:

Each church studied, had unique interiors and behavioral settings that reflected the churches view of the world.

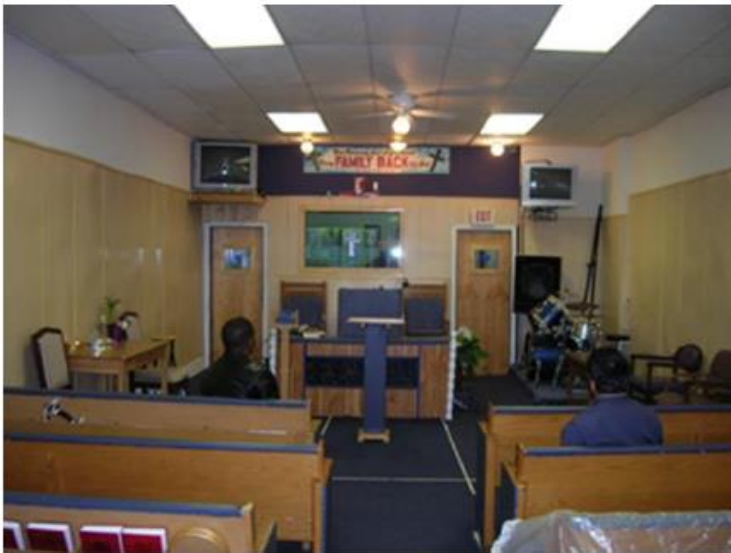
True Rock Missionary Baptist: Drawn curtains and drywalls, to shield the church from the "world of the streets", outside. Pentecostal practices often went against the conventional linear set up of pews and pulpit.



Milwaukee's Storefront Churches:

Each church studied, had unique interiors and behavioral settings that reflected the churches view of the world.

Deliverance Stone Ministry Center: A large foyer, where colorful signage and biblical quotes intended to usher congregants to another realm. An ad-hoc, folksy, pastors office.



Milwaukee's Storefront Churches:

Each church studied, had unique interiors and behavioral settings that reflected the churches view of the world.

New Recovery Love, Life Changing Ministry:

Music played a central role, and there was large recording studio behind the pulpit. The facade went through three stages of development during the study.

Measuring the Effect of CCT Levels of LED Classroom Lighting on Pre-K Student Learning,

Alana Pulay, Washington State University

Dustin Saalman, NAC Architecture

Julie Allen, NAC Architecture

ABSTRACT

Interior lighting is known to reduce visual fatigue and influence human development, function, and behavior (Yang & Jeon, 2020). Light Emitting Diodes (LEDs) are becoming one of the most common lighting fixture in U.S. due to their long- life span, energy efficiency, and low maintenance (Filardo, 2021). Another benefit of LED's is that they emit precise corrected color temperature (CCT) levels. CCT refers to the temperature of the light emitted from the light source measured in kelvins (IES, 2018). CCT ranges from warm yellow color (2700k-4100K) to cool blue (5000K). The CCT is one of the components of light that influences human behavior (Yang & Jeon, 2020), however, current architectural standards and codes do not specify preK-12 classroom CCT levels (IES, 2018).

As more schools and pre-K facilities switch to LED lighting due to their energy efficiency and cost savings, and the fact that young children process and respond to stimuli faster than adults and react differently to visual light (Evans et al., 2001) there is a critical need to determine how this type of lighting influences student behavior, learning and academic success. The overall objective for this study was to determine the appropriate CCT level of LED lighting to promote student academic success in a classroom. To achieve this, the study examined pre-K students under two different CCT levels of white tunable LED lighting to uncover the following research questions: 1) What level of CCT LED lighting promotes students' interactions with teachers, peers and tasks? 2) Do students' interactions with teachers, peers and tasks under different levels of CCT lighting differ based on gender?

The central hypothesis, based upon previous study findings, is that the higher CCT LED lighting will result in more positive interactions with their teachers, peers and academic material. It's also hypothesized that males will be more influenced by the CCT levels.

Methodology and Assessment

This study used within-subjects research design. Non-participant observations examined how students' interacted with teachers, peers, and tasks under high CCT LED lighting compares to their interactions

under low CCT LED lighting in two pre-K classrooms in a children's center on a public university campus. 20 students and 4 teachers participated. University IRB approval and parental consent was obtained. An ABAB research design collected data on the Individualized Classroom Assessment Scoring System (inCLASS) to observe students' behavior. The inCLASS is an observational assessment tool which measures young students' competence in their interactions with teachers, peers, and tasks on a 7 point Likert scale (Downer, Booren, Lima, Luckner & Pianta, 2010).

Control Lamp "A" (3000K CCT) was installed, normal class activities occurred for two weeks as an adjustment period followed by data collection for two weeks. Then, Lamp "B" (5000K CCT) was installed and normal class activities occurred, then data collection. This continued for 8 cycles. Data was input into SPSS and analyzed with Multivariate Analysis of Variance (MANOVA) involving three types of interactions: teacher, peer, and task, as the response variables. The factors considered were gender and lamp types.

The results indicated that, at 5% level of significance, differences in lamp types do not have a significant impact on behavior (p -value = 0.161). When examining between-subject effects, there was a significant difference (at a 6.5% level of significance, p -value = 0.065) in teacher interaction based on lamp type.

While the results indicate that CCT levels of LED are not statistically significant with student behavior overall, results indicate that teacher interactions were different under different light types. With the small sample size, no direct link can be made from this study. Results indicate that more research on this topic is necessary. Full results of this study will be presented with information on future directions.

REFERENCES

- Downer, J. T., Booren, L. M., Lima, O. K., Luckner, A. E., & Pianta, R. C. (2010). The Individualized Classroom Assessment Scoring System (inCLASS): Preliminary reliability and validity of a system for observing preschoolers' competence in classroom interactions.
- Evans, G. W., Lercher, P., Meis, M., Ising, H., and Kofler, W. W. (2001). "Community noise exposure and stress in children," *J. Acoust. Soc. Am.* 109, 1023–1027
- Filardo, M. (September, 2021). 2021 State of Our Schools: America's PK–12 Public School Facilities 2021. Washington, D.C.: 21st Century School Fund.
- Illumination Engineering Society (2018), American National Standard Practice on Lighting for Educational Facilities. Illuminating Engineering Society of North America.

Merits of Cohousing for Families Transitioning from Military to Civilian

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ABSTRACT

Currently, there are approximately 2 million active-duty service members worldwide, along with 2.6 million dependents, meaning 1.4% of the US population is active-duty military or dependent, moreover, 7.8% have had military affiliation (DOD, 2021). The enormity of these numbers emphasizes the significance of the successful integration of military families into civilian life, which has been known to be stressful due to disappearing social support and community programs and the overtaking feeling of isolation (Russo & Fallon, 2015). Furthermore, children are in an especially vulnerable position, as their schooling and social life is interrupted and fragmented over many moves (Chandra et al., 2010). Retirement from the military is often an abrupt decision, made in reaction to circumstances related to duty stations or promotions that develop intermittently, and military families are typically left to make huge decisions about their lives on very short notice, including “where they will live, uncertainty about employment, concerns about finances, schooling, health care and adjusting to life outside of the military support network.” (Thomas, 2018, p. 1). Families often live out of hotels or with relatives until they can get established, or they are separated as one member looks for work and the other manages the existing household.

Cohousing is a unique dwelling typology that is comprised of multiple living units organized around shared amenities, promises support through social interdependence without hindering the sense of privacy, belonging, and autonomy (Durrett, 2022). Considering the unique challenges associated with housing insecurity, financial difficulties, loss of social support for the family and the children, as well as educational transition, cohousing typology appears to be a great fit as the support structures resemble those that are present in the military. Based on this premise, this research investigates the ways in which an evidence-based approach to affordable cohousing design can sustainably benefit the wellbeing of military families while cultivating a sense of community and support.

Data is collected through a series of semi-structured interviews with 16 family members belonging to enlisted, officer, and national guard families from various racial, cultural, educational, and financial backgrounds. Key discussion points identified in the interview framework include: housing affordability, privacy and safety, social relations and support, childcare and education, culture on base, common routines, and financial security. Transcriptions were interpreted in accordance with the iterative

thematic analysis method. Based on the findings, a critical framework is developed to outline the unique needs of transitioning military families within the context of cohousing design. It is expected that the findings will help designers develop a new understanding of the often overlooked needs of military families in their transition to civilian life, and kindle motivation to test the utility of cohousing for this group as well as other vulnerable groups in an age where housing affordability is among the top social concerns.

REFERENCES

Chandra, A., Lara-Cinisomo, S., Jaycox, L. H., Tanielian, T., Burns, R. M., Ruder, T., & Han, B. (2010). Children on the Homefront: The experience of children from military families. *Pediatrics*, *125*(1), 16–25.

Department of Defense. (2021). 2021 Demographics Profile of the Military Community. Military OneSource.

Durrett, C. (2022). *Cohousing Communities: Designing for High-Functioning Neighborhoods*. John Wiley.

Russo, T. J., & Fallon, M. A. (2015). Coping with stress: Supporting the needs of military families and their children. *Early Childhood Education Journal*, *43*, 407-416.

Multigenerational households in the United States: Design for American Families

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Connie Dyar, Illinois State University

Gabriela Fonseca Pereira, Illinois State University

Dana Vaux, University of Nebraska Kearney

ABSTRACT

Purpose/problem

This study aims to promote the physical living environments of multigenerational households, by examining the needs and concerns about the interiors of multigenerational families and exploring the necessary changes to the interior living arrangement for adaptive use by all generations under one roof.

Multigenerational households are defined by the United States Census Bureau as families consisting of three or more generations under one roof. Gardner and Nasserjah (2020) explored the future of building multigenerational housing in the United States and considered that age-friendly multigenerational housing can reduce social isolation and enable people to thrive in place.

Context

Aging has become a social issue in the United States as well as globally. The Joint Center for Housing Studies of Harvard University (2020) predicted that by the year 2040, around 50 million households in the USA will be headed by an individual aged 65 or over. Bross (2018) stated that over 87% of older adults desire to stay in their household and community as they age, a lifestyle defined as aging in place. However, Rosenwohl-Mack et al. (2020) argued that loneliness and isolation are the main consequences of connectedness among aging-in-place people but also found that changing mindsets, adapting their home environments to meet new needs, and finding new ways to link to their important loved ones can engage people who are aging in place. Theoretical frameworks of place attachment and third place theory were used in the development of the study to understand how creating a sense of

belonging between older adults and their physical living space can facilitate interactions and socialization among multi-generational households (Vaux & Asay, 2019).

Method

To address this goal, qualitative methods were employed by gathering data through open-ended interviews and observations. A total of 8 participants from 4 multigenerational families living in United States were invited to voluntarily participate in data collection. The interviews took about approximately 1 hour and were audio-recorded. Transcripts were then analyzed to identify emerging themes and patterns with the software NVIVO 14.

Outcomes

Results illustrated that four themes of needs and concerns were identified, including merged space, independence, lighting, and safety, and three main patterns of adjustments were recommended including size, layout, and functionality, to accommodate all generations comfortably. Place attachment theory provided the basis for establishing design features that fostered a sense of belonging and enhanced identity for family members. An analysis of physical factors related to third place theory, such as cleanliness, views, lighting, privacy, and comfortable furniture, led to the identification of features that facilitate social interaction and promote older adults' well-being.

Application/Advancement of Knowledge

The significance of this study lies in its potential to improve the interior living environment of multigenerational households, to provide practical interior design considerations for an increasingly common living arrangement, to help create a more adaptive living environment for different generations, and to address a specific gap in the interior design field.

REFERENCES

My Bar, My Rules: A Visual History of the Home Bar

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ABSTRACT

RELEVANCE-PROBLEM-CONTEXT: From the mid-19th century to now, where and how we have consumed alcohol has responded to changing social norms and emphases on personal identity. The development of stand-alone bars serving high-alcohol content cocktails in the 1860s influenced Victorian and Prohibition-era social policies (Wondrich, 2017). Post-WWII housing policy favoring single-family suburban development shifted the locus of socialization away from downtown and towards individual homes. Home bars mimicking some aspects of public bars developed to support social drinking, exude sophistication, and promote one's personal identity. Home bars—from bar carts to built-in millwork—enhanced personalization while consumer goods embraced mass production leading to widespread adoption of the home bar through the mid-20th and early-21st century (e.g., Brann, 1970). The home bar became places of escape through the 2020 pandemic as the WFH movement grew. The home bar reveals how American recreation and family life is intertwined with economic opportunity, governmental policy, cultural norms, technology, and personal identity, but firmly based on individual experience and preference. Depiction of the home bar in media from the mid-20th to early 21st centuries reveal the growing prominence of personal identity manifested through interior design of the time.

METHOD: A visual survey of home bar construction plans, advertising in scholarly/trade/popular publications, and social media postings complements a text-based study of home bar design. A search of online image databases, social media postings, the Internet Archive, and scholarly volumes for images of home bars 1940-present was conducted. The images were categorized by cultural influences and source then organized using photo-narration to tell a visual story with attention to content, composition, and audience (Bedi and Webb, 2020). The analysis is based on the premise that images present viewpoints not objective truths, and analysis results are influenced by one's own identity which is accounted for in the outcomes. The resulting stories reveal countervailing ideas on personal identity expressed through design and depicted in media.

OUTCOMES: The conclusion of Prohibition and WWII, the growth of the nuclear family, and changing patterns in alcohol consumption contributed to the development of the private suburban home bar as a substitute for urban public bars.

Mid-20th-century home bars were often DIY projects increasing personal investment, and completed by the homeowner based on, or adapted from, published project guides. Some home bars were integrated into existing spaces and furniture, while others were a dedicated space featuring a counter, like a commercial establishment, complete with plumbing. Home bars from the late-20th century increased in quality as they were often purposefully designed using more elaborate detailing, finishes, and lighting. The DIY pandemic-era home bar (2020-present) developed as ad hoc spaces and combined qualities of the 20th century home bar with greater focus on aesthetics and promotion of personal identity through social media.

DESIGN KNOWLEDGE ADVANCEMENT: Individualization of home bars by homeowners reflect evolving cultural ideas about entertainment, morals, and identity. As common DIY projects, home bars reflect the ways individuals translate cultural themes into private interior spaces as a reflection of their personal identity to others. These vernacular interiors have been neglected in interior design scholarship. Studying the visual character of home bars provides an important counterpoint to textual histories, which often miss the nuances of application in day-to-day living (Hadjiyanni, 2019). The photo-narrative provided by this visual study reminds designers to contextualize solutions to personal identity.

REFERENCES

- Bedi, S., & Webb, J. (2020). Visual research methods: Discovery. In *Visual research methods: An introduction for library and information studies*, pp. 29-49. Facet Publishing.
- Brann, Donald R. (1970). *How to build bars*. Easy-Bild Simplified Directions.
- Hadjiyanni, T. (2019). *The right to home*. Palgrave-McMillan.
- Wondrich, David. (2015). *Imbibe! From absinthe cocktail to whiskey smash, a salute in stories and drinks to "professor" Jerry Thomas, pioneer of the American bar (revised ed.)*. Perigree.

“Hoagy Carmichael standing behind a bar motioning toward a picture on the wall that he painted, “Serenade to a Blue Nose.” Mid-1940-1950s. Image in the Hoagie Carmichael Photography Collection, Archives of Traditional Music.



Advertisement for “modern cellaret” construction plans. In *The Delta*gram. (1945). Volume 15(2), 30.

MODERN CELLARET

☆ THIS attractive cellaret was made entirely from hard wood such as birch, and the drawing shown on the following page is self-

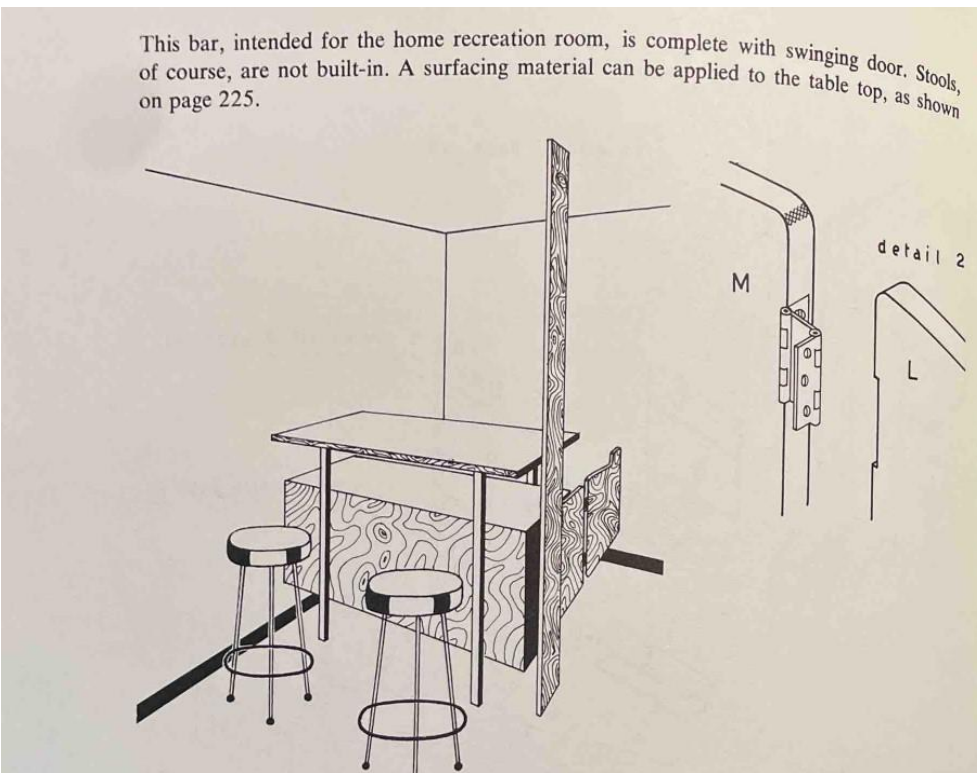
Brass bar cart, designed by Josef Frank, produced by Svenskt Tenn, c. 1950. Image source: 1stDibs, [https:// www.1stdibs.com/furniture/tables/bar-carts/20th-century-metal-bar-cart-josef-frank/id-f_35677432/](https://www.1stdibs.com/furniture/tables/bar-carts/20th-century-metal-bar-cart-josef-frank/id-f_35677432/)



Home bar with built-in television. c. 1955. Getty Images.



DIY built-in bar. In Dal Fabbro, Mario. (1955). *How to make built-in furniture*. F.W. Dodge Corp.



Built-in desk, bar, and entertainment tower. Designed by Richard Hamilton. Image: Harding, Ken. (1958). Getty Images.



February 1958: 35 year old London designer Richard Hamilton relaxing with a friend in his flat equipped with a cocktail cabinet, control panel for lighting, bookshelves, radio speaker, television screen and flap writing desk built into a nine foot high 'bachelor's column'. His room will be on show at the Ideal Home Exhibition. (Photo by Ken Harding/BIPs/Getty Images)

Lucite and nickel bar cart, designed by Charles Hollis Jones, 1963, Metric collection. Image source: 1stDibs, [https:// www.1stdibs.com/furniture/tables/bar-carts/charles-hollis-jones-lucite-nickel-bar-cart-from-metric-collection/id-f_23340642/](https://www.1stdibs.com/furniture/tables/bar-carts/charles-hollis-jones-lucite-nickel-bar-cart-from-metric-collection/id-f_23340642/)



Built-in basement bar with stools and table seating. c. 1960s. Roberts, H. Armstrong. Retrofile/Getty Images.



Build-in bar cabinetry in room divider. In Frankel, Virginia. (1977). *The incredible, wonderful, flexible world of built-ins.* Charles Scribner's Sons. Page 131.



DIY drinks cabinet (or sewing box). In Bloomfield, Ron. (1979). *Make your own furniture: A working handbook.* BBC. Page 88.

SEWING BOX and DRINKS CABINET

Bill Brooker

Both these little cabinets are made from the same basic structure – a sealed box made of 15mm plywood for the sewing box and 15mm mahogany veneered chipboard for the drinks cabinet. As shown in **figure 1**, the top is cut off the box and divided in half to make two closely fitting lids.

The two cabinets differ mainly in their internal construction. The drinks cabinet has a slide-out tray for glasses and the space underneath it is used for bottle storage. The sewing box has two trays running at right angles to each other and one of them is divided into small compartments for storing thimbles, buttons, pins and the like.

Both units are mobile on castors, so that they can be moved about the house at will.


Sewing Box

The sewing box is covered with a beautiful rosewood plastic laminate which makes a very effective contrast to the inside surfaces, which are lacquered with polyurethane to show the natural grain of the plywood. The two lids swing outwards on piano hinges to give a working surface and besides the top tray there is space in the well of the

ing frequently with a try square to make sure the edges stay square. See Planes and Planing, page 120, and Try-Square.

Punch all the pin heads down and when the glue has set, fill all pinholes, grain and cracks with grain filler. Thoroughly sand the

Home fallout shelter / snack bar. In *Home fallout shelter: Snack bar - basement location* (document H-12-D). (1980). US Federal Emergency Management Agency.



A snack bar built of brick or concrete block can be converted into shelter. The hinged canopy can be tilted-down for filling with brick or concrete block.

HOME FALLOUT SHELTER
snack bar-

Covered tiki bar in an outdoor pavilion (Burbank CA). Doctorow, Cory. (2020). Flickr, CC BY-SA 2.0.



Occupant Perceptions of Restorativeness in a Biophilic Building

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ABSTRACT

CONTEXT. Spending time in natural environments is known to benefit cognitive clarity, reduce stress, and enhance mental well-being (Berman, et al., 2008; Zhong, et al., 2022). Despite this, humans primarily inhabit indoor spaces. However, even minimal exposure to nature, such as through windows or nature-themed posters or screens, offers advantages to occupants. This aligns with the biophilia hypothesis, proposed by naturalist E.O. Wilson, suggesting an inherent human affinity for nature. Biophilia has been operationalized in the design field as a set of patterns, or design strategies, that integrate nature or natural elements into the built environment. Browning, et al. (2014) identify 14 biophilia patterns categorized into three categories: nature in the space, natural analogues, and nature of the space. More recently, McGee et al. (2019) identify 54 attributes across six categories. While research has explored the holistic effects of biophilic design, there is a gap in understanding which features contribute to occupants' perception of restoration.

METHODS. This study reports the findings of a post-occupancy evaluation of a sustainable university building designed with biophilic intent based on Terrapin Bright Green's 14 biophilia patterns. A comparable building from the same campus was also examined, both of which are LEED certified and offer similar amenities, including food access, study spaces, seating for various group sizes, and administrative functions. The study addresses three key questions: 1) Do occupants of the biophilic-designed sustainable building perceive it as more restorative compared to occupants of the comparable sustainable building? 2) Which features do occupants find mentally restorative? 3) What biophilia patterns align with the features occupants identify as mentally restorative? An online survey was distributed to occupants of both buildings via QR code fliers and emails sent to employees with assigned spaces, student employees, and students with classes in the buildings. The survey utilized the Perceived Restorativeness Scale (Pasini et al., 2014) to gauge occupants' perceptions of their buildings' restorativeness. Participants were also presented with images of their respective buildings, asked to select restorative features, and provide explanations. Visual data from the building images were analyzed with heat maps, and participant explanations of these features were deductively coded. Two research assistants independently coded the features from open-response questions, yielding a Cohen's Kappa of 1.00. The survey included 145 respondents from the Biophilic building and 105 from the comparison building.

FINDINGS. Participants in the Biophilic building perceived their building as significantly more restorative than participants in the comparison building perceived their building ($p < .001$). The most frequent biophilic pattern that participants identified as being mentally restorative in the Biophilic building was Dynamic and Diffuse Light (24.5%), followed closely by a Visual Connection with Nature (23.3%), then Presence of Water (15%), and Material Connection with Nature (12.1%). Overall, the features identified as mentally restorative by occupants in the Biophilic building represent greater diversity of biophilic patterns than the features identified by occupants in the comparison building.

CONTRIBUTION TO INTERIOR DESIGN DISCIPLINE. Design scholars and practitioners have long recognized the human benefits of design that integrates nature into the built environment. This work helps to move both scholarship and practice forward by identifying key biophilic design patterns that occupants perceive as restorative. Future research and practice are needed to iterate multiple ways designers might articulate biophilic patterns in interior environments.

REFERENCES

- Berman, M., Jonides, J., & Kaplan, S. (2008). The cognitive benefits of interacting with nature. *Psychological Science*, 19(12), 1207–1212. <https://doi.org/10.1111/j.1467-9280.2008.02225.x>
- Browning, W., Ryan, C., & Clancy, J. (2014). 14 Patterns of Biophilic Design. Terrapin Bright Green, LLC, 1–60.
- McGee, B., Park, N. K., Portillo, M., Bosch, S., & Swisher, M. (2019). DIY Biophilia: Development of the Biophilic Interior Design Matrix as a Design Tool. *Journal of Interior Design*, 44(4), 201–221. <https://doi.org/10.1111/joid.12159>
- Pasini, M., Berto, R., Brondino, M., Hall, R., & Ortner, C. (2014). How to measure the restorative quality of environments: The PRS-11. *Procedia - Social and Behavioral Sciences*, 159, 293–297. <https://doi.org/10.1016/j.sbspro.2014.12.375>

Of gendered space and representation in Ai image generation: [Re]producing the male gaze.

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ABSTRACT

When Nicole Gross (2023) asked ChatGPT “What does an economics professor look like?”, the text generator promptly responded with a narrative description that painted a compelling picture...of a man (Gross, 2023, p. 1). In her experimentation with ChatGPT, Gross (2023) demonstrated the gender bias of text-based Ai and offered multiple scenarios illustrating its potentially harmful impact on women and minorities. Feminist geography has also documented deleterious digital gendered space since the advent of GIS with more serious repercussions to women’s safety and privacy in day-to-day living through the collection and use of data from location tracking and social media check-ins (Elwood & Leszczynski, 2018). Algorithms that drive search engines and social media, to those designed for making risk assessments in lending practices, have fallen under scrutiny by a number of feminist scholars who shed light on structural racial and gender bias inherent in the data (Noble, 2018; O’Neil, 2016). These algorithms are erroneously painted as benign mathematical processes that simply reflect public opinion or economic data when, in reality, they are subject to commercial interests and fallibility of biased learning sets (Noble, 2018; O’Neil, 2016).

Gross (2023) shows us how gendered space is performative with real-world impacts, and it seems each new technology works to reproduce its inequities. When my students began “/imagine”-ing concepts in Midjourney to visualize the atmosphere of a space promoting mental health, images proliferated the account depicting white female bodies and faces with accompanying images of spaces that embodied notions of femininity through flowing, organic forms.

Accordingly, mental health apparently only affects young white women, as in four striking images of pre-teen to early teen girls with big, sad, eyes looking up at the viewer that were generated from the single word prompt “hope”. Should we be concerned? Midjourney is a text-based image generator that pulls from large language data sets; therefore, it is subject to the same biases as its contemporaries and predecessors and, unchecked, has the same capability of producing performative social roles.

There is a generalized fear of Ai as a threat to jobs or displacing creative capacity, that appears to be misplaced. While Ai may not pose danger to the existence of our profession, a serious threat does exist. It rests in structural racism and gender bias that persist within the system. Ai promises to streamline processes and assist creatives in generating new visual forms and ideas. If your epistemological lean is toward the object of the interior, then Ai image altering and generating tools can be advantageous.

Midjourney encourages a process of revision, allowing images to be re-run, upscaled with slight or high variation for all, or part, of an image. Within Midjourney's editing process, a person can account for and select images to mitigate bias, but it requires careful consideration and a watchful eye. If we accept that our students will be using Ai as a tool for a variety of purposes, from resumes to inspiration, we must commit to teaching them about bias in the data, including gendered space, and how to recognize it. As such, this presentation will illustrate student generated prompts and their resulting image sets that perpetuate gendered space and the white male gaze, analyzed within the framework of feminist critiques on big data and ethics.

REFERENCES

- Elwood, S., & Leszczynski, A. (2018). Feminist digital geographies. *Gender, Place & Culture*, 25(5), 629–644. <https://doi.org/10.1080/0966369X.2018.1465396>
- Gross, N. (2023). What ChatGPT Tells Us about Gender: A Cautionary Tale about Performativity and Gender Biases in AI. *Social Sciences*, 12(8), Article 8. <https://doi.org/10.3390/socsci12080435>
- Noble, S. U. (2018). *Algorithms of Oppression: How Search Engines Reinforce Racism*. New York University Press. <http://ebookcentral.proquest.com/lib/purdue/detail.action?docID=4834260>
- O'Neil, C. (2016). *Weapons of math destruction: How big data increases inequality and threatens democracy* (First edition). Crown.

Scholarship of Design Research | Presentation

Potential Hazards in Aging Parents' Homes and Adult Children's Attitude Towards Gerontechnology for Falls

Gabriela Fonseca Pereira, Illinois State University

Mihyun Kang, Penn State University

Erica Elsey, Illinois State University

ABSTRACT

According to the National Institute on Aging (2022), falls pose a risk to the well-being of older adults and can limit their ability to maintain independence. Various factors in the homes of older adults can increase the risk of falls, including rugs that can be tripped over, cluttered spaces, cords on the floor, objects positioned too high or too low, uneven flooring surfaces, stairs, and inadequate lighting conditions, among others (Keglovits et al., 2020).

Each year, 25% of older adults slip and fall, making falls the leading reason for non-fatal trauma-related hospital admissions and are one of the main reasons for the increasing number of residents in long-term care facilities (National Institute on Aging, 2022). Gerontechnology, the combination of gerontology and technology, emerged in the last few decades for monitoring or to assist in the event of falls.

Research has identified that adult children have influence over the technology-related decisions made by their elderly parents. Adult children play a decisive role in guiding their parents through the complexities of modern technology adoption, while also bearing responsibility for determining the manner in which their aging parents will receive care in their late years (Miyawaki & Hooyman, 2023). The purpose of this study is to explore potential hazards in the homes of older adults according to their adult children and examine their attitudes towards Gerontechnology for falls to support parents' aging-in-place, guided by the diffusion of innovations theory (Rogers, 2003).

Twenty-two adult children participated in this research. The inclusion criteria were being over 18 years old and have at least one parent 65 years or older with a history of falls. Participants were asked to take pictures of potential fall hazards at their parents' home associated with the activities of daily living, and instrumental activities of daily living. After taking the pictures and sending them to the researchers, an interview was scheduled. Two consent forms were needed for this study: one signed by the participants, and another signed by their parents, allowing their children to share the pictures. In the first part of the interview, the meaning of the pictures was discussed using photo-voice methods. In the second part, the researchers presented a floor and a wall sensor that detect falls and call for help and discussed their

perceived advantage to promote aging-in-place, compatibility with their parent's needs, and complexity of use. Interviews lasted between 45 minutes and 1 hour. Audio recordings were used to create transcripts of the interviews, and content analysis was conducted to identify emerging themes.

From the photo-voice analysis, most children identified clutter, narrow passageways, unlevelled floors, and the presence of steps as the main potential hazards in their parents' homes. Regarding Gerontechnology, a few participants shared that they are already using some technology to help their parents to remain at home. Among these devices, indoor cameras and alert necklaces are the main devices used. However, the alert necklaces received the most complaints among the participants, either because it does not work well or because their parents do not use them. None of the participants were aware of the technology presented to them during the interviews. While all participants had positive attitudes towards the Gerontechnology presented, some were concerned with its complexity, and others would prefer having a combination of indoor cameras that would be accessed only by the children and a wall or floor sensors.

This study reveals main concerns adult children have regarding their parents falls at home and contributes with the discussion about the use of Gerontechnology for falls to promote aging-in-place. By understanding environmental hazards, improving wearable devices, and enhancing awareness of available technology, Gerontechnology can support aging-in-place.

REFERENCES

Keglovits, M., Clemson, L., Hu, Y.-L., Nguyen, A., Neff, A. J., Mandelbaum, C., Hudson, M., Williams, R., Silianoff, T., & Stark, S. (2020). A scoping review of fall hazards in the homes of older adults and development of a framework for assessment and in

Leung, A. Y. M., & Xu, X. Y. (2019). Gerontechnology. In D. Gu & M. Dupre (Eds.), *Encyclopedia of Gerontology and Population Aging* (pp. 1–6). Springer. https://doi.org/10.1007/978-3-319-69892-2_1087-1

Miyawaki, C. E., & Hooyman, N. R. (2023). A systematic review of the literature on transnational caregiving: immigrant adult children to ageing parents in home country. *Journal of Family Studies*, 29(1), 453–470. <https://doi.org/10.1080/13229400.2021.19089>

National Institute on Aging. (2022, September 12). Falls and Fractures in Older adults: Causes and Prevention. National Institute on Aging. <https://www.nia.nih.gov/health/falls-and-fractures-older-adults-causes-and-prevention>

Selection of female forms, many in provocative poses, and the prompts that generated them:



Cozy, comfortable, happy, breezy.jpg



peace_and Joy_painted_belonging.png



strong_independent_healthy_calm_relying.png



comfort_within_nature.png



Meadow.jpg



stress_get_of_rebation_recharge.png



comfort_with_order.png



floating_in_the_wonderful_clouds_and_sky.jpg



serenity_in_a_box.png



books_music_coffee_calm.jpg



dreamy_calm_love.png



safe_space_mind_healing_light.jpg



an_isolation_that_promotes_revelation.jpg



dream_clouds_rain_light_colors.png



safe_beautiful_cosy_wholesome_reward.png

/imagine: hope



/imagine: beautiful anxiety



/imagine: healing depression



/imagine: “anxiety facility with pastel colors and earthy textures”



/imagine: **feeling small but powerful**



Scholarship of Design Research | Presentation

Potential Interventions for Improving the Learning Environment for Students with ADHD in Primary School

Jennifer Webb, University of Arkansas

Conley Lents, Polk, Stanely, Wilcox Architects

Renee Speight, University of Arkansas

ABSTRACT

In the United States, children spend, on average, 6.8 hours a day for 180 days in school (Craw, 2018). Given the exposure to this environment and the potential impact on student health, wellness, and learning, the design of schools and, particularly, classrooms is a critical topic for today's designers and educators. In particular, Attention Deficit Hyperactivity Disorder (ADHD) diagnoses are estimated to range from 6% to 16% for children aged 3–17 years, although many children may be un- or misdiagnosed (CDC, 2022). Children with ADHD are more likely to be negatively impacted by the school environment because of the issues with executive functioning (Cheesman, 2022). The goal of this presentation is to identify evidence-based, classroom interventions to improve the academic performance and behavior of children with ADHD and, by extension, improve the learning outcomes of all students.

Method. The conditions, diagnoses, treatments, and implications of ADHD were established through the National Center on Birth Defects and Developmental Disabilities (CDC, 2022). The baseline information guided searches (e.g., Google Scholar and library database searches such as ERIC and Ebsco) for peer-reviewed scholarship investigating the relationship between ADHD and classroom environments. With particular attention to education and learning-focused publications, research findings were examined to identify thematic content related to academic performance and behaviors of children with ADHD. Once the themes were identified, potential solutions were developed by the authors. The solutions were illustrated to maximize understanding by individuals who are not design professionals, placing important design strategies into a simple spatial and graphic form. New construction and extensive renovation interventions, moderate renovations (no structural changes), and teacher-implemented changes were created to maximize the impact of the research efforts.

Findings. The literature provided seven clear themes that could be implemented in classroom planning and design, renovation, and teacher transformation. Views to nature and biophilia improve concentration and functional level, increase memory and attentiveness, and prolong interest for students with ADHD. Development of courtyards, framing views of nature, and biophilic accessories are

among the strategies illustrated. Natural light increases comfort, increases engagement, and learning for students with ADHD, particularly with north-oriented windows. Artificial light with multiple layers and controls provides students with ADHD a sense of control and allows teachers to create effective zoning, create focus, and support specific activities. Furnishings that are varied and flexible provide students with ADHD comfort, control, and sense of ownership. Multiple storage areas and reduced clutter increase time-on-task for students with ADHD. Classroom zoning and seating arrangements influence time on task, encourages attention, and increases focus for students with ADHD. Clear views for the teacher allow timely behavioral intervention when necessary. In this presentation, these interventions and others will be fully illustrated across varying scales. The design interventions presented here benefit students with ADHD, a vulnerable population most frequently treated by drugs and behavior modification training (CDC, 2022). Students who have not been diagnosed, a frequent reality, will benefit the most from an improved classroom design. Given the number of hours students spend in the classroom environment and the impact the built environment has on health, wellness, and learning, design strategies must be purposeful. Financial limitations, outdated rules, and a failure to understand the built environment's impact on student performance present real limitations, and the solutions proposed here offer a variety of solutions across scales.

REFERENCES

Center for Disease Control and Prevention. (2022, July 1). About Chronic Diseases: Attention Deficit / Hyperactivity Disorder. <https://www.cdc.gov/ncbddd/adhd/>.

Cheesman, R., Eilertsen, E.M., Ayorech, Z., Borgen, N.T., Andreassen, O.A., Larsson, H., Zachrisson, H., Torvik, F.A., & Ystrom, E. (2022). How interactions between ADHD and schools affect educational achievement: a family-based genetically sensitive study. *Journal of Child Psychology and Psychiatry*, 63 (10), 1174-1185. <https://doi.org/10.1111/jcpp.13656>.

Craw, J. (2018, February 22). Statistic of the month: How much time do students spend in school? <https://ncee.org/quick-read/statistic-of-the-month-how-much-time-do-students-spend-in-school/>.

National Center on Birth Defects and Developmental Disabilities. (2023, March 30). Attention-Deficit / Hyperactivity Disorder (ADHD). <https://www.cdc.gov/ncbddd/adhd/index.html>.

Public Interiority: A Roman For[u]m-Finding Mission

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ABSTRACT

Public Interiority disrupts our conventional understanding of space and makes a case for an expanded exterior-interior. Human-scaled urban forms like sidewalks with overhangs or the bowl-shaped topography of the Circus Maximus generate experiential interiors. Recognizing interiority as a fleeting circumstance, not a rigid space, an embankment can become a chair. Equally, a bridge, a shadow, and the sun can construct an intimate interior.

Within public interiority, this presentation will explore the interplay between historical narrative and contemporary urban life. The research presented herein has been conducted in preparation for my upcoming fellowship at the American Academy in Rome, where historical maps serve as a basis for a design proposal. To establish a conceptual baseline, I have collected and analyzed historical texts, engravings, and previously published essays on Roman public interiority. This includes archival materials like Giambattista Nolli's maps of 1740s Rome and interventions from Michael Graves and Colin Rowe's 1970s Roma Interrrotta project and related period correspondence of both periods. This strategy broadens our understanding of the forms, psychologies, atmospheres, programs, and politics in which "one of the most important historical documents of the city" was conceived and realized (InfoGraphics Lab 2006). By expanding the sources to architectural drawings and correspondences, I make a case for the relationship between the architectural ideal and the canopy of urban life (Anderson 2011, 16). I explore how the ontological grounding for public interiority was structured by Nolli—and reinforced by Graves and Rowe.

The data includes a literature review of associated buildings, artifacts, and published historical narratives. I will describe, analyze, and assess the interrelationship between these historical contexts and the conditional interiority of contemporary Rome. Digital humanities scholar James Tice states, "The historic center of Rome has changed little over the last 270 years; therefore, the Nolli map remains one of the best sources for understanding the contemporary city" (Interactive Nolli Map 2021). In my view, this relevancy is due to the consistency of the region's urban form, creative archeology, and Roman urban life. In short, the interior-like spatial experiences and topographical and architectural forms of 1740s Rome are still used today.

Geographically, my area of focus is Nolli's Sector Eight—the Palatine Hill (Circus Maximus, Colosseum, and Forum). In Nolli's maps, these ancient sites remain uncovered, yet several Renaissance and Baroque structures complete the area's northwest boundary. This interior-territory informed the curatorial

strategy deployed in Graves' Roma Interrotta, which aimed to "reflect on the possibility of something grand and lasting that would give an effective modernity and topicality to the Eternal" (Lonardi 2014, 11). Graves distributed each Sector to a different team for speculative intervention. Sector Eight's team included Colin Rowe and others. They started with an alternative history as the site's groundwork, which Rowe describes as "...a ruin imposed upon ruins...[and] present[ed] it as if it has been built according to [unbuilt] intentions" (Rowe 2014, 141). The area represents a set of "interactive local incidents," with a bricolage and experiential potential that exemplifies public interiority—informed by form and shaped by history.

The presented comparative analysis covers the ontological grounding for public interiority—but it also helps us speculate on the present-day conditions that create a novel interior-exterior. My previous research in this area has explored events like concerts at the Circus Maximus and markets that spill onto the street. As such, this presentation intends to establish a historical narrative associated with public interiority so I can later fuse it with my empirical and design research at the Academy.

REFERENCES

Anderson, Elijah. *The Cosmopolitan Canopy: Race and Civility in Everyday Life*. New York: Norton, 2011.

Londardi, Graziella. "History of the Project." In *Roma Interrotta: Twelve Interventions on the Nolli's Plan of Rome*: In the Maxxi Architettura Collections, edited by Piero Sartogo, 11. Monza, Italy: Johan & Levi Editore, 2014.

Rowe, Colin, and Peter Carl, Judith DiMaio, Steven Peterson. "Peter Carl, Judith DiMaio, Steven Peterson, Colin Rowe, USA. Nolli: Sector Eight." In *Roma Interrotta: Twelve Interventions on the Nolli's Plan of Rome*: In the Maxxi Architettura Collections, e

Tice, James. "Introduction." *Interactive Nolli Map Website 2.0*. Stanford Center for Spatial and Textual Analysis, accessed September 15, 2023. <https://web.stanford.edu/group/spatialhistory/nolli/>

Public Interiority

A Roman For[u]m-Finding Mission

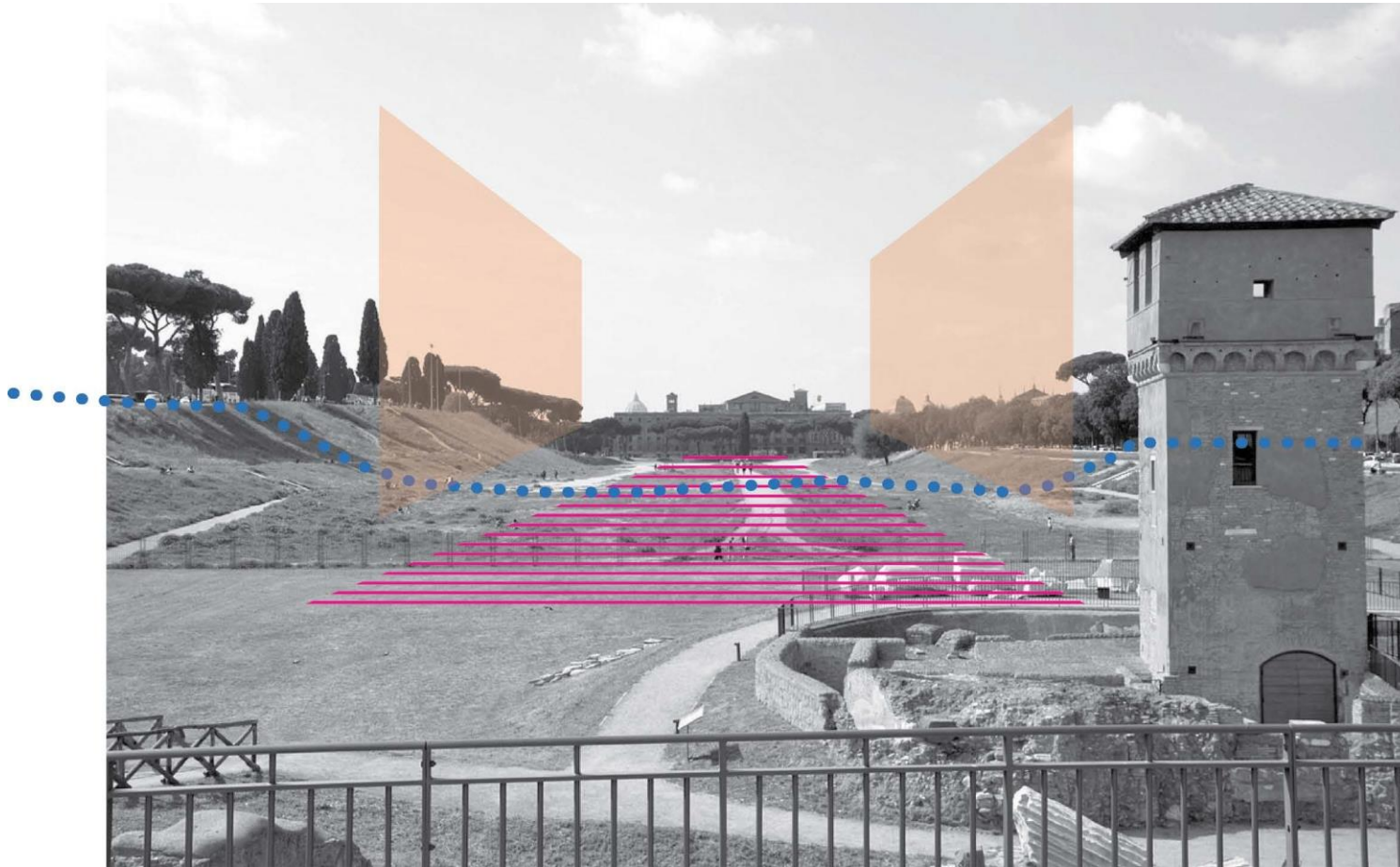
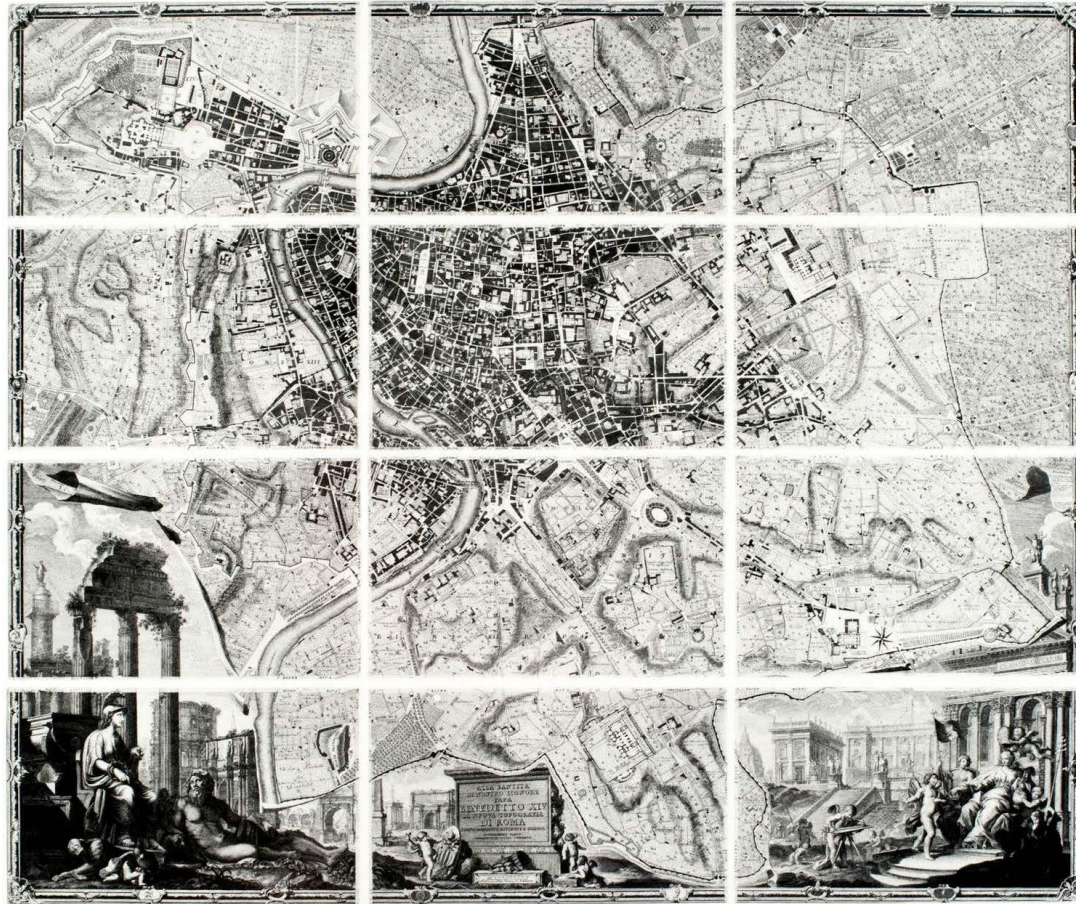


Diagram showing form-based and atmospheric Public Interiority at the Circus Maximus, Rome.

Public Interiority

A Roman For[u]m-Finding Mission



Giambattista Nolli's Plan of Rome, All Sectors, 1748

Public Interiority

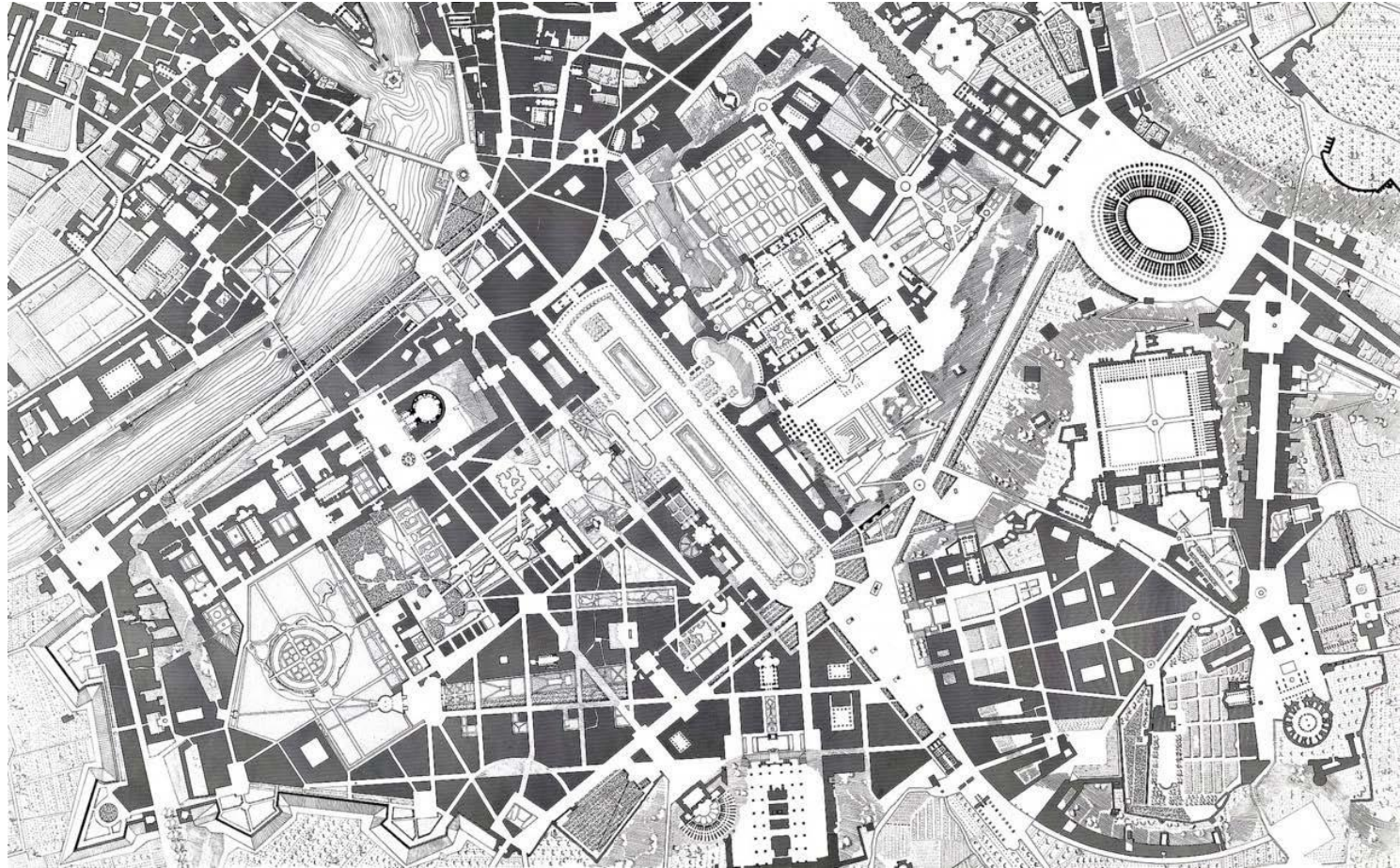
A Roman For[u]m-Finding Mission



Giambattista Nolli's Plan of Rome, Sector 8, 1748

Public Interiority

A Roman For[u]m-Finding Mission



Rome Interrotta Sector 8 proposal by Colin Rowe, Peter Carl, Judith DiMaio, and Steven Peterson, 1978

SAMPL: The Development of a Sustainable Adaptive Material Practicum Lab for Interior Design Pedagogy and Research

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ABSTRACT

The "material landscape" refers to the applied surfaces and artifacts in interior environments (Campbell & McDonagh, 2009). Selecting and specifying surfaces that compose the material landscape of an interior setting play a critical role in building users' and environmental well-being. Interior materiality composition and performance characteristics can contribute to the presence or moderation of chronic and acute health conditions, enhance or degrade user emotional and cognitive experiences, and support or detract from a circular and regenerative economy.

This session will discuss the development of a Sustainable Adaptive Material Practicum Lab (SAMPL) for Interior Design Pedagogy and Research within an R1 university CIDA accredited Interior Design department. SAMPL will be a new multifaceted learning paradigm that will include physical tactile resources and technological and dialogic platforms to enable guided and autonomous exploration of materiality's role in interior environment resilience. A primary research objective of the SAMPL project is to discover how interior design students' procedural knowledge is affected by integrating these resources into learning, which allows them to evaluate and forecast the performance of interior material design.

The premise guiding the SAMPL project is that Interior Design education must increasingly respond to building student knowledge, skills, and abilities to select and specify sustainable and adaptive materials that support built environment and human resilience. Interior Design curriculum presently facilitates the development of student implicit knowledge commensurate with professional practice conditions, which dictate that interior materiality meets conventional design attributes such as life safety, functionality, and cost. However, evolving professional interior design competency requirements necessitate that material selection and specification decision support models also consider the nuanced concepts of ecological sustainability, human well-being, and regenerative design.

The SAMPL project employs the constructs of resilience to inform the selection of applied finishes for the material landscape design as an actionable way to ensure interior surface adaptivity to evolving user experience needs and environmental performance viability. The research-derived logic model used in the SAMPL program and resource development offers a tiered system of material design qualities that

focuses on adaptive response to known and emergent circumstances. It proposes a hierarchy of materiality Technical Performance Measures (TPM), which includes robustness, recovery, graceful extensibility, and sustained adaptability (Seager et al., 2017; Woods, 2015). The project also uses Bloom's Taxonomy (Bloom et al., 1956) to teach interior design students how to seek out and select interior materials that contribute to interior environment resilience. This approach enables students to explore, synthesize, and recall the Key Performance Indicator (KPI) of finishes in a way that informs their design decisions.

The SAMPL project hypothesizes to contribute to interior design by introducing a resilience-driven materiality selection and specification approach. Specifically, SAMPL will focus on teaching interior design students how to interpret specific interior finish technical performance indicators in the context of the building lifecycle, evaluate material capabilities based on user needs and ecological impact, apply the material performance analysis outcomes to materiality selection and specification, and create designs responsive to human and environmental well-being. Iterative use of these SAMPL resources in the context of design curriculum will also enable students to build procedural knowledge in material selection and specification by allowing them to remember ways to retrieve, recognize, and automatically recall knowledge on Interior Finishes and Materials that support built environment resilience.

REFERENCES

Bloom, B. S., Engelhart, M. D., Furst, E. J., & Walker, H. (1956). Hill, and David R. Krathwohl. Taxonomy of Educational Objectives: The Classification of Educational Goals, Handbook I: Cognitive Domain.

Campbell, L. H., & McDonagh, D. (2009). Visual Narrative Research Methods as Performance in Industrial Design Education. *Qualitative Inquiry*, 15(3), 587–606.
<https://doi.org/10.1177/1077800408318306>

Seager, T. P., Clark, S. S., Eisenberg, D. A., Thomas, J. E., Hinrichs, M. M., Kofron, R., Jensen, C. N., McBurnett, L. R., Snell, M., & Alderson, D. L. (2017). Redesigning resilient infrastructure research. In NATO Science for Peace and Security Series C

Woods, D. D. (2015). Four concepts for resilience and the implications for the future of resilience engineering. *Reliability Engineering and System Safety*. <https://doi.org/10.1016/j.ress.2015.03.018>

See vs. Feel: Exploring Stress Reduction in Virtual Reality and Sensory-Stimulated Virtual Reality

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Hanieh Maktash, Iowa State University

Amin Shirazi, Iowa State University

ABSTRACT

Individuals navigate and perceive the world through their senses, encompassing the faculties of sight, hearing, touch, smell, and taste. Consequently, these sensory perceptions profoundly influence our emotional responses within our physical environment (Campelo, 2017). Visual perception assumes a paramount role in shaping our sensory encounters among these sensory modalities, given the predominant reliance on vision compared to other senses. Numerous studies have investigated how visual experiences and multi-sensory interactions can yield physiological and psychological effects, notably in reducing stress and anxiety (Bermudez et al., 2019). This study investigates the realm of Virtual Reality (VR) with a particular focus on sensory-stimulated VR environments. This research aims to assess the efficacy of VR and sensory-stimulated VR experiences in mitigating stress while also conducting a comparative analysis of the relaxation outcomes stemming from these two distinct experimental approaches.

The research methodology consisted of two distinct phases. In the first screening phase, 90 participants filled out the Perceived Stress Scale (PPS) questionnaire, and those with moderate to high stress levels were invited to participate in the second intervention. Thirty-six participants were randomly assigned to one of two experiments. One group watched a VR video using an Oculus Quest Pro headset. The other group not only watched the same VR video with the VR headset but also experienced the scent of clary sage essential oil and the accompanying sound from the VR video. Both participants completed the State-Trait Anxiety Inventory questionnaire before and after this intervention. This scale includes a series of statements that measure both temporary emotional states and the general tendency to see situations as threatening. This study focused on measuring an individual's perceived levels of state anxiety.

This research employed the software R version 4.3.1 for statistical analysis. First, the paired t-test was used to determine whether there was a significant difference between the anxiety level scores before

and after the experiment. In the first experiment with only a VR headset, participants exhibited a significant reduction in stress levels from before ($M = 39.94$, $SD = 14.94$) to after ($M = 29.44$, $SD = 9.83$); $t(17) = -4.81$, $p = 0.0017$. The second experiment, where participants experienced sensory-stimulated VR, also showed that there was a significant difference in their stress levels from before ($M = 45.00$, $SD = 10.83$) to after ($M = 30.61$, $SD = 4.90$); $t(17) = -6.39$, $p = 0.0000$. Second, the two-sample t-test was employed to assess if there was a significant difference between the two experiments. Results showed that there was no statistically significant difference between the two experiments ($MVR = -10.50$, $SDVR = 9.01$, $MVR+S = -14.39$, $SDVR+S = 9.06$); $t(34) = 1.30$, $p = 0.2021$. Therefore, it can be stated that, based on this data and sample size, there is no significant difference in the level of relaxation experienced by participants in the Immersive Multi-sensory experiment compared to the immersive experiment. Both approaches significantly reduced anxiety levels, with the multi-sensory option showing slightly better results. However, given the small sample size, these findings are preliminary but align with the Attention Restoration Theory and biophilic design principles, emphasizing the value of immersive environments in anxiety management.

REFERENCES

- Bermudez, S., Quintero, L. V., Cameirão, M. S., Chirico, A., Triberti, S., Cipresso, P., & Gaggioli, A. (2019). Toward Emotionally Adaptive Virtual Reality for Mental Health Applications. *IEEE Journal of Biomedical and Health Informatics*, 23(5), 1877–1887
- Campelo, A. (2017). Smell it, taste it, hear it, touch it and see it to make sense of this place. *Handbook on Place Branding and Marketing*, 124–144. <https://doi.org/10.4337/9781784718602.00018>

Strengthening College Students' Safety Awareness: Integrating Threat-Based Models in Learning Environments

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ABSTRACT

According to the Centers for Disease Control and Prevention (2018), approximately 58,000 premature deaths occur annually in the United States due to poor air quality. Professionals in architecture and interior design have the expertise required to ensure compliance with industry regulations and standards on public health, safety, and welfare (Grebner, 2016; Ulusoy & Ozdil, 2019). While codes and standards such as the International Building Code, National Fire Protection Association, and American Society for Testing and Materials play a vital role in safeguarding occupant's health and safety (Bureau & Grice, 2016), it is acknowledged that they may not encompass all potential sources of illness, injury, or discomfort arising from built environments. Malven's Threat-based model of environmental health and safety (see Table 1) offers a systematic approach to address potential environmental issues that threaten humans (Malven, 1990).

Consequently, future interior designers must grasp these strategies, engage in systematic reviews, and devise innovative solutions.

This research is dedicated to addressing two primary research questions:

- 1) How do college students perceive the seven environmental categories of threats (mechanical, thermal, electrical, chemical, infectious, physiological, and emotional) using the Threat-based model within their learning environments?
- 2) How do students propose redesigning identified environmental hazards to create safer indoor built environments?

The study employs a case study methodology to explore these research questions, relying on secondary data collected from Human Factors in Interior Design classes from 2019 to 2022. A total of 151 data were utilized for this research.

Following an instructional lecture (75 minutes) on the Threat-based model, sophomore interior design students were tasked with identifying perceived design issues and devising solutions to

enhance safety within a university's memorial union in the Midwest. Figure 1 shows the floor plans of the space. Students articulated their design concerns and solutions through sketches, diagrams, and written explanations, utilizing a paper template that the instructor provided. Students completed the task within 80 minutes. A content analysis of the collected data was performed to identify potential design issues within each category of threats and evaluate students' solutions' effectiveness.

The notable insights highlighted by the research findings are as follows:

- 1) Predominantly mentioned design issues within each threat encompassed 'Falls onto or from an element (36.3%)' in mechanical, 'hot atmospheres (39.2%)' in thermal, 'electrical shock (49.7%)' in electrical, 'allergic reactions (35.0%)' in chemical, 'contagious agents (54.6%)' in infectious, 'sensory stress (46.8%)' in physiological, and 'environmental stressors
- 2) (60.3%)' in emotional threats (see Figure 2.1 to 2.7).
- 3) 62.9% of students perceived more than one risk factor within each category of threats. Analysis of students' design solutions revealed three key characteristics: a) straightforward and intuitive approaches to mitigate risk factors, b) a diverse range of design solutions and ideas, and c) the potential for one solution to address a design issue while potentially introducing another (see Figure 3).

The research findings provide crucial insights into how college design students identify design issues about health, safety, and welfare. Additionally, the design solutions proposed through this research can be instrumental in envisioning safer higher education environments.

REFERENCES

Bureau, D. P., & Grice, J. W. (2016). Firefighter injuries and deaths attributable to building construction: An analysis of building codes and standards. *Fire Technology*, 52(1), 1-22.

Centers for Disease Control and Prevention, U.S. Department of Health and Human Services, National Center for Environmental Health. (2018). Built Environment. Retrieved from https://www.cdc.gov/nceh/information/built_environment_overview.pdf

Grebner, D. L. (2016). The legal and ethical responsibilities of interior designers in codes and standards compliance. *Journal of Interior Design*, 41(1), 1-12.

Malven, F. (1990). Threat-Based Definition of Health, Safety, and Welfare in Design: An Overview. *Journal of Interior Design*, 16(2), 5-1

Appendix

Table 1. Summary of Threat-based Definition of Health, Safety, and Welfare in Design (Malven, 1990)

Categories of threats	Risk factors	Description of the risk factors
Mechanical	Falls onto or from an element	Falling onto a walk, stairs, railing, edge, or other injurious object.
	Striking an element	Walking, moving, or being propelled against an injurious object by reason other than a fall.
	Being struck by an element	A building material, assembly, item of contents, or other injurious object falling onto the victim.
	Compression by an element	Crushing by a building material, assembly, item of contents, or other injurious object falling onto the victim.
	Violent events	Physical assault, animal attack, or natural occurrence.
Thermal	Fire products	Contact with flame, hot gases, hot smoke, or radiant heat produced by a fire.
	Hot objects	Contact with hot materials and assemblies.
	Hot liquids	Contact with hot liquids due to a fall or a broken or overturned container.
	Hot Atmospheres	Being subjected to hot atmospheres or more serious exposure to super-heated atmospheres.
Electrical	Electrical burns	Transmission of electrical current through body tissue, resulting in deep tissue damage between points of contact.
	Electrical shock	Conduction of electrical current through the body in a manner that interrupts vital bodily functions.
	Electrical fire ignition	Malfunctioning power outlet by a faulty electrical connection
Chemical	Superficial irritation	Inflammation of external tissue.
	Internal irritation	Inflammation of an internal organ or system.
	Allergic reaction	Highly individualized combinations of symptoms in reaction to specific conditions.
	Corrosive effects	Destruction of tissue. Damaging effects of a strong acid on the skin.
	Cancer	Development of malignant tumors.
	Toxic effects	Temporary or permanent damage to body organs or processes.
Infectious	Contagious agents	Infection by contagious disease.
	Indirectly infectious agents	Infection by Indirect exposure to contagious disease.
	Building functionally-originated infection	Infection by bacteria and microorganisms originated in different functional areas of a building.
	Building construction-originated infection	Infection from bacteria and microorganisms bred by combining building materials and conditions.
Physiological	Skeletal-muscular stress	Straining bones, muscles, and connective tissue beyond their normal capacity.
	Metabolic stress	Abnormal strain on circulatory and respiratory systems.
	Sensory stress	Contagious disease infection resulting from exposure to co-occupants of tight spaces.
Emotional	Interpersonal stress	Contact (actual, potential, or perceived: physical or non-physical) with individuals or groups of people that are anxiety-producing.
	Environmental stress	Contact with tangible or intangible elements of the environment that are anxiety-producing.



Figure 1. Case study – Floor plans

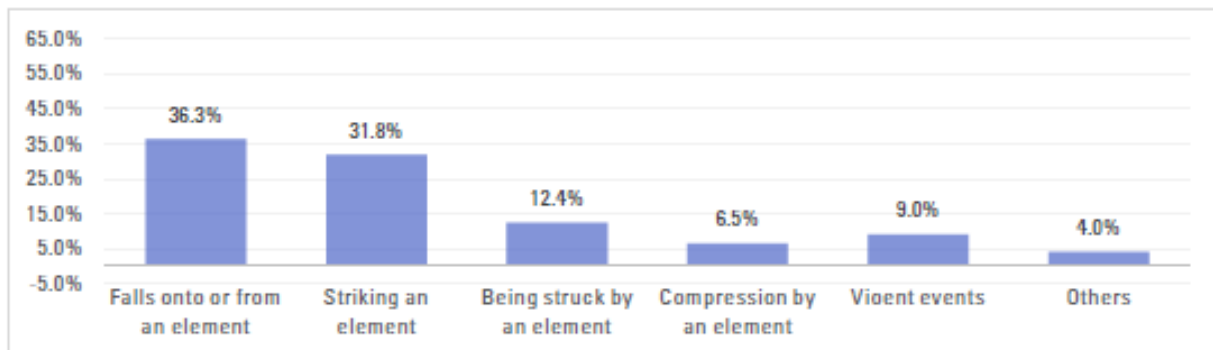


Figure 2.1. College students' awareness of the risk factors of mechanical threats

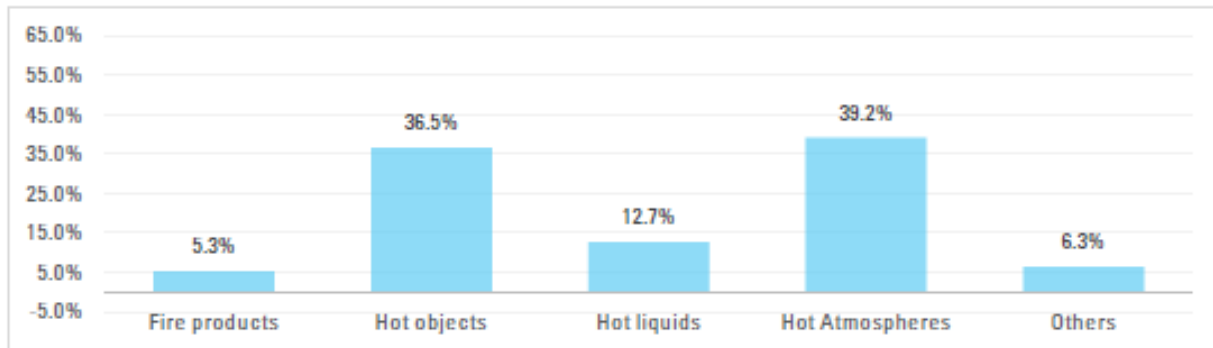


Figure 2.2. College students' awareness of the risk factors of thermal threats

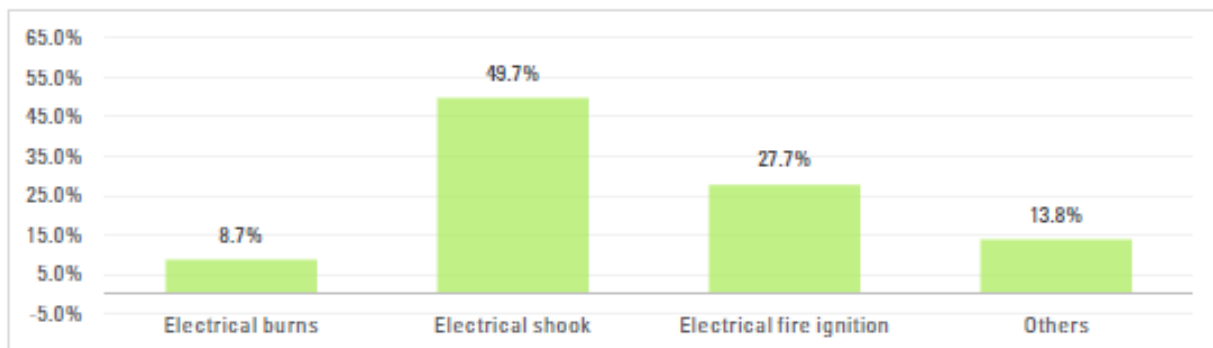


Figure 2.3. College students' awareness of the risk factors of electrical threats

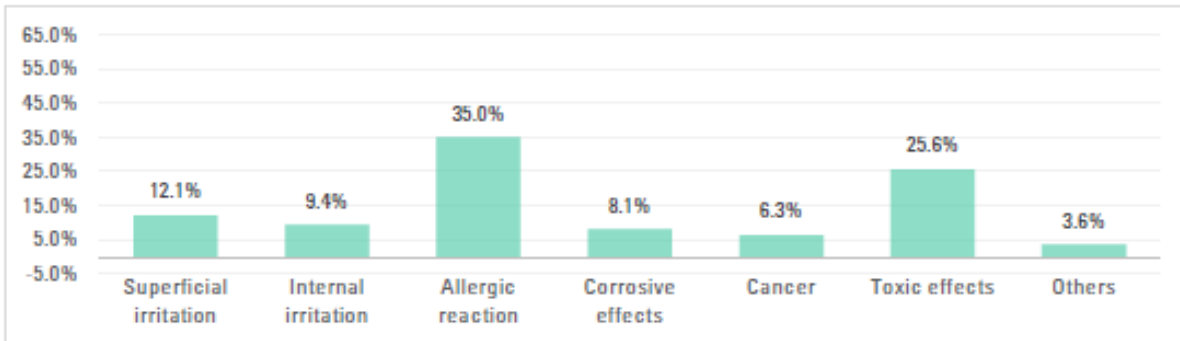


Figure 2.4. College students' awareness of the risk factors of chemical threats

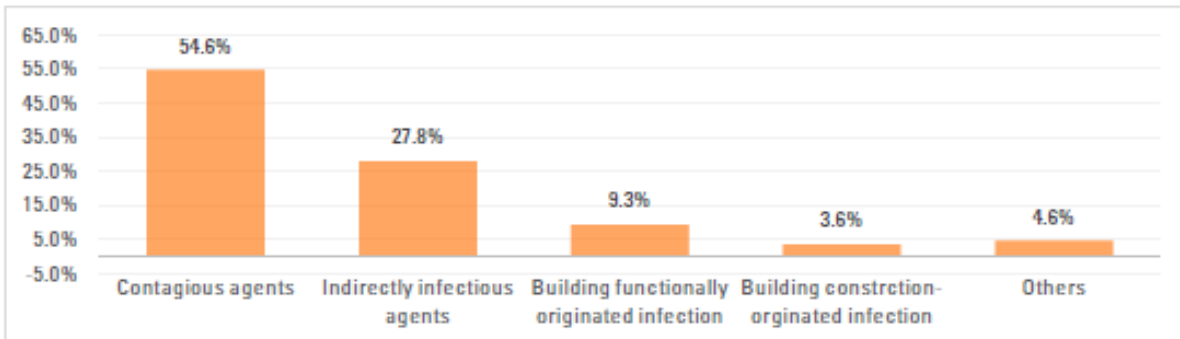


Figure 2.5. College students' awareness of the risk factors of infectious threats

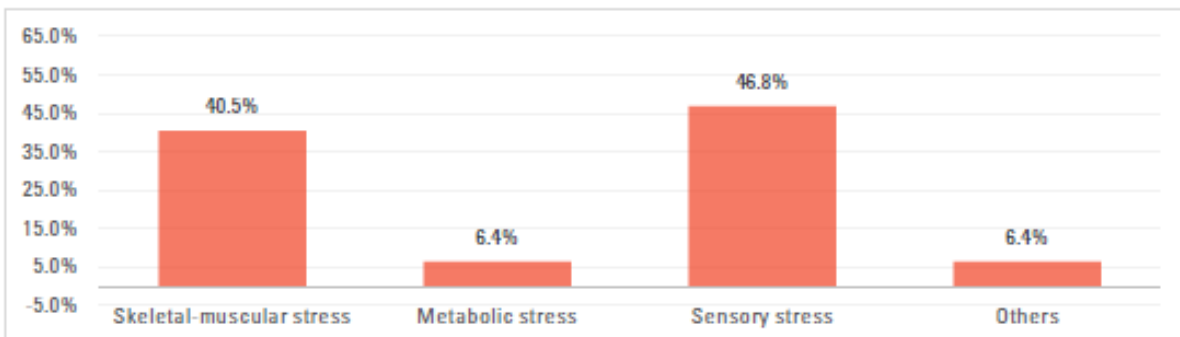


Figure 2.6. College students' awareness of the risk factors of physiological threats

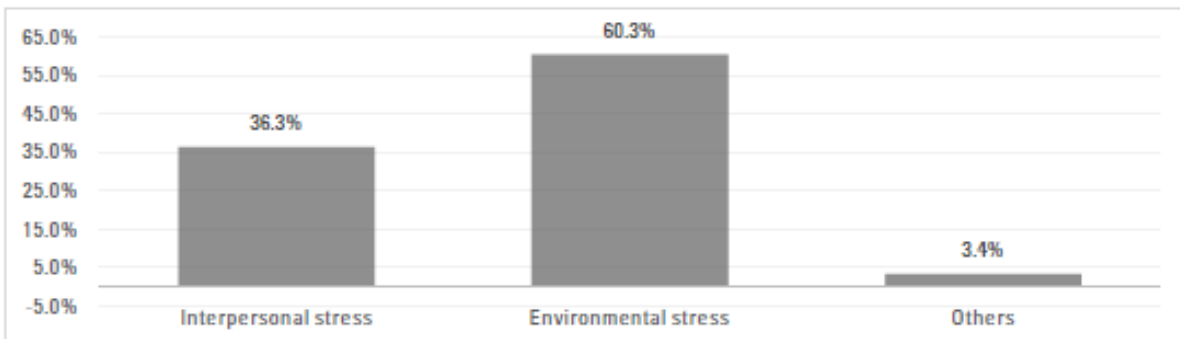


Figure 2.7. College students' awareness of the risk factors of emotional threats

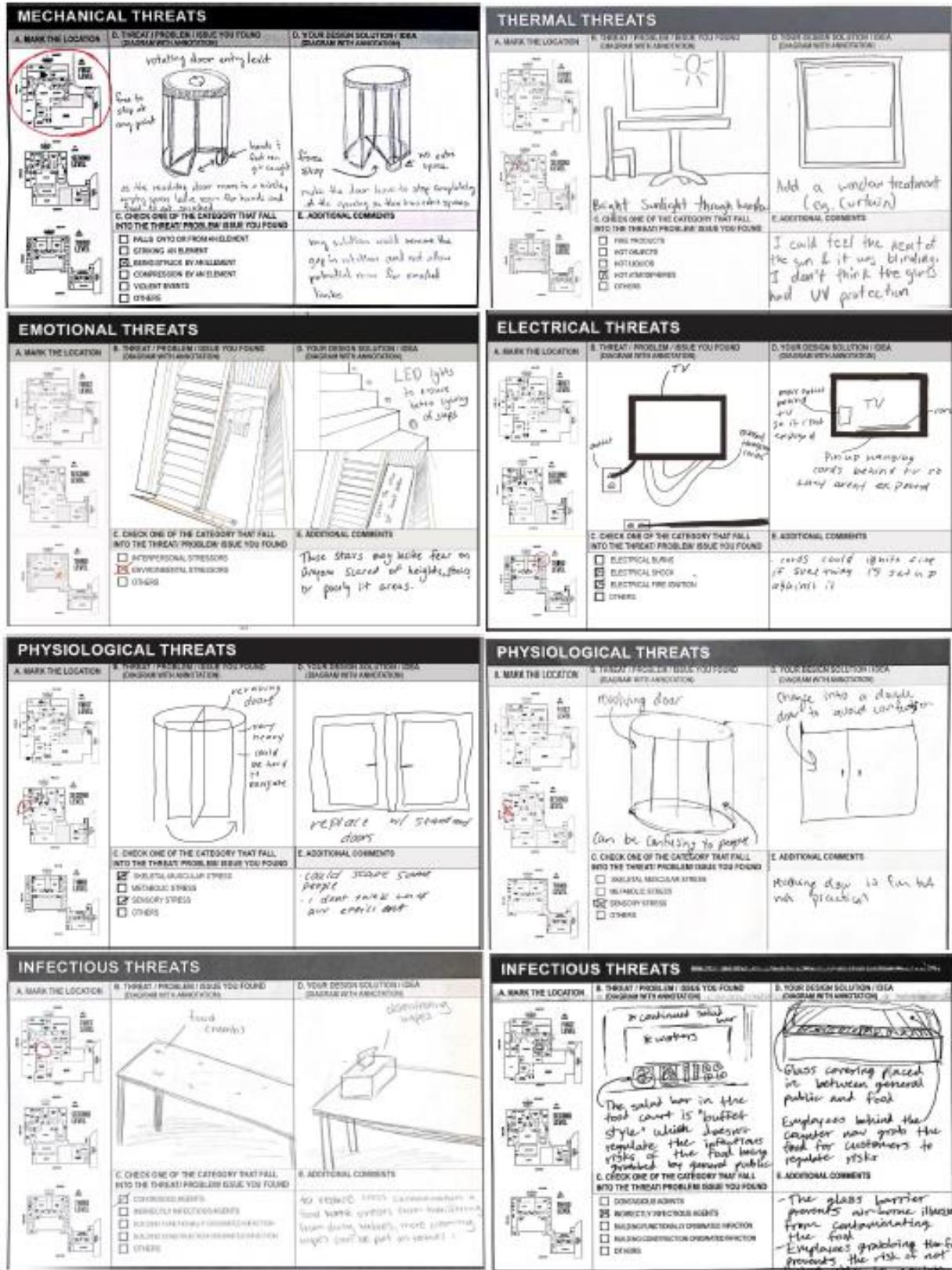


Figure 3. Examples of the participant's responses

The Home Physical Environment Factors Associated with Child Self-Regulation

Reem Hassan Bagais, Illinois State University

Debajyoti Pati, Texas Tech University

Erin Hamilton, University of Wisconsin–Madison

ABSTRACT

Context: Low self-regulation in children has been linked to adulthood instability, crime, high arrest levels, lower levels of success, and lower levels of cognitive achievement. Similarly, early regulatory difficulties predict later problematic social behavior (Baker & Brooks-Gunn, 2019; Baumeister & Vohs, 2004). A child's home is part of a complex microsystem referred to as the immediate environment, consisting of different factors such as family income, parenting responsivity, and a chaotic home environment. The home environment is an important external source that affects a child's cognitive, behavioral, psychological, and social development. Literature has established the association between chaotic environments and child self-regulation through the accumulation of different stressors (Evans, 2003). Also, a study that ties together theories on environmental design offered a plausible conceptual pathway between the physical environment and a child's ability to self-regulate and manage stress (Bagais & Pati, 2023). However, the design factors of the physical environment are not comprehensively addressed in current literature, and less clear understanding exists about how home-design factors may influence stress levels. This study aimed to fill the gap and explore design elements in homes of families with different income levels. By focusing on the immediate environment (the home) at the micro- scale, this study explored multiple environmental factors that occur in the environment that may influence a child's stressful and calming experiences as part of self-regulation.

Method: This research qualitatively explored the home physical environment in relation to child self-regulation. The current research asked two questions: (1) What physical environment factors in the home environment generate stress/calming moments for children, and (2) what are the differences and similarities in physical home environment factors identified in Question One among families of different income levels? Data were collected through surveys and interviews and included participants from three different income levels (upper =2, middle =2, and lower =6) with diverse ethnicities.

Outcomes: Thirty-nine environmental factors were identified from parents'/caregivers' perspectives. The key findings of the study include (1) the more the affordances in the environment, the better for a child's

self-regulation; (2) spatial factors of the environment influence the child's self-regulation negatively and positively; and (3) there are few variations between income levels in relation to home environmental factors that impact child self-regulation.

Significance: This research will benefit children aged 3-5 years old in low-income homes, interior designers, and stakeholders. By determining physical environmental factors, children 3-5 can be better supported in an environment that helps create a calming and less stressful experience. Specifically, by identifying aspects of the physical environment with the greatest impact on children's self-regulation, design solutions that are cost-affordable or funded through outside sources can be developed and tested within the target population. The failure to investigate the importance of the physical environment continues to limit the impact of interior design research concerning self-regulatory behavior. Studies in the field of psychology on self-regulatory behavior have explored limited aspects of home physical design. This research is intended to help shift the design community's focus to this issue. Furthermore, this research also aims to make stakeholders and policymakers aware of the importance of interior design and built environment in improving self-regulation in order to transform the practice of interior design in low-income housing and preschools.

REFERENCES

Baker, C. E., & Brooks-Gunn, J. (2019). Early Parenting and the Intergenerational Transmission of Self-Regulation and Behavior Problems in African American Head Start Families. *Child Psychiatry & Human Development*. <https://doi.org/10.1007/s10578-019-00921>

Baumeister, R. F., & Vohs, K. D. (Eds.). (2004). *Handbook of self-regulation: Research, theory, and applications*. Guilford Press.

Bagais, R., & Pati, D. (2023). Associations between the home physical environment and child self-regulation: A conceptual exploration. *Journal of Environmental Psychology*, 102096.

Evans, G. W. (2003). A multimethodological analysis of cumulative risk and allostatic load among rural children. *Developmental Psychology*, 39(5), 924–933. <https://doi.org/10.1037/0012-1649.39.5.92>

APPENDICES

Appendix A: Interview Questions

The semi-structured interview questions used in the study:

Questions related to child emotions:

- Describe a time when your child is happy in the house. What does your child enjoy about the house?
- Describe a moment when your child was confused/stressed while in the house.
- What parts of your home environment best serve your child from your perspective?
- What parts of your home environment are more challenging to your child?
- Tell me what your child likes and appreciates in each space in the house. (Waking through the layout drawing)
- Tell me what your child doesn't like about the house/ about this space (Waking through the layout drawing)
- What draws your child into this space (spaces attract the child)? Describe his/her experience. (attention)
- Describe your child's emotions related to each space (waking through the layout drawing)
- Where does your child go in the house to relax/ mentally restore?

Questions related to child social, and prosocial:

- What is your family's regular daily routine? In other words, what happens from morning to night?
- What helps your child overcome/ calm down when they are misbehaving/ in a bad mood?
- Where in the house would your child go to get away from responsibilities? Why?

Questions related to child cognitive, prosocial, and social:

Vignette #1 (mental flexibility shifting attention):

It is nap time, (Child's name) is in the middle of an activity. When you call for sleep time the child cries no or refuses:

Questions to parent:

- What do you do to transition between the two different activities?
- What action(s), if any, do you use to help achieve this goal (for example, turning off the lights, playing music, etc.)?
- Describe the settings of your child's bedroom. What zone in the room will make the child feel relaxed and sleepy?
- Can you remember a time when you wanted (child's name) to shift between two activities? Tell me about that. And describe any challenges.
- What strategies do you engage in to transition from one activity to the other? (i.e., playing and eating)
- Is the place large enough to allow exploration in many directions?

Vignette #2 (working memory) (remembering the school settings and mimicking it)

(Child's name) is involved in pretend play with his siblings or visitors, and they pretend they are in a school. They seek your help for play props.

Questions to parents:

- What type of props would you use to support this activity?
- Describe your child's pretend play activities.
- Tell me about where the activities would take place.
- Tell me about the child's experience from the beginning (preparation) to the end (cleaning up) of the activity.

Vignette #3 (self-control, inhibition skills)

Guests are invited to your home with their kids. You ask your child to play and share some of his toys with the new kids.

Questions to parents:

- How would your child feel? How will he or she react? How much will they share?
- Where would they play in the house?
- How much involvement will you have in this situation?
- If the child refuses to share toys or play with the kids, what will you do?
- Can you describe a time that you might do something to help your child engage with the kids?
- How will you prepare the child before the visit?

Vignette #4 (social-emotional- separation)

You need to go somewhere without your child. You have a family member babysitting for you. Your child is crying and wants to go with you. (Child's name) was still upset and did not engage with the family member.

Questions to parents:

- What would you do?
- What do you think your child will do while you are out?
- How would you manage the child's emotions?

Questions related to the home environment.

- Would you consider this house a home?
- What is home to you? What does your home provide your child?
- If you had the chance to change your home environment, what would you change to support your child's well-being? How can this benefit your child?
- If you have the chance to redesign the home to make it better for the child, what would you do?
- Imagine that you have all the magic to reconstruct your house, what would you do to make it better for your child?

Appendix B: The Confusion, Hubbub, and Order Scale (CHAOS) Questions

For each of the following statements, please tell me whether you think it is "true" or "false" for you.

1. There are very few disturbances in our home.
2. We can usually find things when we need them.
3. We almost always seem to be rushed.
4. We are usually able to stay on top of things.
5. No matter how hard we try, we always seem to be running late.
6. It's a real zoo in our home.
7. At home we can talk to each other without being interrupted.
8. There is a lot of needless worrying going on in our home.
9. No matter what our family plans, it usually doesn't seem to work out.
10. It's so noisy, you can't hear yourself think in our home.
11. I often get drawn into other people's arguments at home.
12. Our home is a good place to relax.
13. The telephone takes up a lot of our time at home.
14. The atmosphere in our home is calm.

Appendix C: The Strengths and Difficulties Questionnaire (SDQ)

	Not True	Somewhat True	Certainly True
Considerate of other people's feelings	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Restless, overactive, cannot stay still for long	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Often complains of headaches, <u>stomach-aches</u> or sickness	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Shares readily with other children, for example, toys, treats, pencils	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Often loses temper	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Rather solitary prefers to play alone	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Generally, well behaved, usually does what adults request	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Many worries or often seems worried	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Helpful if someone is hurt, <u>upset</u> or feeling ill	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Constantly fidgeting or squirming	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Has at least one good friend	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Often fights with other children or bullies them	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Often unhappy, <u>depressed</u> or tearful	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Generally liked by other children	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Easily distracted, concentration wanders	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Nervous or clingy in new situations, easily loses confidence	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Kind to younger children	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Often lies or cheats	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Picked on or bullied by other children	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Often offers to help others (parents, teachers, other children)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Thinks things out before acting	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Steals from home, school, or elsewhere	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Gets along better with adults than with other children	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Many fears, easily scared	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Good attention span sees work through to the end	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Signature

Date:

Parent / Teacher / Other (Please specify):

The end of the survey
Thank you very much for your help

- **Additional Information:** The following information is required for all submission categories and formats but is not included in the blind review process.
 - **Author(s):** Use the online submission form to list author(s) and institution(s) in order. All panel, presentation, and poster primary authors and co-authors must be listed to facilitate accuracy in scheduling presentations.
 - **Summary:** A brief summary of submission which will be published in the conference brochure exactly as submitted. Maximum 270 characters, including spaces. the
 - **Author bio and photo:** The primary author must include a bio (Maximum 270 characters, including spaces) and headshot.
- **Checkboxes:** The submission portal will ask the author to verify the following before submitting an abstract for review:
 - **My submitted abstract and appendices (if included) have no identifying information.**
 - **I have only submitted my abstract to one presentation format.**
 - **I have not submitted my abstract to another conference or venue, nor has my abstract been published or presented previously**
 - **Does your abstract promote health, safety, and welfare? If yes, please check the box.**
- **Fees:** Submission/s requiring payment can be made online through the submission portal. Only payment by credit card is permitted. Submission fees are nonrefundable. Rates are as follows:
 - IDEC members: a maximum of 2 submissions across any presentation format or category as first author are free to IDEC members. Members must supply a membership number.
 - Non-members or additional submissions for IDEC members: \$50.00 for each submission.
 - Non-member Students: \$15.00 for each submission

The Impact of Guestroom Environment and Sustainable Performance on Guests' Behavioral Intention: Mediating Roles of Perceived Value and Emotion

Jisun Lee , Michigan State University

MiRan Kim, Michigan State University

Eunsil Lee, Michigan State University

ABSTRACT

The hotel industry has experienced an increasing emphasis on sustainability with its significant influence on guests' perceptions and behaviors towards hotels. Guests today are more environmentally conscious, with increasing concerns about environmental issues and a growing attention to health and well-being, seeking accommodations that align with their values (Abdou et al., 2022). Studies have found that guests who perceive hotels as valuing and performing sustainability are more likely to have a positive brand perception and exhibit positive behaviors (Balaji et al., 2019).

Furthermore, promoting the atmospheric experiences of the guests has gained much attention in the competitive hospitality market. Bitner's (1992) 'servicescapes' framework highlighted the significant importance of physical settings in service businesses, identifying the physical environment as directly influencing consumers' cognitive, emotional, and physiological responses to the service. Guests who have more positive perceptions of the physical environment are more likely to have positive emotions and price perceptions, which, in turn, affect customer satisfaction and behaviors (Ali et al., 2016). In predicting guests' emotions and behaviors, perceived value also has been considered a prominent factor (El- Adly, 2019). Perceived value is influenced by guests' perception of both price and quality, as it represents their valuation of money or price. However, there is a scarcity of studies that discuss perceptions of sustainability performance and guestroom environment together as influencing factors for guests' perceived value and emotions, which have been discussed in various literature as critically affecting their behaviors.

Using Structural Equation Modeling (SEM), this study investigated the causal links among the dimensions of guests' perception of sustainable performance, perception of guestroom environment, perceived value, emotion, and their willingness to recommend and pay more. We examined the extent to which guests perceived the hotel as performing sustainably and were satisfied with guestroom environmental

conditions, such as layout, size, the ability to control heating, cooling, or ventilation, and colors and textures of furniture and surface finishes. We also explored the mediating roles of perceived value and emotion in the relationship, drawing on a multi-dimensional framework.

Data was collected through a web-based survey (N = 243). The survey questionnaire comprised seven constructs: sustainable performance, guestroom environment, perceived value, positive and negative affect, willingness to recommend, willingness to pay more, and demographic information. The items were developed based on previous literature. Participants were overnight hotel guests at a hotel located in the Midwest. Randomly selected guests were invited to complete the online survey by email with compensation.

The findings revealed that both perceptions of sustainable performance and guestroom environment affected guests' behavioral intentions through perceived value and emotion significantly. The significant effects of sustainable performance and guestroom environment on perceived value significantly influenced emotion, which causally affected their willingness to recommend and pay more. The empirical findings of this study provide evidence of the importance of hotels' sustainable performance and guestroom environment in elevating guests' behavioral intentions. The results also underscored that perceived value and emotion played significant roles in these effects. The findings contribute to offering insights that extend the current understanding of the relationship between guests' perceptions of environmental factors and their behavioral intentions towards hotels. Further studies conducted in broader geographical regions are recommended to provide more robust results.

REFERENCES

- Abdou, A. H., Shehata, H. S., Mahmoud, H. M. E., Albakhit, A. I., & Almakhayitah, M. Y. (2022). The Effect of Environmentally Sustainable Practices on Customer Citizenship Behavior in Eco-Friendly Hotels: Does the Green Perceived Value Matter?. *Sustainabi*
- Ali, F., Amin, M., & Ryu, K. (2016). The role of physical environment, price perceptions, and consumption emotions in developing customer satisfaction in Chinese resort hotels. *Journal of Quality Assurance in Hospitality & Tourism*, 17(1), 45-70.
- Balaji, M. S., Jiang, Y., & Jha, S. (2019). Green hotel adoption: a personal choice or social pressure?. *International Journal of Contemporary Hospitality Management*, 31(8), 3287-3305.
- Bitner, M. J. (1992). Servicescapes: The impact of physical surroundings on customers and employees. *Journal of Marketing*, 56(2), 57-71.

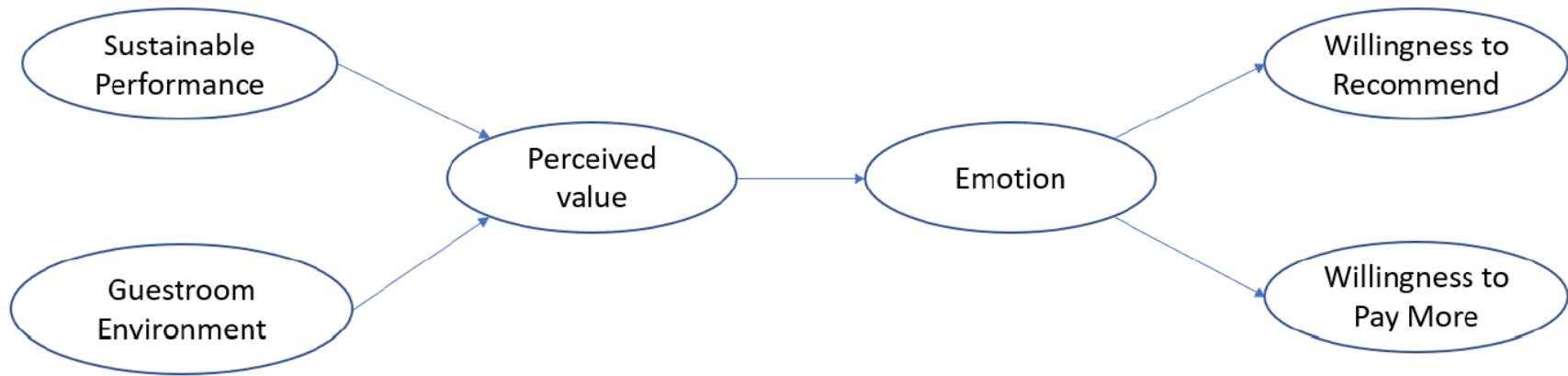


Figure 1. Research Model

The Path - An Experiential Journey on the Origins of Spatial Theory

Jerome Gomez, Converse University

ABSTRACT

Found within the ethos of contemporary society, The "Path" is considered an experiential journey whose origins extend back to the Classical period and beyond. The term's etymology originates from Greek antiquities, as suffering, disease, and feeling reflecting the origins of an empathetic quality. In Latin, "Path" refers to traveling from one place to another or achieving or accomplishing something. Similarly, in Old English, the interpretation of "Path" refers to the idea of coming upon, meeting with, discovering, or obtaining by search or study. As an evolutionary concept essential to the foundation of design theory, the "Path" essentially tells the story of the theoretical Journey of the built environment, allowing for a greater and more comprehensive spatial understanding. Part of the journey attempts to link design theory as it evolves through the allegorical tales of a mythological age to the rational Platonian concepts of chora, to the banal prison of Georges Bataille while culminating in the Tschumian dialectic of perception and experience.

The research, through the symbolic understanding of "Path," attempts to identify the transcendent nature of spatial theory through its origins and its indigenous quality of human existence. The originating concepts are derived from Alberto Perez-Gomez, Steven Holl, and Juhani Pallasmaa's book on Questions of Perception: Phenomenology of Architecture, as it ignites the larger conversation of discovery by providing an intellectual framework needed to formulate strategies for historical and contemporary analysis. Critical information was adapted from various philosophers, theorists, and critics across time and space as a starting point, facilitating the ongoing process of identifying the nature of spatial theory, its origins, and where it may be headed. As a result of the research, graphics and theoretical terminology such as gathering, building, and boundary help to identify a contemporary spatial understanding crucial to bridging the gap with classical mythology. The critical component of classical mythology and its allegorical counterpart is significant in determining spatial theory's transcendental nature as it links rational and non-rational symbolic qualities into a singular spatial understanding.

Research derived from the "Path" and the historical context by which spatial understanding is predicated does not promote a single way of providing spatial awareness but provides the field of Interior Design additional knowledge to solidify an emerging theoretical framework. The goal, however, is to offer an additional platform for communicating emerging spatial content. One that would help provide Interior

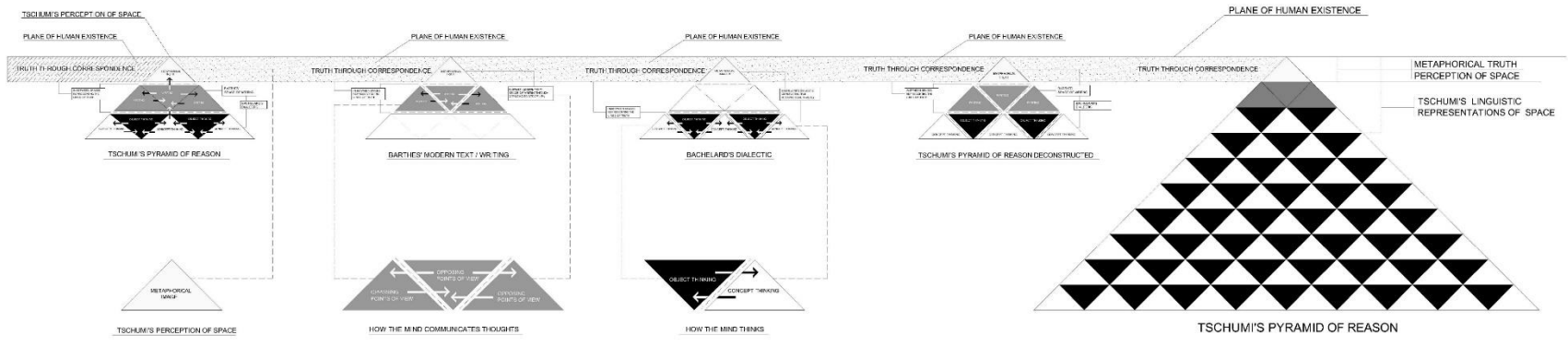
designers, educators, and students with the awareness and relevance of maintaining a design theory process in developing contemporary spatial environments.

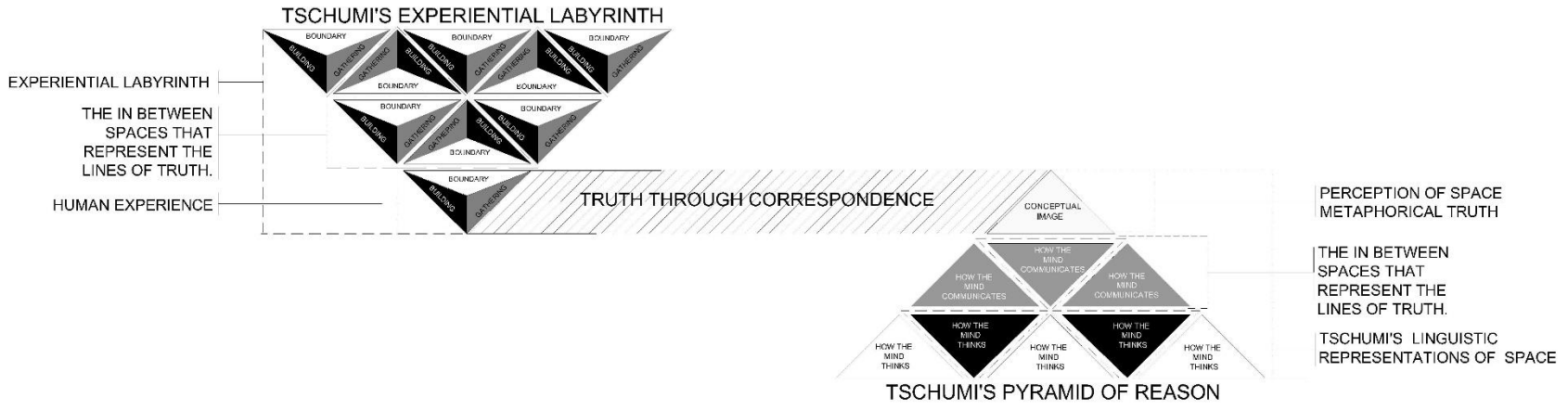
REFERENCES

Holl, Steven, Juhani Pallasmaa, and Gómez Alberto Pérez. Introduction. *Questions of Perception: Phenomenology of Architecture*. San Francisco, CA: William Stout, 2006. Print.

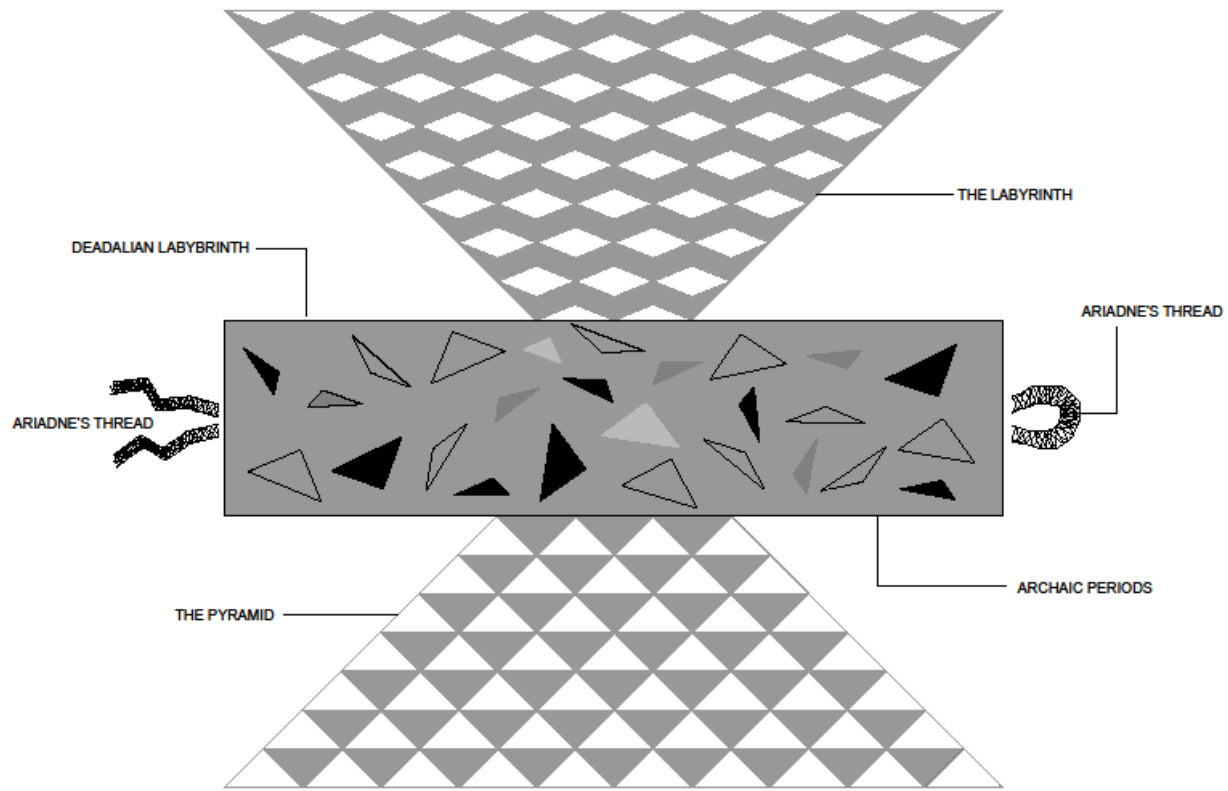
Hollier, Denis. "The Labyrinth, the Pyramid, and the Labyrinth." *Against Architecture: The Writings of Georges Bataille*. Cambridge, MA: MIT, 1989. 57-74. Print.

Edinger, Edward F., and Deborah A. Wesley. "The Heros." *The Eternal Drama: The Inner Meaning of Greek Mythology*. Boston: Shambhala, 1994. 71-79. Print.





SPATIAL THEORY



MYTHOLOGICAL INTERPRETATION OF SPATIAL THEORY /CHORA

FIGURE 7.1

Scholarship of Design Research | Presentation

The Politics of Public Interiority // Military Domestic Life as a Metaphorical Interior

Liz Teston, University of Tennessee, Knoxville

Shelby Parsons, University of Tennessee, Knoxville

ABSTRACT

This presentation covers a longitudinal study of military privatized housing, its role in shaping political interiors, and recommendations for improved design of domestic interiors. The home can become political when our lives are impacted by (or impact) public policy and when we attempt to represent our identities via design and material culture (Campbell 2005, 105). Discord between political institutions and individual autonomy can also cause tensions. Urbanist Richard Sennett asserts that good design is within the control of the local citizens and at the human scale (Sennett 2018, 76). This political design philosophy, focused on the everyday, lays claim to adaptable and citizen-led interiorities.

Political systems and cultural norms impact our collective and individual notions of interiors and interiority. Post-Structuralists, like philosopher Georg Simmel, see our world as a circumstance organized by an all-encompassing system—signs and symbols outline a network of understandings that determine both our public life and our mental disposition toward interiority. Individuals operate within this system and are influenced by customs and institutions (Pescosolido 2000, 52).

For this study, we have interrogated the conditions of interiority on US Air Force bases and other institutional settings that politicize domestic life. This comparative analysis identifies consistent relationships between autonomy, control, childhood, and institutions, ultimately establishing a theory of political public interiority or a model for institutional (military) housing by which residents can create an experiential expression of their individual autonomy and lived experience.

To provide context, centralized planning groups drive all master planning decisions in American Military Privatized Housing, so there is little differentiation between each base's form, material, or organization (Tilgham 2022). We have studied Air Force Base in Nellis (Las Vegas), Malmstrom (Montana), and others. The military is a tenuous state for families as there are strict spatial rules to be followed for all family members. The institution creates an interior condition as it creates a barrier between military families and civilian families.

This boundary is manifested in the master plans, housing schemes, and cultural separation with civilian families nearby. Not only is this institutional housing a literal interior condition, but it also performs as an interior through the feeling of otherness or abjection. There is a formal and material difference

between the vernacular architecture surrounding the bases and base housing. The master plans and housing designs are repetitive from base to base, irrespective of climate. This difference creates a metaphorical and typological interior.

Yet, there has been some DIY reappropriation on base, despite the inflexible nature of military housing. For example, children living on base often reappropriate everyday landmarks to make their own conditions of public interiority. Utility

boxes sometimes establish an invisible interior zone—vibrating, fleeting places to play (invisible to institutional eyes, yet visible enough to be a landmark). These are naïve political interventions composed by military kids.

Common outdoor areas in military privatized housing do not always respond to changing needs. Time and flexibility often indicate interiority and flow. As scholar Suzie Attiwill states, people (like military families) are in a constant state of movement (Attiwill 2018, 263). The designs of base housing should match how military culture operates; this transience and flexibility should appear within the common zones and the home interiors. We suggest that these places be flexibly designed to adjust to user desires. This presentation covers the predictive relationship between institutional and autonomous spaces and makes a case for adaptable space as a driver for increased engagement and political public interiority.

REFERENCES

Attiwill, Suzie. "Speeds, Slowness, Temporal Consistencies, and Interior Making." In *Flow: Interior Landscape and Architecture in the Era of Liquid Modernity*, edited by Penny Sparke, Pat Brown, Patricia Lara-Betancourt, Gini Lee, & Mark Taylor, 263-269. L

Campbell, Robin Dell. *Mistresses of the Transient Hearth: American Army Officers' Wives and Material Culture, 1840-1880*. New York: Routledge, 2005. <https://doi-org.utk.idm.oclc.org/10.4324/9781003061915>

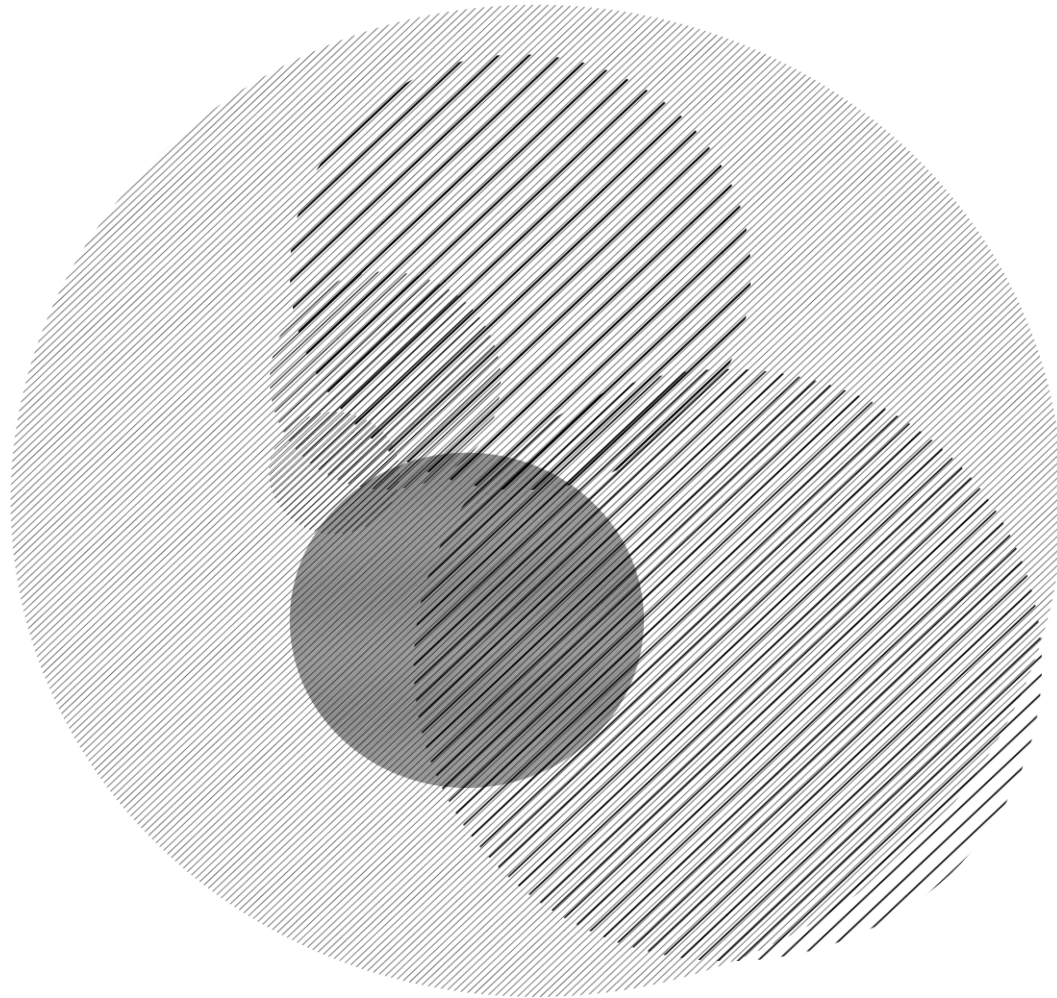
Pescosolido, Bernice A., and Beth A. Rubin. "The Web of Group Affiliations Revisited: Social Life, Postmodernism, and Sociology." *American Sociological Review* 65, no. 1 (2000): 52-76.

Sennett, Richard, Ricky Burdett, Saskia Sassen, and Joan Clos. *The Quito Papers and the New Urban Agenda*. New York: Routledge, 2018. <https://doi.org/10.4324/9781351216067>

The Politics of Public Interiority

Military Domestic Life as a Metaphorical Interior

Georg Simmel's Relational Self Theory



from "The Web of Group Affiliations Revisited: Social Life, Postmodernism, and Sociology" in American Sociological Review by Bernice A. Pescosolido and Beth A. Rubin

The Politics of Public Interiority

Military Domestic Life as a Metaphorical Interior

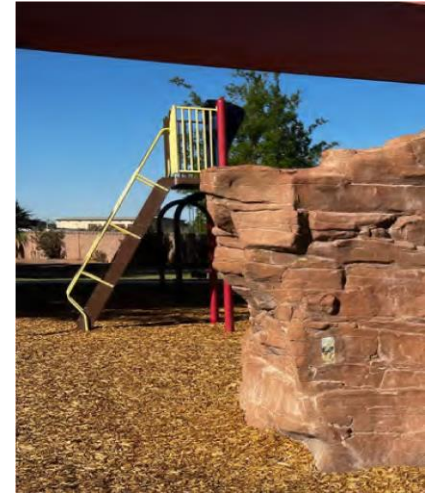
Map of US Air Force Bases



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Military Domestic Life as a Metaphorical Interior

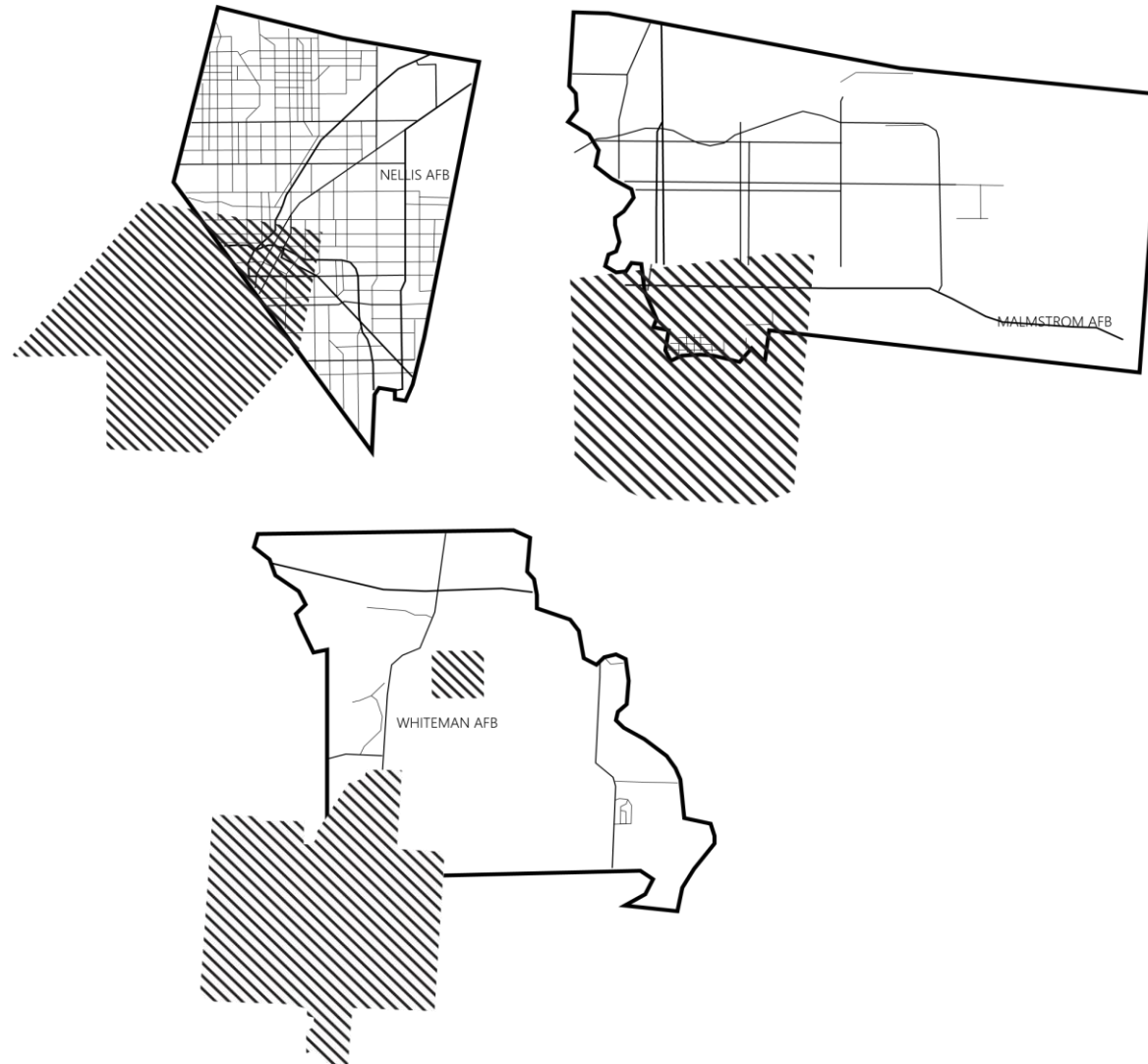
Vacant Common Areas at Nellis Air Force Base near Las Vegas, NV



The Politics of Public Interiority

Military Domestic Life as a Metaphorical Interior

Map of US Air Force Bases

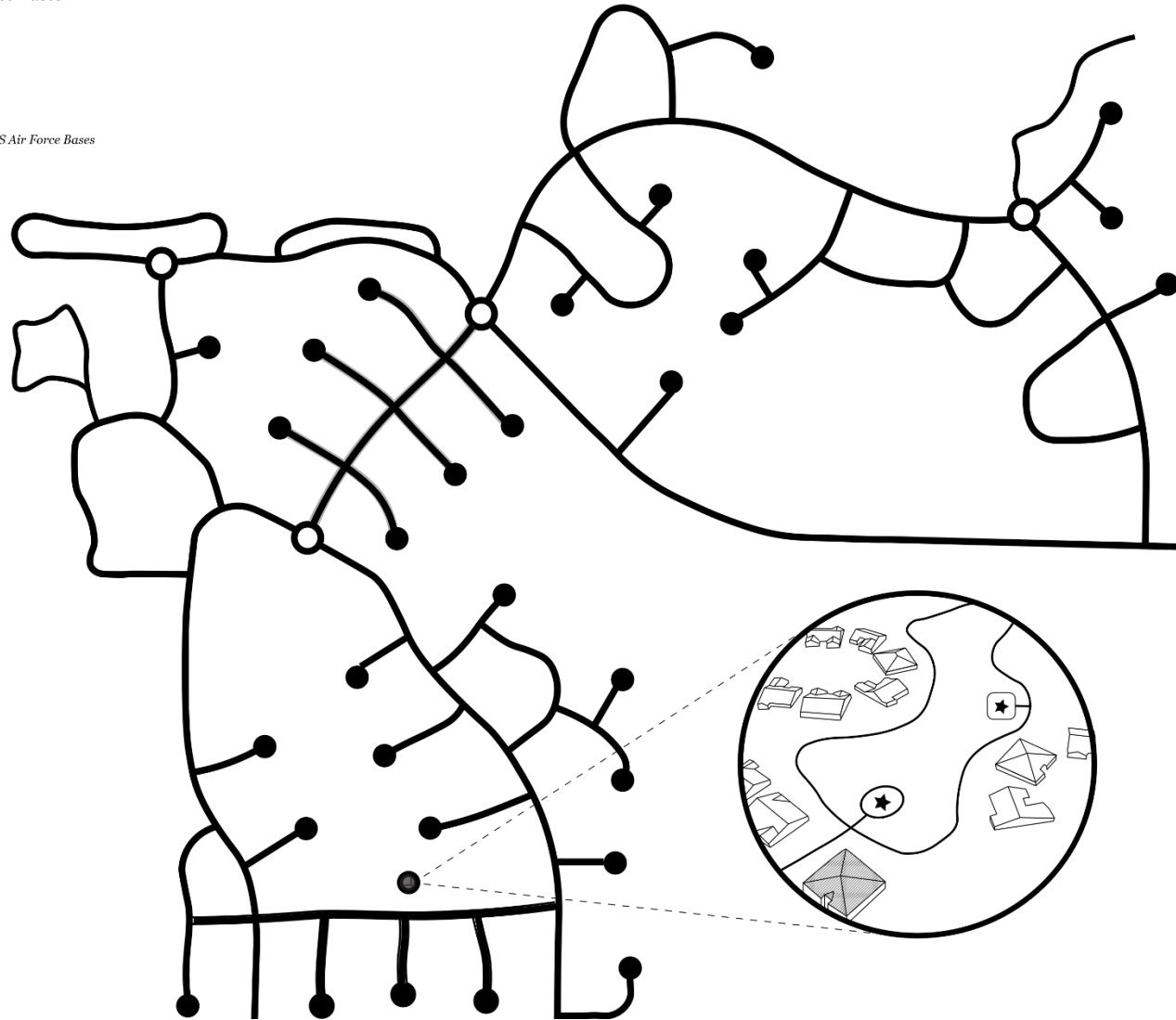


The Politics of Public Interiority

Military Domestic Life as a Metaphorical Interior

Vacant Common Areas at US Air Force Bases

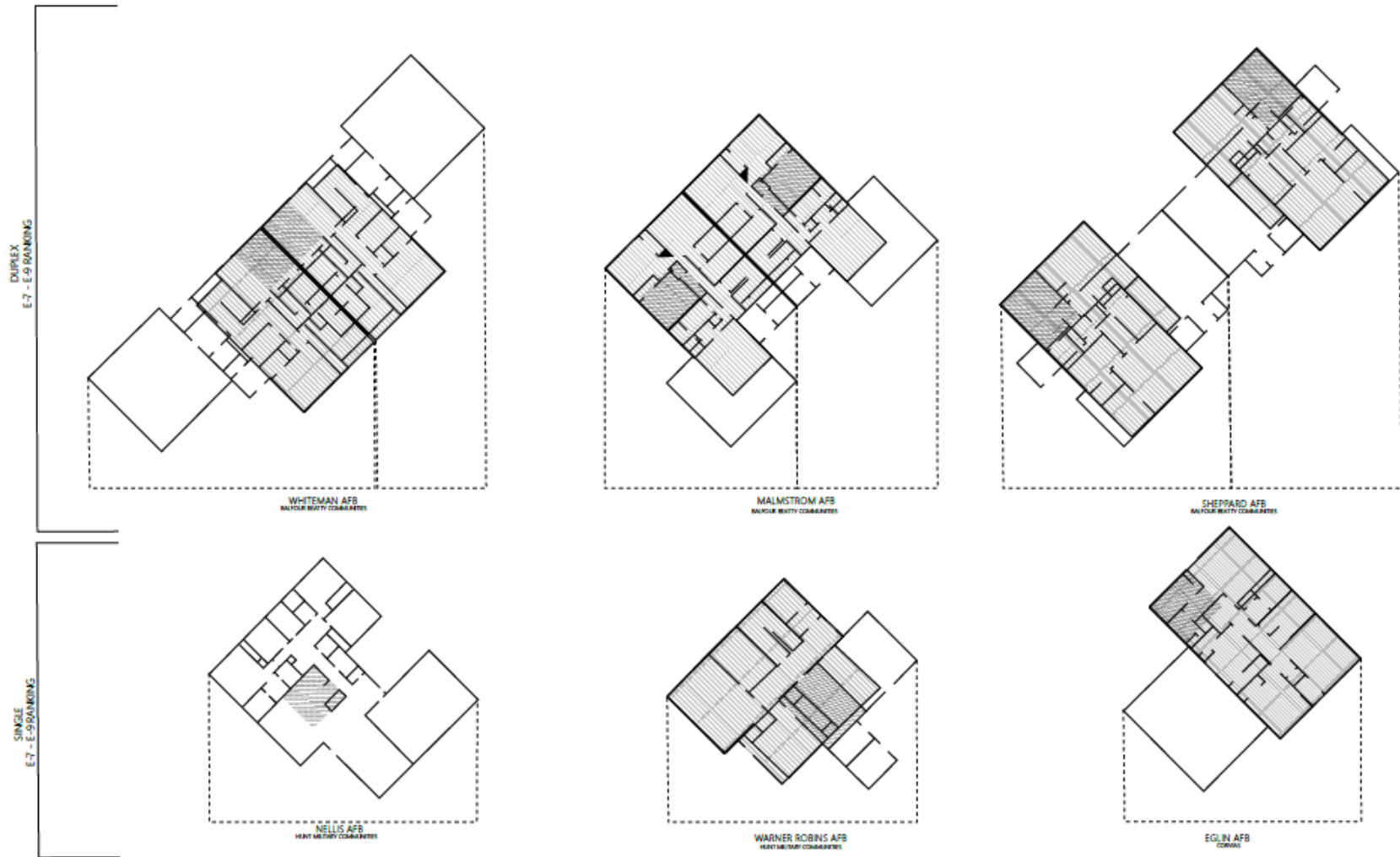
Vacant Common Areas at US Air Force Bases



The Politics of Public Interiority

Military Domestic Life as a Metaphorical Interior

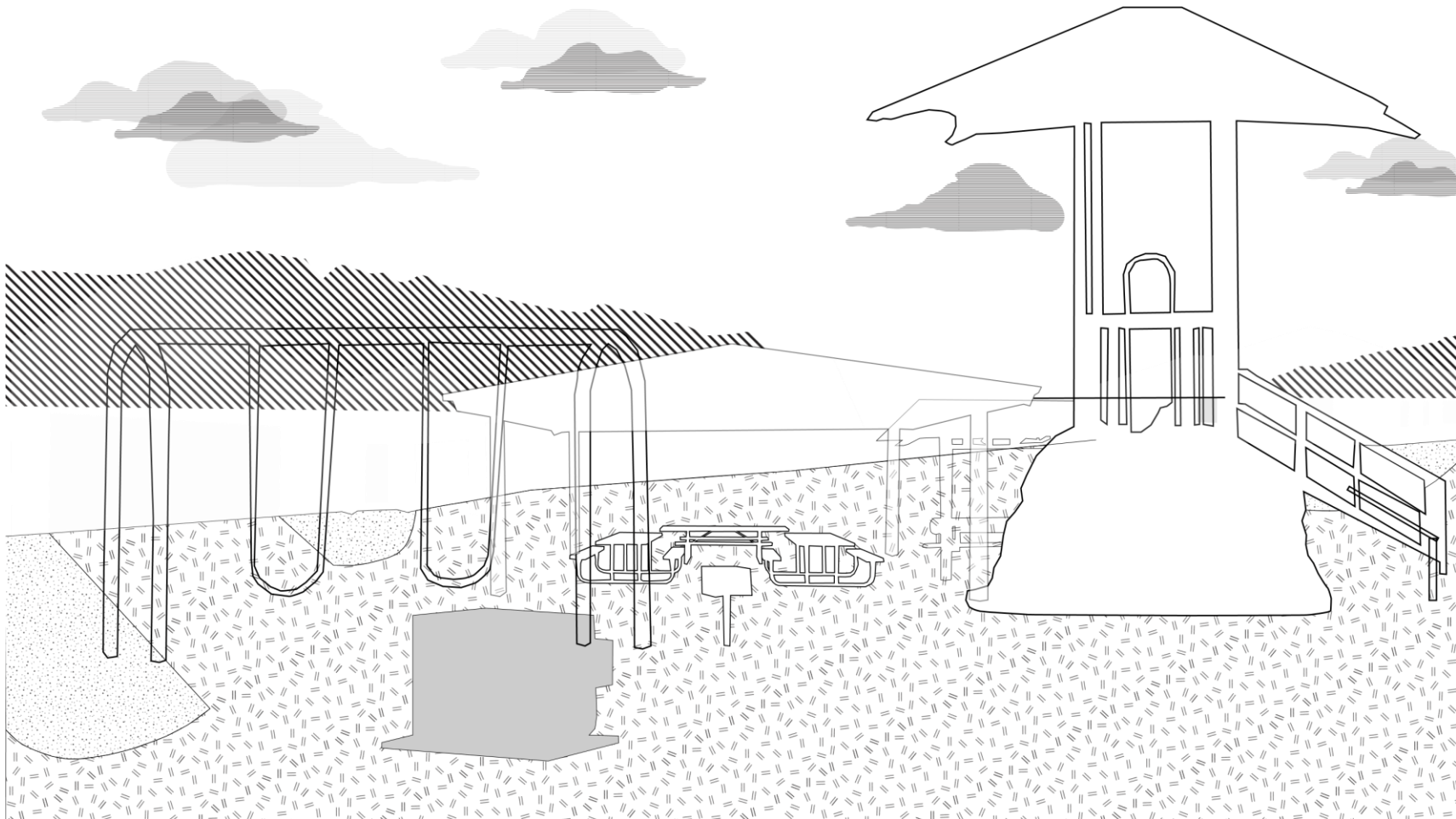
Comparison of US Air Force Base Housing for families in United States Bases



The Politics of Public Interiority

Military Domestic Life as a Metaphorical Interior

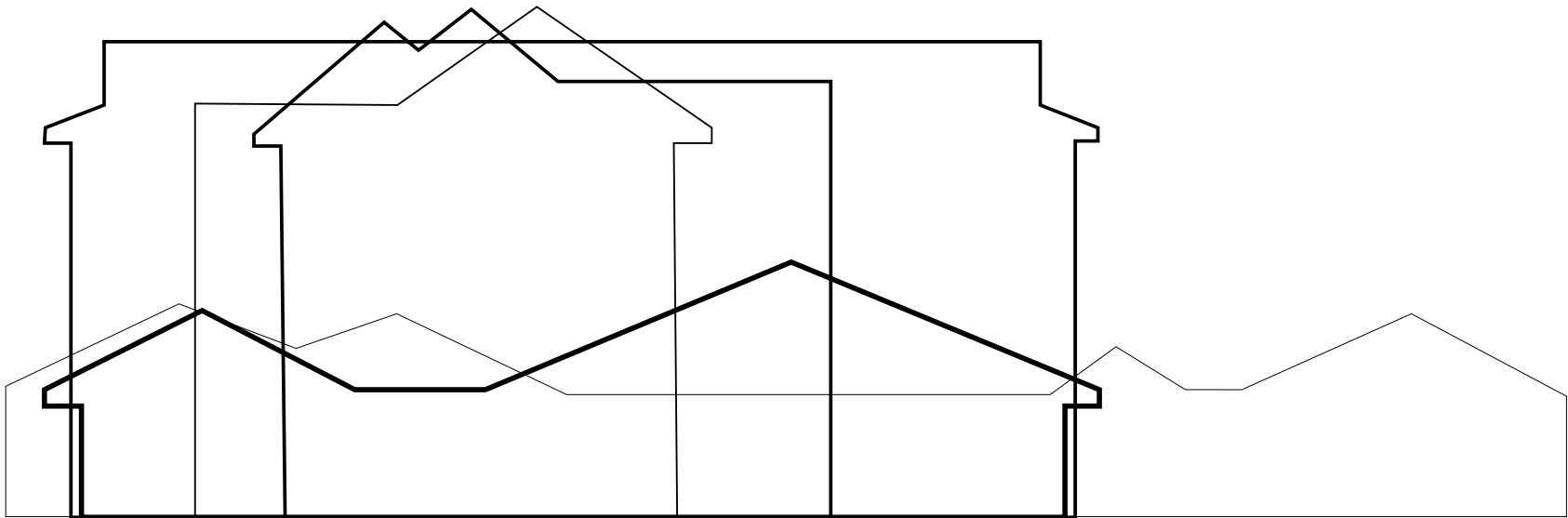
Vacant Common Areas at US Air Force Bases



The Politics of Public Interiority

Military Domestic Life as a Metaphorical Interior

Time Flows and Changes House Rankings at US Air Force Bases



The Politics of Public Interiority

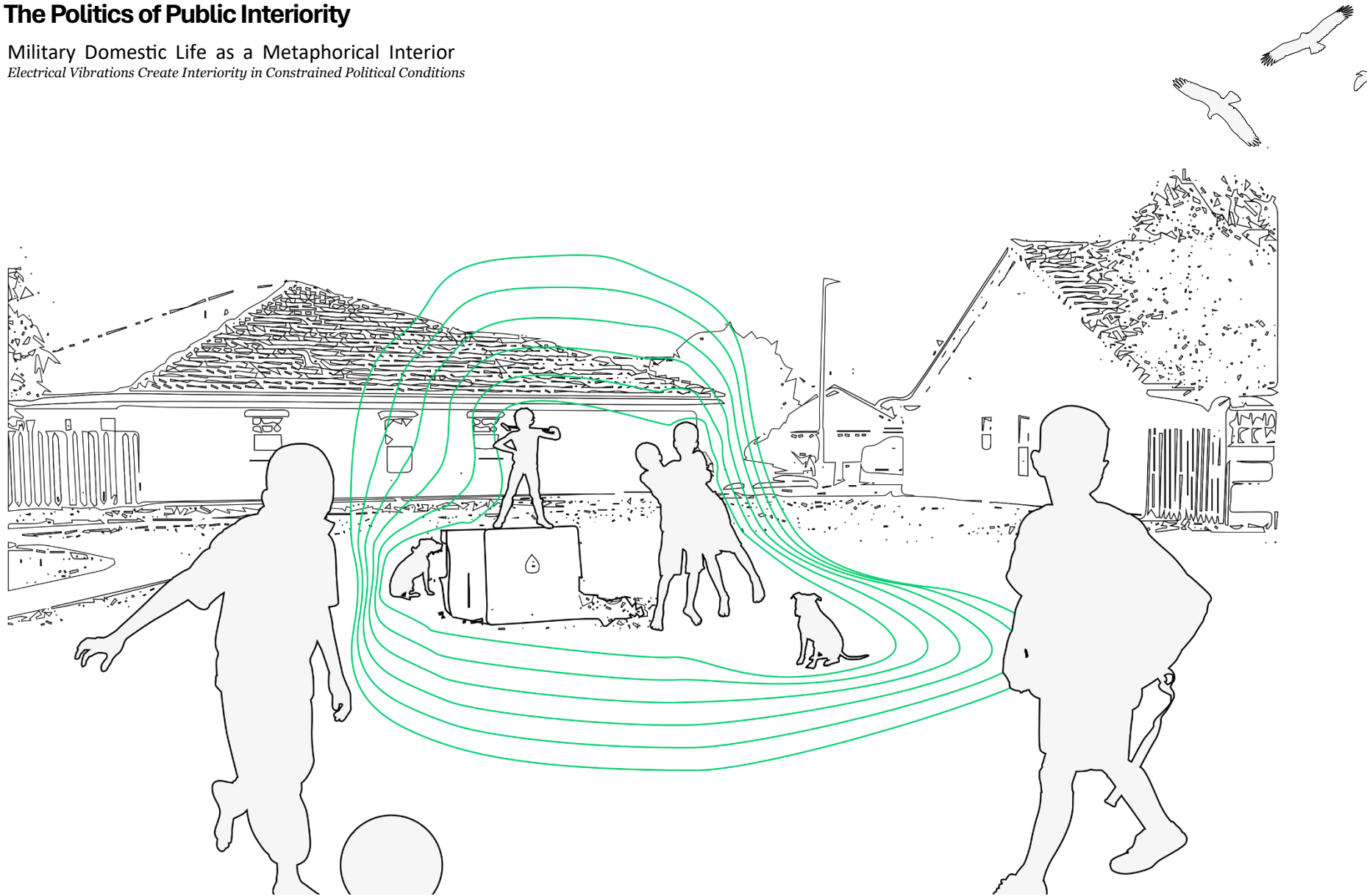
Military Domestic Life as a Metaphorical Interior
Interventions at Nellis Air Force Base near Las Vegas, NV



The Politics of Public Interiority

Military Domestic Life as a Metaphorical Interior

Electrical Vibrations Create Interiority in Constrained Political Conditions



The Process is the Product": Toward a Non-Object-Oriented Definition of Interior Design

Barbara Young, Purdue University

ABSTRACT

Fifteen years have passed since the call to articulate our epistemology (Poldma 2008) and there is little evidence our associated identity crisis has started to resolve (Pable 2009). That does not mean we have not made inroads, but I argue it still persists beyond public perception of the profession and into our ranks of practice, research, and education. The public discussion is still couched through its relationship with Architecture and Decorating with a focus on skills and political boundaries. Within academia, we accept a broader relationship to Design as a discipline with distinct ways of knowing. Yet, confusion persists, exemplified through arguments on whether there is a difference between Interior Design and Interior Architecture, and if so, exactly what that is (Darbandi, Imani, and Rahimzadeh 2023). As a field we have succeeded at making clear distinctions between Interior Design and Interior Decoration, mostly as a result of modernist, patriarchal power structures that derogate femininity (articulated through a body of work from Sparke to Havenhand and others). However, our relationship with Architecture continues to blur and confuse, especially when Interior Design and Interior Architecture continue to be posed as two distinct practices. When centered on technical expertise, as most do, these debates result in conversations about scope creep and do little to move the discipline definition forward.

Some attempts to articulate a definition fall into the subjective trap that calls for readers to “shape a personal answer to that question” (Thompson and Blossom 2015) or borrow from other fields, using existing theories such as phenomenology as the key (Vermaas and Vial 2018). While each approach has merit, what brings them together under a single umbrella and makes interior design thinking unique? I will start from the position that is clearly articulated in the most recent call for papers in the Australian IDEA journal, that interiors are uncertain. Interior Design must embrace uncertainty, subjectivity, and fluidity. As such, we understand the process as the product, appreciating that the object of design will morph; it will continue to live through its occupants (Brown 2011). Much of what we do pertains to understanding human experience and building a service-oriented relationship that supports clients through a process of expressing their own desires and values. The ever confusing and at times hotly contested approach to concept can be clarified through this discussion with acceptance that allied professions can participate in the creation of beautiful interior spaces, but if the approach is only object-driven, it deviates from the tradition, role, and value of interior design practice that is mediated through dialogic human-centered understanding that embraces inhabitants’ post-project agency.

Working from my experience growing up in Interior Design education and practice, evidencing the varied methods of inquiry within interior design, I make a call for our profession to establish itself as a discipline with specific ways of knowing that are rooted in change and empowerment, acknowledging that Interior design is uniquely situated in a kind of subjective knowing that is dialogic and performative, not just visual. Surveying existing attempts to define the epistemology of the discipline along with student and practitioner reflections on practice, I will attempt to articulate a fundamental worldview of what it means to practice interior design. This conversation, about the culture of discipline within which interior design theory and interior design methods are explored, is a starting point to move beyond the practice of 'borrowing from'.

REFERENCES

Brown, Lori A., ed. 2011. *Feminist Practices: Interdisciplinary Approaches to Women in Architecture*. Farnham, Surrey, England: Ashgate.

Darbandi, Maryam, Nadieh Imani, and Mohammadreza Rahimzadeh. 2023. "The Emergence of Interior Architecture." *Interiority* 6 (2): 249–66. <https://doi.org/10.7454/in.v6i2.308>.

Poldma, Tiiu. 2008. "Interior Design at a Crossroads: Embracing Specificity through Process, Research, and Knowledge." *Journal of Interior Design* 33 (3): vi–xvi. <https://doi.org/10.1111/j.1939-1668.2007.tb00547.x>.

Thompson, Jo Ann Asher, and Nancy H. Blossom, eds. 2015. "Introduction: The Shaping of Interior Design." In *The Handbook of Interior Design*, 1–7. John Wiley & Sons, Ltd. <https://doi.org/10.1002/9781118532409.ch0>.

The Role of Fantasy Atmosphere in the Metaverse: When Consumers Encounter Luxury Brands in the Virtual World

Woo Bin Kim, Cornell University

Ha Kyung Lee, Chungnam National University

So-Yeon Yoon, Cornell University

ABSTRACT

The metaverse refers to a virtual platform that enables individuals to engage in socio-cultural interactions. In the retailing sector, metaverse is evolving into an experience-oriented environment, surpassing product-oriented traditional retailing and customer-oriented internet retailing over time. As metaverse ecosystems continue to expand, the fashion industry is actively striving to provide consumers with extended brand experiences through fantastic store atmospherics. Store fantasy is a crucial spatial characteristic of virtual retail space, representing the extent to which the environment presented to an individual deviates from actual reality (Park, 2017).

Recent studies in metaverse retailing have primarily focused on communication and technological aspects, such as their impact on shoppers' behavior. Despite the growing dominance of luxury fashion brands in metaverse retailing, how the metaverse environment affects brand-consumer relationships in the context of luxury brands has received limited attention. To address this gap, this study aims to address the following research questions with hypotheses: (1) Does the effect of store fantasy on perceived exclusivity differ based on fashion brand type (luxury vs. mass)? (H1, Experiment 1) (2) Does the effect of a luxury fashion brand's store fantasy (vs. store reality) enhance brand equity (i.e., consumers' thinking, feelings, and actions toward the brand that can affect its value) by mediating perceived exclusivity? (H2, Experiment 2).

Experiment 1 aimed to conduct a preliminary test to determine if luxury brands, when placed in a fantasy-based store, would be perceived as more exclusive compared to mass brands. Following a brand association test, PRADA was selected as the luxury brand, and ZARA as the mass brand. An online scenario-based experiment was performed (N=80), and participants were randomly assigned to one of the brands. Participation was limited to those familiar with their assigned brand. Store fantasy was manipulated by having participants envision a fantastic store through a scenario. Subsequently, participants completed a questionnaire including scales for perceived store fantasy (Kim & Choo, 2023),

brand preference (Dolbec & Chebat, 2013), perceived exclusivity/rarity (Wang et al., 2022), and demographic data. An independent t-test revealed no statistical difference in perceived store fantasy and brand preference, affirming successful manipulation.

Results from an independent t-test supported H1, showing the luxury brand was perceived as rarer and more exclusive than the mass brand. Experiment 2 employed a between-subjects design (reality-based vs. fantasy-based) to explore the mediating role of perceived exclusivity for luxury brands, manipulating fantasy levels through interior elements while keeping fixtures and products consistent across stores. An online experiment was performed (N=90), and participants accessed the metaverse platform to explore their assigned virtual luxury store. After the experience, participants completed brand equity scale-related questions (Yoo & Donthu, 2001). The store fantasy manipulation check succeeded. Employing the PROCESS procedure (Model 6, 5,000 bootstrap samples) to test H2, significant serial mediation of perceived rarity and exclusivity was found. Participants rated higher perceived rarity and exclusivity for the high fantasy store compared to the low fantasy store (i.e., more realistic). Elevated perceived exclusivity positively influenced brand equity, although perceived rarity did not.

This study deepens our understanding by validating the role and functions of store fantasy within the spatial design context, which is quite novel in academia. Furthermore, the findings suggests that the metaverse presents a unique opportunity for both interior designers and retailers, especially luxury brands, to craft immersive retail spaces that can enhance brand experiences and ultimately impact brand equity.

REFERENCES

Dolbec, P. Y., & Chebat, J. C. (2013). The impact of a flagship vs. a brand store on brand attitude, brand attachment and brand equity. *Journal of Retailing*, 89(4), 460-466.

Kim, W. B., & Choo, H. J. (2023). How virtual reality shopping experience enhances consumer creativity: The mediating role of perceptual curiosity. *Journal of Business Research*, 154, 113378.

Park, D. H. (2017). Virtuality as a psychological distance: The strategy for advertisement message appeal depending on virtuality. *Journal of Information Technology Applications and Management*, 24(2), 39–54.

Wang, X., Sung, B., & Phau, I. (2022). Examining the influences of perceived exclusivity and perceived rarity on consumers' perception of luxury. *Journal of Fashion Marketing and Management: An International Journal*, 26(2), 365-382.

APPENDIX

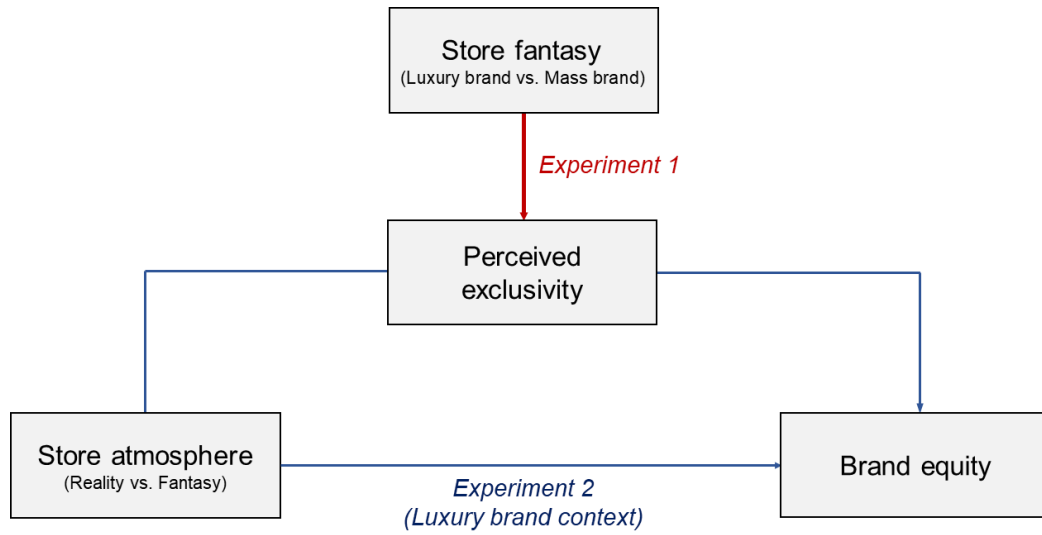


Figure 1. The research model

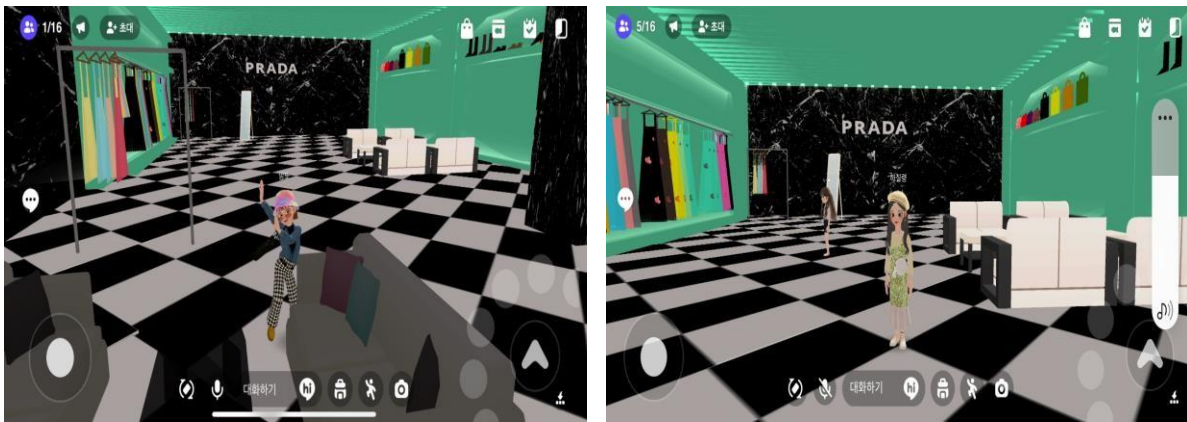


Figure 2. Reality-based store of PRADA (Captured images submitted by participants)

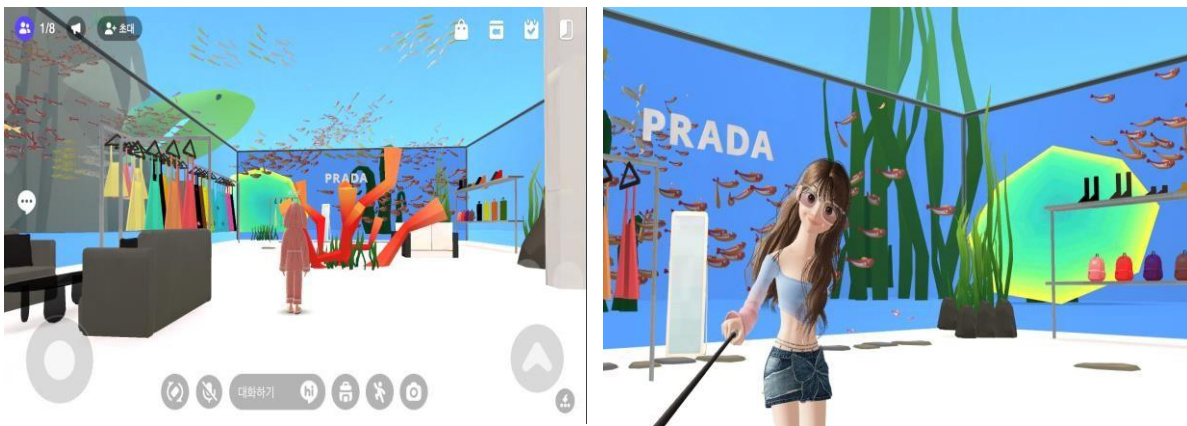


Figure 3. Fantasy-based store of PRADA (Captured images submitted by participants)

Toward Truly Inclusive Built Environment: A Lesson Learned from a POE Study of the Ed Roberts Campus

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Linda Zimmer, University of Oregon

ABSTRACT

The Americans with Disabilities Act (ADA) has made a positive contribution to the accessibility of public buildings. However, the disability community believes that ADA enforcement has yet to create a truly inclusive environment. (Sherman & Sherman, 2012). The Ed Roberts Campus (ERC), a civic center located at Ashby BART Station in Berkeley, California, has been built to provide comprehensive support of independent living for the disability community.

Multimodality design features were developed and implemented to accommodate the needs of users with various disabilities, with a mindset that such features could be easily replicated in public buildings. A previous post occupancy evaluation (POE) study (Authors, 2021) found that respondents agree that the ERC design significantly outperforms other public buildings. However, additional analysis found significant discrepancies on wayfinding among different user groups. This paper unveils what constitutes such discrepancies and suggests design implications to support independent living.

An online POE user survey on perceived building performance (BP) between ERC and public buildings was conducted. The online survey protocol was developed in Qualtrics based on Preiser's (1983) BP criteria (health, safety and security; functional efficiency; and psycho-sociological aspects) with special attention to accessibility for survey participants with mobility, hearing, and visual impairments. Participants were recruited via the ERC website, social network sites, ERC listserv emails, and two on-site tablets for walk-in users. Overall BP between ERC and public buildings were measured by a 5-point Likert scale (the lower scores, the better perceived building performance). A 4-point Likert scale (1- excellent, 2- good, 3-fair, 4-poor) was used to evaluate ERC design features of various locations (overall, BART entryway, BART elevation lobby, ERC parking garage, main entryway, east entryway, central lobby, reception area, atrium, first-floor public restroom, and outdoor deck). The team collected a total of 62 valid samples, with 41 participants self-identified with disabilities and 21 participants with non-disability. Non-disability (n=21), vision impairment (n=18), and mobile impairment (n=10) user groups were used for statistical analysis to address different user evaluations.

All users agreed that sociopsychological and barrier-free design qualities are the most improved BP qualities for ERC when comparing with the BP in other general public buildings. However, one-way analysis of variance revealed that mobility(m) and vision(v) groups exhibited significant discrepancies in their wayfinding evaluations of ERC, specifically in BART entryway ($m=1.38, v=2.31, p < .05$), BART elevator lobby ($m=1.33, v=2.5, p < .001$), main entryway ($m=1.2, v=1.82, p < .05$), and central lobby ($m=1.3, v=2.0, p < .05$). The vision group evaluated the ERC wayfinding quality less favorably than mobility and non-disability groups. There is no significant difference in opinion on wayfinding between the mobility and non-disability user groups. The mobility group reported that they use signage (80%) and lighting (30%) as wayfinding cues, whereas vision group uses various environmental cues, including sound (89%), floor texture (72%), signage (44%), water feature (39%), lighting (22%), and floor color (17%). The vision group specifically highlighted that noise echo and lack of tectonic/visual aids hinder proper wayfinding in ERC.

The findings reveal two important design implications. First, the mobility and vision groups share few wayfinding cues (signage and lighting). Second, designers should pay more attention to removing disrupting sensory stimuli (acoustical and visual noises) while providing multi-sensory aids such as clear eyesight and tectonic/acoustical landmarks. A simple layout with orthogonal circulation should be encouraged to enhance predictability.

REFERENCES

Authors (2021). Perceived building performance of Ed Roberts Campus vs. public building based on disability profiles. 2021 Interior Design Educators Council Annual Conference Proceedings, Virtual, 563–565, <https://idec.org/wp-content/uploads/2022/08/Proce>

Preiser, W. F. E. (1983). The habitability framework: A conceptual approach toward linking human behavior and physical environment. *Design Studies*, 4(2), 84–91.

Sherman, S., and Sherman, J. (2012). Design professionals and the built environment: Encountering boundaries 20 years after the Americans with Disabilities Act. *Disability & Society*, 27(1), 51–64.

Uncovering Effective Biophilic Design Strategies for Restorative Higher Education Environments

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ABSTRACT

The topic of stress remains at the forefront of higher education discourse, though it is oftentimes presented from a purely transitional standpoint, boiling down to students' struggles with rapid changes in independence, separation, and the expectation of how they fit into this new environment (Krieg 2013). However, stress is a multifaceted issue and has broad implications for student wellbeing, success, and retention (Reavley & Jorm, 2010), furthermore, the surrounding problems continue to compound within the post-pandemic context (Lee et al., 2021). The design of higher education environments presents an opportunity to address some of the stress related challenges experienced by their students. Biophilic design, a potential solution, explores the inherent human inclination to affiliate with the natural environment, and is proven to have significant physical, mental, as well as behavioral health benefits (Kellert & Calabrese, 2015). These positive benefits are outlined in detail by Attention Restoration Theory, Stress Reduction Theory, and Place Attachment Theory (Gillis & Gaterslaben, 2015). The opportunity to come in contact with nature in an educational setting can offer students emotional and cognitive restoration, productivity benefits, and stress relief. The implementation of biophilic design strategies, both direct and indirect, can help to fill those gaps in the ever shifting educational landscape, showcasing how integration of natural elements can directly benefit students in higher education environments.

Based on this exposition, this research explores the following question: "what are the most effective biophilic design strategies for higher education environments in terms of positive impact on mental restoration and wellbeing?" The data is collected through a visual environmental preference survey consisting of 24 questions investigating the spaces most relevant to higher education environments: Lecture/studio spaces, transitional/connective spaces, collaboration spaces, breakout spaces, reflection spaces, and socialization/casual spaces. Convenience sampling is utilized to create a participant group involving students from a variety of programs situated in multiple different buildings across an R1 university campus (n=140+). The survey focuses on self-reported changes in relative levels of stress, attention, nature bonding, and sense of belonging. The statistical analysis (Shapiro-Wilk test, Tukey's HSD, Pearson Correlation Coef.) will investigate correlations and differences between responses to 4 different types of interventions: baseline, color and material intervention, nature views, and plantlife

integration. Based on the findings, a guideline for designing restorative higher education environments for improved student wellbeing will be proposed, with the goal of helping alleviate the increasingly prevalent stress issues faced by college students.

REFERENCES

Gillis, K., & Gatersleben, B. (2015). A review of psychological literature on the health and wellbeing benefits of biophilic design. *Buildings*, 5(3), 948-963.

Kellert, S., & Calabrese, E. (2015). *The practice of biophilic design*. London: Terrapin Bright LLC, 3, 21-46.

Krieg, D. (2013). High expectations for higher education? Perceptions of college and experiences of stress prior to and through the college career. *College Student Journal*, 47(4), 635-643.

Lee, J., Jeong, H. J., & Kim, S. (2021). Stress, anxiety, and depression among undergraduate students during the COVID-19 pandemic and their use of mental health services. *Innovative Higher Education*, 46, 519-538.

Veterans Healthcare Environments: Why not Design with Them?

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Payton Losh, Oklahoma State University

Dr. Tilanka Chandrasekera, Oklahoma State University

Dr. Aditya Jayadas, Oklahoma State University

ABSTRACT

The United States has a significant population of veterans who have served in the armed forces and played a major role in protecting the nation. Based on data from the United States Census Bureau (2021), there were over 18 million veterans in the U.S. between 2015 and 2019. Surprisingly, only approximately 9 million of these veterans sought healthcare services from the Veterans Health Administration during this period, as reported by the Veterans Health Administration in 2022. Designing for veterans requires addressing unique issues and concerns that arose from their time in the military. The discourse on design extends beyond the mere aesthetics or the physical embellishment of a space. It encompasses an array of vital elements, including color schemes, lighting, layout, and other factors, that have a profound effect on the human experience. The purpose of this study was to explore the intricate relationship between preferences and the perceived well-being of veterans in healthcare environments, grounded in a comprehensive analysis of survey data and bolstered by existing research on the design of healthcare environments. Twenty-four veterans (age: 25 - 75 yrs; 16 female, 8 male) were recruited for the survey. The participants were asked to rank their emotions experienced when in a healthcare environment, and their preference of interior design attributes within a healthcare facility using Likert scale questions. Descriptive statistics including average and standard deviation were reported. An analysis of the data revealed underlying emotions of feeling high levels of stress (average = 3.63; standard deviation = 1.17) and nervousness (average = 3.42; standard deviation = 1.35) while having lower levels of relaxation (average = 2.75; standard deviation = 1.42). Based on the veterans' preferences of design attributes within healthcare environments, the top three attributes furniture (average = 4.17; standard deviation = 1.01), available space (average = 4.08; standard deviation = 0.83), and natural light (average = 3.91 standard deviation = 1.04). Drawing upon these results, there needs to be an emphasis on the integration of natural elements with more suitable furniture into the built environment. The aim is to craft spaces that resonate with the veterans' longing for comfort and connection with nature, potentially facilitating a serene and healing atmosphere. There is a broader call

for designs that embrace a diverse color palette, reflective of the vibrant and diverse tapestry of the veteran community.

REFERENCES

U.S. Census Bureau Releases Key Stats on Nation's veteran population. (2021). U.S. Department of Commerce. Retrieved October 2, 2022, from <https://www.commerce.gov/news/blog/2021/11/us-census-bureau-releases-key-stats-nations-veteran-population#:~:text=18>

Veterans Health Administration. (2022). Veterans Affairs. Go to VA.gov. Retrieved October 2, 2022, from [https://www.va.gov/health/aboutVHA.asp#:~:text=The%20Veterans%20Health%20Administration%20\(VHA,Veterans%20enrolled%20in%20the%20VA](https://www.va.gov/health/aboutVHA.asp#:~:text=The%20Veterans%20Health%20Administration%20(VHA,Veterans%20enrolled%20in%20the%20VA)

Virtual Reality and Organized Complexity: Bridging Subjective Perceptions with Evidence- Based Design

Genell Ebbini, Purdue University - Main Campus

ABSTRACT

The discipline of interior design hinges on the interplay of form, function, and human perception. A notable domain is “organized complexity,” a design approach melding repeated patterns with varying scales akin to fractals, fostering visually stimulating (Kellert, 2018; Salingaros, 2018) and psychologically restorative environments (Kaplan, 1995). This design paradigm is particularly relevant in service-scape interiors aimed at creating engaging and restorative environments. Building upon an initial investigation [hidden for blind review], this study re-examines organized complexity through Virtual Reality (VR), of three detailed virtual interior models varying in organized complexity (low, medium, high) manifested in the interior elements, finishes, and furnishings. The initial study unveiled key findings regarding perceived and objective complexity levels but lacked a focus on users' preferences and lived experiences within these spaces. This re-examination addresses this gap, emphasizing user-centric design approaches to better understand user interaction with design elements. Employing a between-subjects, randomized approach, 91 participants, navigated through one of the three virtual interiors. The VR environment, rendered through Enscape™, facilitated an immersive user experience, enabling a deeper exploration of the designs. The participants' interactions within these virtual interior spaces were carefully analyzed, focusing on the core dimensions: overall environmental preference ratings and perceived level of environmental complexity, measured using established metrics. This analysis, more rigorous than the preliminary study, revealed how perceived complexity influences user experiences. A key finding from the initial study highlighted discrepancies between researcher-defined complexity categories and participant-provided complexity ratings. The Low Complexity design yielded the highest mean Perceived Restorativeness Scale (PRS) score, yet a one-way ANOVA test found no statistically significant differences across complexity levels. Similarly, environmental preference ratings showed no significant variance across the complexity levels. Post-hoc analyses revealed a weak, yet statistically significant, positive linear relationship between the PRS scores and the noted complexity of the designs, alongside a similar relationship between environmental preferences and recognized complexity. The initial study, however, did not delve into users' preferences and lived experiences, significantly influenced by demographics, cultural backgrounds, and personal histories. Understanding these nuanced factors is pivotal for a more empathetic and user-centric design approach that resonates with the diverse experiences and preferences of users. This re-examination aims to bridge the gap between objective design principles and the subjective lived experiences of individuals within these designed spaces, providing a more holistic understanding of how design elements are perceived and interacted with by different demographic

groups. This re-examination emphasizes a user-centric and empathetic design approach, spotlighting the subjective experiences of individuals within designed spaces. The positive correlation between participants' perceived environmental complexity and restorativeness underscores the importance of aligning design strategies with user preferences and experiences. Unlike the initial study, this analysis delves deeper into understanding the lived experiences of individuals, enriching the interior design scholarship. By leveraging VR as a robust research tool, this study lays a foundation for further explorations at the nexus of design, technology, and human experience, fostering a more nuanced understanding of user-centric design approaches.

REFERENCES

Kaplan, S. (1995). The restorative benefits of nature: Toward an integrative framework. *Journal of environmental psychology*, 15(3), 169-182.

Kellert, S. R. (2018), *Nature by design: The practice of biophilic design*. New Haven, CT: Yale University Press.

Salingaros, N. A. (2018), Adaptive versus random complexity. *New Design Ideas*, 2(2), 51–61. <http://jomardpublishing.com/UploadFiles/Files/journals/NDI/V2N2/SalingarosN.pdf>

Visuospatial perception of the play of light and shadow in space - through the lens of fractal complexity

Joori Suh, University of Cincinnati

Steen Pedersen, Wright State University

ABSTRACT

The dimension of light plays a crucial role in interior spaces, serving both functional and aesthetic purposes. Light provides illumination, sets the ambiance, highlights design elements, and allows us to perceive shapes, forms, textures, and colors creating overall perception of spaces. The environment we interact with is dynamic not only because of a variety of components within it but also due to the shades and shadows created by light. The interplay between light and space creates whimsical performance where the intensity, direction, and illumination of light as well as shades and shadow patterns choreograph our perception of the spaces and atmosphere surrounding us. In this study, the interaction of light and space, especially how the shade and shadow influence our perception of spaces was explored through the lens of fractal complexity.

A French-American mathematician Benoit Mandelbrot developed the concept of fractal in his effort of theorizing order and beauty amidst the roughness and complexity found in nature. Derived from Latin fractus ("fragmented"), fractal is a class of regular or irregular shapes that repeat at varying scales. Studies have shown different human emotional response to varying degrees of fractal complexity: For instance, a mid-range (about 1.3-1.5) of fractal complexity has been shown to be preferred by humans and to have stress-dampening effects (Hägerhäll, et al., 2015; Taylor et al., 2021). A recent study also shows the judgment of engagement increased with increasing fractal complexity (Robles et al., 2021). The study on visuospatial perception of fractals has been conducted mostly in psychology and is based on two-dimensional shapes and forms; however, the fractal complexity is imbedded in our daily environment filled with multiple spatial components as well as shades and shadows created by light. In this study, the role of light and shadow within spaces in increasing or decreasing the fractal complexity has been investigated using both real world scenes and simulated spatial structure models.

Photographs of the same buildings and spaces have been taken at different times of day, and the fractal dimensions of each photograph were calculated using box counting method programmed in Python. In order to understand the spectrum of varying degrees of fractal complexity of spaces created throughout different times of the day, simulated prototype models of enclosure structures of

12'x12'x12' spaces were created using various fractals including geometric, organic, and abstract patterns. Using the sun study analysis tool in Rhino, shadows and shades were created within each model and the scenes were captured based on different times and seasons followed by fractal dimension calculation of each image. For this study, the distribution of varying degrees of fractal dimensions within a scene, as a color-coded fractal field, was visualized based on a 11x11 grid. Preliminary analyses showed the significant role that light and shadow in the environment played in creating a wide range of spectrum of fractal complexity, which changed depending on the time of day. More specifically, the interplay among the intensity of light, the form of a structure, the texture of the

REFERENCES

- Hagerhall, C. M., Laike, T., Küller, M., Marcheschi, E., Boydston, C., and Taylor, R. P. (2015). Human physiological benefits of viewing nature: EEG response to exact and statistical fractal patterns. *J. Nonlinear Dyn. Psychol. Life Sci.* 19, 1–12.
- Robles, K. E., Roberts, M., Viengkham, C., Smith, J. H., Rowland, C., Moslehi, S., ... & Sereno, M. E. (2021). Aesthetics and psychological effects of fractal based design. *Frontiers in Psychology*, 3413.
- Taylor, R. P. (2021). The potential of biophilic fractal designs to promote health and performance: A review of experiments and applications. *Sustainability*, 13(2), 823.

A Barge, Upholstered Shipping Pallets, and Some Jute Twine: A Community-Engaged Sustainable Design-Build Seminar/Lab

Deborah Schneiderman, Pratt Institute

ABSTRACT

Topic:

The seminar/lab operated within the context of community-engaged design and explored issues of sustainability, prefabrication, exterior/interior through collaboration, and the construction of a full-scale environment. The course necessitated that students study the theories of Prefabricated Interiors and Public Interiors to design and build a placemaking environment. The opportunity to construct and test design in situ at full scale provides an unparalleled opportunity for design students to appreciate the impact and necessary functionality of their work.

Methods:

Students were asked to design and build an inhabitation/meeting structure for the Resilience Education, Training, and Innovation (RETI) Center located on a Barge in Red Hook, Brooklyn.

RETI Center implements programs in education, training, and design + construction, with a mission to be “a model for how coastal cities can combine environmental justice, social responsibility, and innovative design to adapt to a changing climate.”(1) The site for the inhabitation is a 14’x6’ area on the barge, which is used as a community garden and meeting/gathering space. Aligned with the RETI Center mission, the design focuses on the use of reclaimed and sustainable materials including repurposed 4x4s, discarded shipping pallets, upholstery foam offcuts, jute twine, and waterproofed canvas. The students worked in consultation with RETI Center representatives to determine the design solution. The modules were fabricated by the students in the school shop, the framing required onsite construction on the barge. The studio-lab enrolled students across disciplines including graduate and undergraduate students in Interior Design, Architecture, and Fine Arts.

The design elements include a seating landscape, screens, and framing. The seating modules are fabricated from shipping pallets that were cut, stacked, and upholstered, generating a set of

comfortable reconfigurable elements with varying dimensions. The screens, woven from jute twine with a pattern derived from the RETI logo, are installed adjacent to planters to facilitate the growth of vines and block the wind. The frame, fabricated from repurposed 4x4s is structured to receive a solar panel roof. As students had only recently returned to campus after COVID closure, all required shop training to gain skills to fabricate the project.

Context:

The seminar-lab is a cross between a seminar and studio with an intent to utilize theory in the design of collaborative full-scale constructions. Lectures and discussions focused on the expanding body of knowledge in Interior Design with an emphasis on Interiors without Architecture.⁽²⁾ The project was most influenced by the theories of Prefabricated Interiors and Public Interiors (exterior/interior). The theory of the Prefabricated Interior contends that modularized furnishing elements, when combined, can be placemaking without the presence of a building.⁽³⁾ While the theory of the Public Interior argues that the interiority of an exterior environment, in this studio the inhabitation structure, is made possible by the psychological, atmospheric, formal, and programmatic conditions that transform exterior spaces into interior conditions.⁽⁴⁾

Conclusion/Outcomes:

Community-engaged design benefits the students and the community. RETI Center donated time and materials to the students and benefitted from the construction of an inhabitation that, due to its modular design, is programmatically flexible to function as a community meeting space, farm market, and even a performance space. Engaged pedagogy, enabled the students to become active citizens by responding to a community need.⁽⁵⁾ Students learned firsthand the benefits of sustainable thinking across typologies and the necessity for collaboration in design. They successfully learned and applied construction skills, hence an understanding of the complexity of transitioning a design from drawing to an inhabitable environment.

REFERENCES

Numerical in-text citations are in parentheses as superscript is not available on this submission site

“About RETI Center: Mission,” RETI Center, accessed August 8, 2022, <https://www.reticenter.org/about>.

Amy Campos and Deborah Schneiderman, “Introduction,” in *Interiors Beyond Architecture*, eds. Deborah Schneiderman and Amy Campos, (Abingdon, Oxon; New York, NY: Routledge, 2018), xxiv-xxvii.

Deborah Schneiderman, *Inside Prefab: The Ready-Made Interior*, (New York: Princeton Architectural Press, 2016), 8-25.

Liz Teston, “On the Nature of Public Interiority,” *Interiority* 3, no. 5 (2016): 61–82.

A Barge, Upholstered Shipping Pallets, and Some Jute Twine: A Community-Engaged Sustainable Design-Build Seminar/Lab



students meet RETI Center leadership, at the RETI Center Barge



construction at school

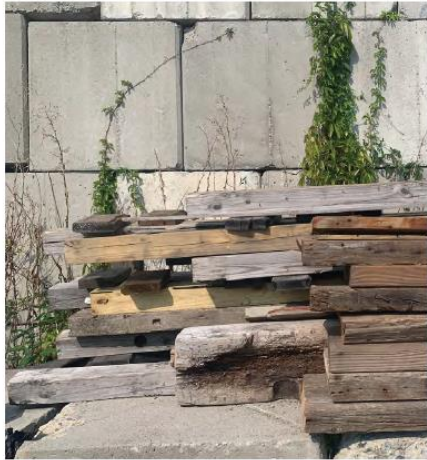


Construction on the barge

materials + site



discarded shipping pallets



resused 4x4s



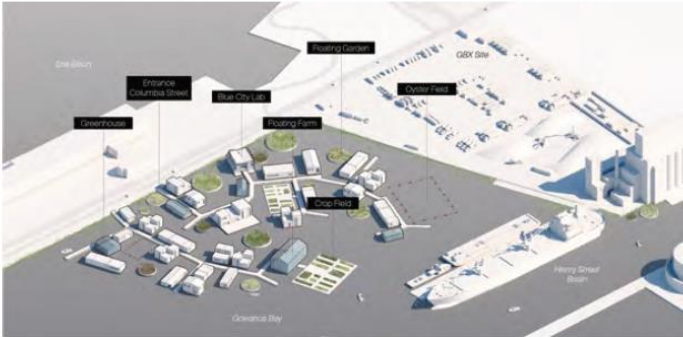
waterproof canvas



jute twine



donated upholstery foam off-cuts

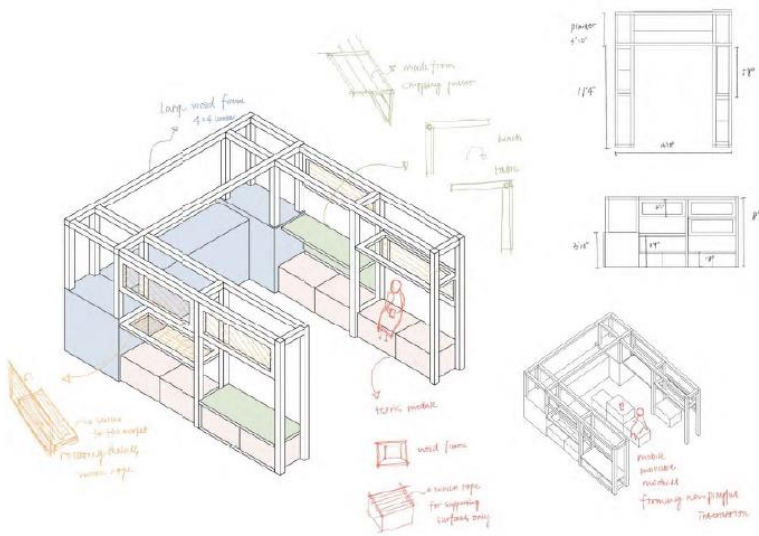


proposed future development

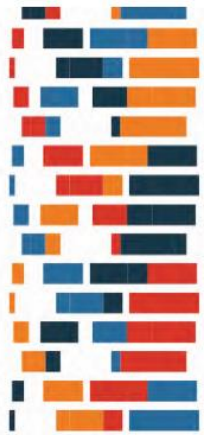


RETI BARGE

process work:



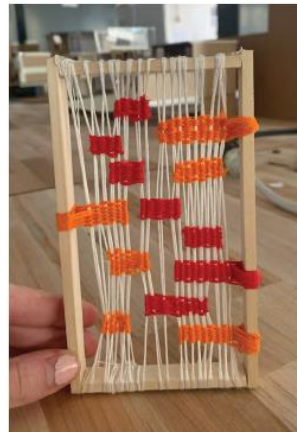
screens + upholstered shipping pallets



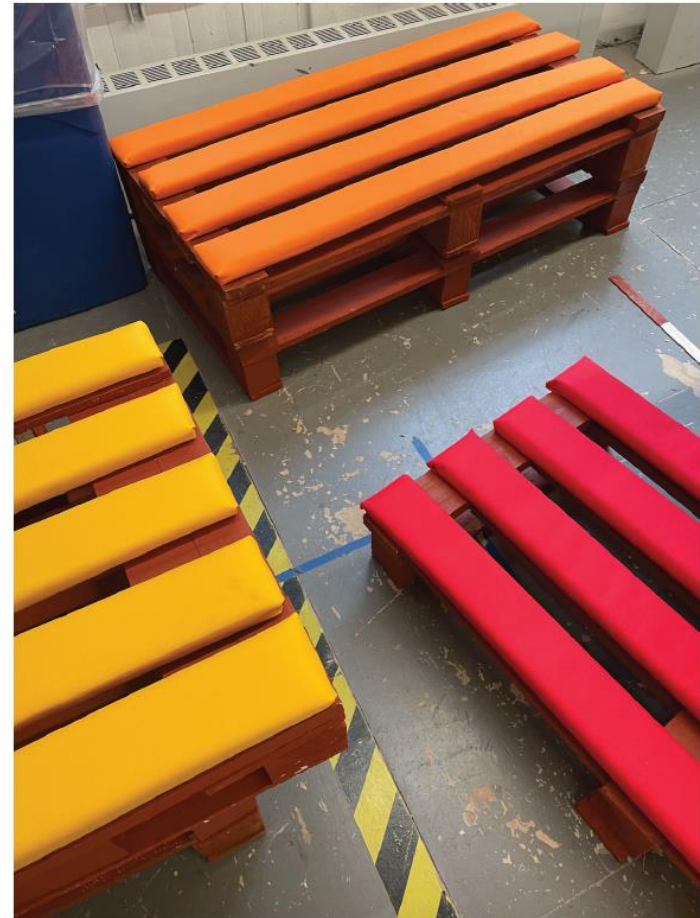
Reference -
RETI Logo



Pattern Derived
from Reference



Study Model



Upholstered shipping pallets

completed project:



A Preservation Study for a Modest Modern Campus Ministry

Kimberley Furlong, University of Arkansas

Lori Filbeck, University of Arkansas

ABSTRACT

This graduate preservation studio sought to understand the socio-cultural motivations that brought one of a series of modest Modern campus ministries on the periphery of a university campus in the early 1960s into existence. The goal was to develop a preliminary preservation assessment and recommendations for the future of the building.

People do not always agree about the value of Modern design or architecture. This period in history saw significant changes in people's values and beliefs and brought about major changes in the design of buildings. Today the unique structures and design that took form during this period are often misunderstood and undervalued. A series of Modern campus ministry chapels that overlook a University campus are particularly challenged because they are modest.

Though at one time they represented the very latest ideals of design and cultural values, they are not grand – and today are in danger of disappearing.

A recently christened Preservation Design graduate concentration at the university had its first student, a licensed architect with years of practice experience in architecture, interior design and construction. Her energies were focused on one of the Modern campus ministries as she was tasked with assessing its past and current value, significance, condition, and future potential. An advanced preservation studio addressed the student's needs and the needs of the campus ministry. The semester of study was organized in four phases. The structure and requirements of the National Park Service's Historical American Building Survey (HABS) program was used as an outline for the first two phases of the studio.

The first phase was Research and entailed the collection of historical documents, photography, interviewing of the ministry's directors, and observation and cataloging of the building's character defining features in an effort to understand the building's significance. This phase also included an analysis of regional and national design influences on the building. The second phase was Graphic Documentation. Measured drawings were made of the existing structure based on manual survey and digital 3-d LiDAR (Light Detection and Ranging) scans. Detailed digital models of the building were made in Revit. Two- and three-dimensional drawings were made to fulfill the HABS standards. The

fourth phase included a written assessment and presentation of the findings and detailed recommendations for addressing preservation and conservation issues revealed in the assessment.

Many facts were discovered during the Research and Analysis phase it was discovered that the building was recently listed on the National Register of Historic Places and was designed by a former faculty of the university's School of Architecture. In addition, the ministry has served as a sort of home away from home between classes for African-American students who had no access to segregated residence halls yet spent their days on campus attending classes.

The scope of this studio may be a challenging first step for first semester preservation students as well as interior design students who participate in preservation studios. Given the student was a seasoned practitioner in the field of design, this studio offered a useful introduction to the skills required to assess the value and significance of an historic structure as well as consider appropriate strategies for future design improvements and potential alterations. The HABS program served well to guide the balance of research, documentation, design and preservation theory. The final documentation and report for this building will be submitted to the HABS program for inclusion in the Library of Congress.

REFERENCES

Burns, J. (2003). *Recording Historic Structures* (2nd ed.). Wiley.

Grubiak, M. (2014). *White Elephants on Campus: The Decline of the University Chapel in America, 1920-1960* (1st ed.). University of Notre Dame Press.

Mateo, F. (2021). *Discipline Conservation Profession. Change Over Time*, Volume 10(1).

Prudon, T. (2008). *Preservation of Modern Architecture* (1st ed.). Wiley.

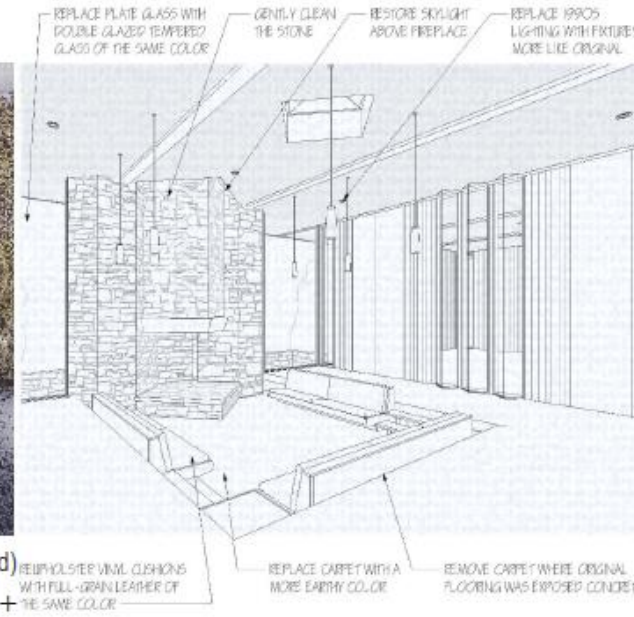


past (original rendering)

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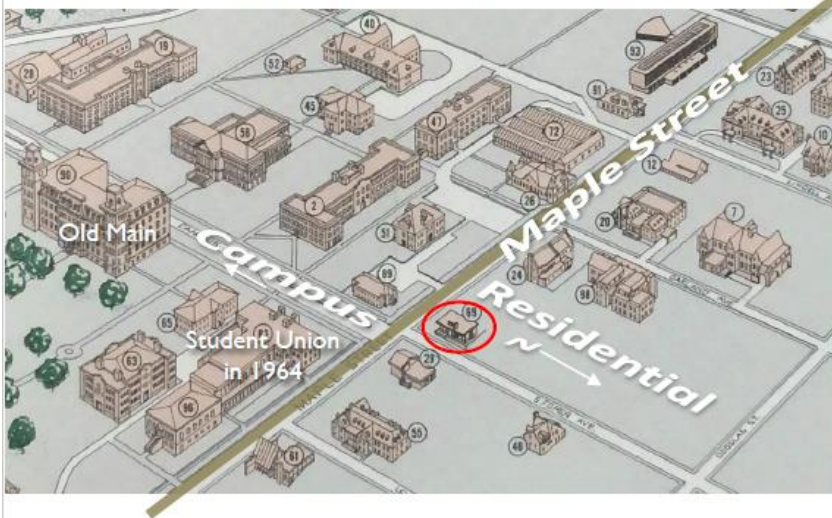
A Preservation Plan

History + Context



In 1964, Maple Street was the northern boundary of the campus, and the adjacent buildings on the north side of the road were primarily single-family homes, sorority & fraternity houses, and a handful of small campus ministry buildings. The University of Arkansas experienced increased enrollment in the decades after World War II, and by the 1960's the Civil Rights movement brought dramatic changes to the nation and especially to college campuses.

Protestant Christian denominations became united in their efforts to support college campuses around the nation which boasted more open environments to support students' educational endeavors, physical needs, and social justice concerns, as well as their faith. The physical manifestation of the campus ministry buildings of this era represented their contemporary theologies with Modern architecture. Because the periphery of campus was residential in scale, the newly built church buildings followed suit. The design of the Presbyterian Student Center on the University of Arkansas Campus characterizes this social and cultural shift in its time and place.



The building is a two-story split-level structure with the lower level mostly below grade, and the upper level on an elevated slab. Its design expresses ideals typical of Modern architecture, including its flat roof, simple lines, lack of ornamentation, open plan, sunken lounge with built-in seating, and natural & honest materials of stone, wood, glass and concrete.



The lofty public spaces on the upper level are clad in wood on both the interior and exterior, with floor to ceiling windows expressing its verticality. The entry and lounge space has large expanses of glass for views into and out of the large room. Yet the fenestration is narrow, vertical and shuttered where services are held, providing only a slice of a view through V-shaped windows. This diagonal square motif can also be seen in the fireplaces, skylights and other elements



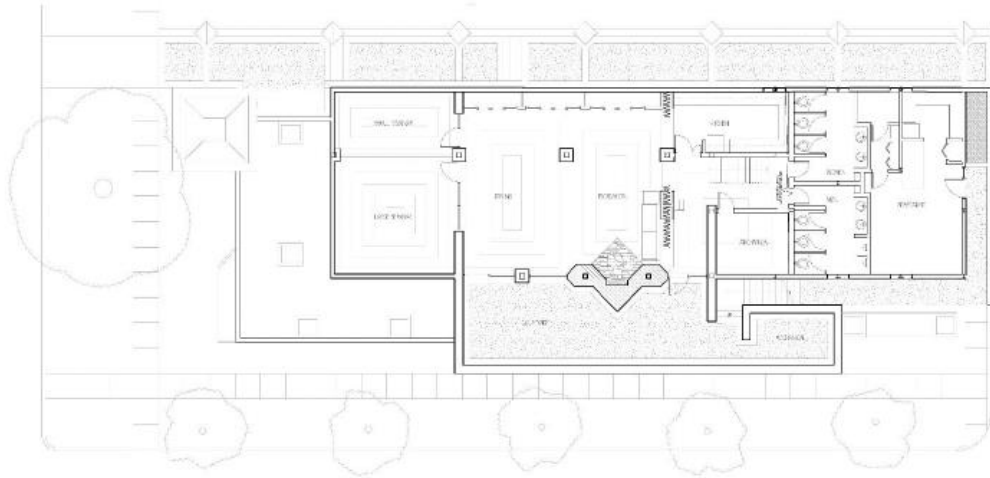
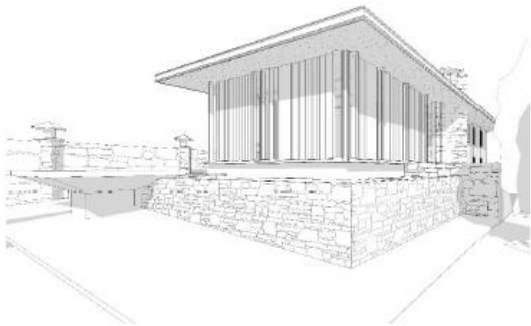
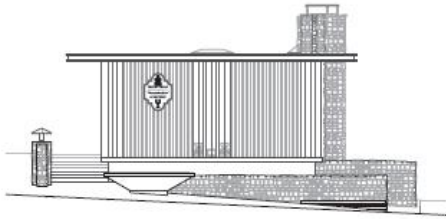
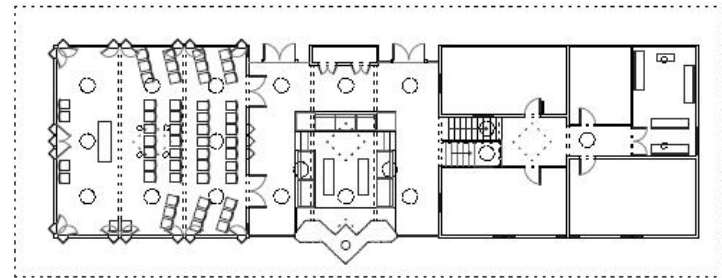
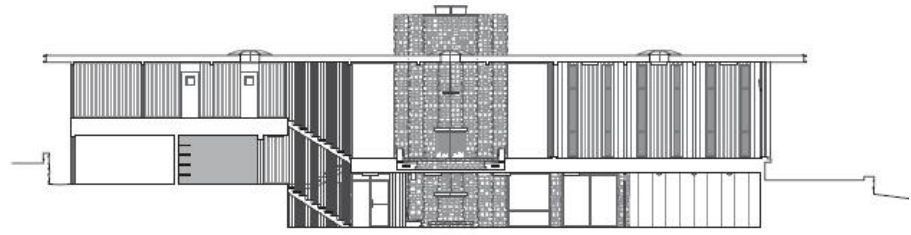
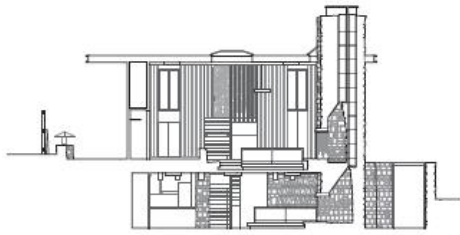
The cozy, cave-like sheltered lower level completes the treehouse-cave notion common in Ozark Modern architecture of this period. Its below-grade setting still has a connection to the exterior via a courtyard which creates a public-yet-private outdoor space. The stone walls and fireplace ground the building to its site with heavy materials.



Much of the building remains intact as the facilities budget went into maintenance rather than remodels. The church retains most of its original furnishings in good condition, including original pews in the meditation room juxtaposed against an exquisite Blenko stained glass window.

Examples of Character Defining Features

A Preservation Plan

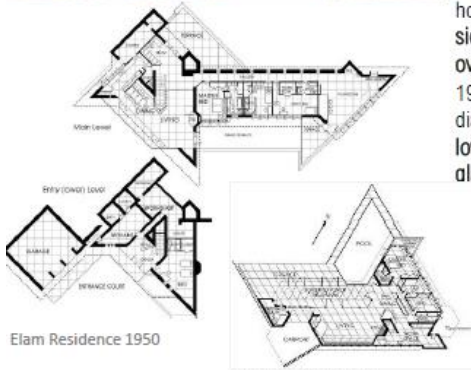


Graphic Documentation
to be used for Historic American Building Survey (HABS)
A Preservation Plan

National Design Influences



Frank Lloyd Wright, a mentor of colleague E. Fay Jones and inspiration to many modern architects, used geometrical patterns in his work, but especially near the end of his career in the 1950s. He often played with the theme of the **diagonal-square**, or diamond shape as well as triangular. The **diamond grid** dominates the plan for the Thaxton house and **stone base, wood siding and flat roof with deep overhangs**. The Elam residence of 1950 employs a square grid on the diagonal with a **low-ceilinged lower level and a lofty, heavily glazed upper level**.



Elam Residence 1950

Thaxton House 1950



Hansen House 1927

While McPheeters attended college at Oklahoma State in 1949, **Bruce Goff** was teaching nearby at the University of Oklahoma. Goff is often credited with the design of the first **conversation pit** in 1927. Several of McPheeters associates worked for Goff following graduation from the University of Arkansas architecture program, and before returning to the U of A to teach.

Regional Design Influences



Fletcher House 1957



Sam Walton House 1959

McPheeters taught architecture at the University of Arkansas concurrently with architect **E. Fay Jones**. Jones' work is often described as **Ozark Modern** where the **native stone chimney** is the focal point.



Segraves Residence 1959

Warren Segraves was a 1953 graduate of the University of Arkansas school of architecture, alongside several of McPheeters' fellow faculty members. Segraves' designs gained local notoriety. The **windows** in the entry of his personal residence could be seen as **influential to the V-shaped windows** of the Presbyterian Center.



Deep Woods House 1960 - Herb Fowler

The **sunken seating area** was a centerpiece of Modern design. Fellow educator, **Herb Fowler and Fay Jones** both implemented this feature in designs of the same era. They typically include built-in seating, **anchored by a fireplace**.

Design Influences

A Preservation Plan

Recommendations



Very few elements of the building have changed since its completion, and the building has been well-maintained. We have documentation that shows the original intent, so the areas identified as needing preservation, or in some cases, restoration, should follow the initial design where possible. However, this is not a museum; it continues to function as student ministry so any action taken must regard the prolonged need for durability.

Original fenestration is plate glass, not tempered as code would require of a new structure. The large panel windows overlooking the courtyard should be replaced with safety glass of the same color. While replacing them, an argument could be made to change them to double-glazed insulated panels for energy efficiency.

Many of the V-shaped windows of the meeting room are cracked or broken. Since the mitered and existing corner aluminum channel would not lend itself well to an insulated replacement, the recommendation is to replace in kind with a single pane to match the color and thickness of the original.



Original light fixtures were replaced in the late 1990s. The new fixture is a large surface mounted disc (or pendant) which detracts from the clean ceiling plane. Lighting should be returned to the original design intent of small surface mounted cylinder on the lower level, and recessed cans with delicate chain-hung decorative pendants on the upper level.



The skylight along the west face of the chimney enclosed due to in persistent leak roughly a decade ago. This is an important character defining feature that could be rebuilt using new construction technology that will prevent water infiltration.



The interior finishes are showing wear or have been replaced in areas with products not in keeping with the original design. Vinyl composition tiles were added at both main doors where exposed concrete was called out. This tile, and carpet on the entry level should be removed and the concrete floor restored. Carpet should be replaced, where it was originally located, but with a warm earth tone in keeping with intended color scheme.

Original vinyl covered cushions on the built-in seating should be replaced with a full-grain leather of the same color. The wood trim around the conversation pit is marred in some places and missing in others. The wood should be carefully restored, and replaced where missing. The marble treads and table tops need to be polished and sealed.

Examples of Preliminary Preservation Assessment + Recommendations

A Preservation Plan

A Program's Journey Toward Meaningful Student Public/Community Service

Sally Ann Swearingen, Stephen F. Austin State University

Nathaniel Walker, Stephen F. Austin State University Jennifer

Luque, Stephen F. Austin State University

ABSTRACT

Problem. How can we effectively teach community service? After all, it is an opportunity to make a difference (Public Service Careers, 2015). We will share our journey. The question is it supplying a service to the community. It fosters physical/mental wellness, connects people, promotes personal fulfillment, and teaches job skills (Segal & Lawrence, 2017). It helps one gain mentors, networking contacts, and job references (Kane, 2017). The challenging issues of today's public agenda call for talented individuals to find societal solutions. Understandably, public / community service is now a component of design education (CIDA, 2017). For educators, public service offers even more. It engages students, mentors freshmen, promotes teamwork, develops leadership, requires idea generation, promotes interdisciplinary collaboration, and improves retention. Strategy. In response to CIDA's "public service" indicator that started in 2015 by CIDA (CIDA, 2017). The service focus was left to student providing six hours of public service each semester. At the semester's end, students scampered to find service opportunities, most having no connection to interior design, even thou a list of places and opportunities were provided. It quickly appeared that the message of social responsibility had been minimalized. Faculty purposed to improve future public service by involving students in projects that entailed interior design skills and promoted a better understanding of social responsibility. We determined providing a unified service opportunity allowed them to see possibilities. In 2016 we started, an a 10-hour public service charrette (Appendix A) involved students in programming, conceptualization, design development, presentation, and evaluation. This service opportunity with a faith-based organization developed when research revealed that local poverty families needed a place to shower and wash clothes. The idea to design a community shower/laundry facility. In 2017 students provided the design for concession and bathroom facility for the Boys and Girls football / baseball field. In 2018, we designed a community center and fire station for a small community. All of the years above were set up as vertical teams within the program. In 2021 we took a new approach and joined with construction management to design something that would make a difference in the community. Each student team included students from all levels; seniors served as captains. This team structure of vertical learning

where upper-level students peer-mentored lower-level students while lower-level students contributed enthusiasm and energy (Drury, 2013). As students shared responsibilities for achieving a final product, camaraderie resulted. This structure created friendships across levels and majors, not leaving freshmen isolated (Drury, 2013). Faculty hoped this student-to-student instruction and cross majors could also improve freshman retention. (Appendix D) Outcomes. The program experienced the following outcomes: 1. positive feedback from students, faculty, and community 2. improved freshman retention rate 3. achievement of CIDA indicators—collaboration, communication, integrated team process, human-centered design, design process, and public service (CIDA, 2021). 3. client appreciation. 4. public recognition of program success. Faculty reviewed feedback each year and planned improvements for the next charrette. In conclusion, the public service endeavor provides an exciting and meaningful beginning for the academic year. Changing to allowing students to either design a product that would make a difference allows both the design and construction student to expand their knowledge base. Besides the benefits mentioned, faculty observed more student engagement in the curriculum, positive greater participation in student design organizations, and a closer-knit student group for construction and interior design.

REFERENCES

Council for Interior Design Accreditation. (2017). Professional standards 2017. Grand Rapids, MI: Author.

Drury, E. (2013). A guide to vertical teaching. The guardian. Retrieved from <https://www.theguardian.com/teacher-network/teacher-blog/2013/jan/08/vertical-teaching-guide-early-exam-entry>.

Public Service Careers. (2017). Why public service? Retrieved from <http://publicservicecareers.org/why-public-service/>.

Segal, J. & Robinson, L. (2017). Simple changes, big rewards: A practical, easy guide for healthy, happy living. Harvard Health Publications. Retrieved from <https://www.helpguide.org/articles/healthy-living/volunteering-and-its-surprising-benefits.htm>

Appendix A

Shower & Laundry Charrette Preliminary Program

Thursday 2-6 p.m. (Social 6-8 p.m.); Friday from 8:30 a.m.- 6 p.m.

This bathing and wash house facility along with a separate sleeping area will be used to assist individuals and families in need. In addition, your team will come up with a name for the facility and a logo if time.

The exterior building is made up of CMU block (Concrete Masonry Units). Interior walls need to be specified of durable maintenance free materials. Need a new roof – could be a built-up pitched roof. Need to add HVAC – recommending motel units.

Considerations: Natural light, general lighting, electrical placement, finishes, concrete floors, ADA accessible, security cameras – monitor located at Non Profit office, exterior lighting, ventilation, security in general, etc.

Cleaning considerations of furniture, built-ins, etc.

Spaces needed within the facility:

1. Secured/ lockable entrance with a doorbell and view to the exterior
2. Area to sign in and check out supplies to shower area.

WET AREA

3. 3 Stalls: Each stall to include a shower, watercloset (toilet), sink, place for clean clothes (like shelf / hooks), bench, and mirror. (1 stall must meet ADA/TAS requirements)
4. Outside 3 stall area – place for soiled linens (towels)
5. Outside area seating space / example: bench for people waiting
6. Lockable storage area for linens, shampoo, cleaning supplies
7. Mop closet – floor mop sink, shelf for supplies, space for mop bucket on rollers
8. Water fountain

CLEAN AREA for Volunteers only

9. Lockable Counter with lockable storage for volunteer to keep notebooks – for inventory, volunteer hours, minimum office supplies, stool or chair to sit to handle paper work. (Area must be ADA accessible)
10. Cabinets with storage below and upper storage for towels, linens, clothing, food items, etc. Sink , space for coffee pot and small microwave (aprox. 8-10 LF – does not have to be continuous.
11. 2 standard washing machines and 1 commercial washing machines
12. 2 standard dryers and 1 commercial dryers

13. Washing Machines and dryers to be used by volunteers only
14. Laundry Basket on roller to move clothes to folding area
15. Folding area to be accessible by client and by volunteer. SLEEPING AREA (ATTACHED/ ACCESSIBLE TO VOLUNTEER AREA BUT ALSO A SEPARATE ENTRANCE
16. Sleeping area to include a double or queen bed, bunk bed, small unit to house small refrigerator, microwave and coffee pot (example: see in a motel)
17. Bathroom – shower, sink and watercloset
18. 18. Floor space for additional cots if necessary.

APPENDIX B

Interior Design Charrette (Required for all ID students)

Thursday, September 8th 2 p.m. Sharp meet at XXXX Inc's office 917 XXXX Street (Bld on the corner of Ruby and XXXXX Street/ Creek side. At this time we will meet and measure the building, interview client, and gather research.

Student teams will be posted in HMS South, Thursday noon. Student's need to bring their tape measures, notepad and listening ears.

Scope of Services we will perform:

Thursday, September 8th

1. Walk around proposed site 2-2:30 p.m. with Board
2. Interview of client (Board, builder, city inspector) 2:30-3:30 p.m. inside, may have to sit on floor.
3. Measurement of building and asking additional questions 3:30-4:30 p.m.
4. Start entering measurements into computer and printing an existing floor plan. 4:30-6 p.m. Confirm, in case you have to re-measure. Get thickness of CMU exterior walls & heights.
5. 6-8 p.m. ASID/IIDA will host a cookout at XXXXX Park
6. Optional/ Teams can divide research for the evening or work in building.

Friday, September 9th: 8:30-5 p.m. Teams will work in XXX building.

1. Doors open at 8:30 a.m. If a team needs additional measurements please go before this time. (Building opens at 7:30 if you want more time)
2. 8:30-9:30 Review and write your program/ Bubbles and Brainstorm
3. 9:30-10:45 Prepare schematics to scale and review with program to determine which plan works the best. (review against your interview notes)
4. 10:45-11:30 Review and implement ADA requirements, review codes (faculty can give a quick eye)
5. 11:30-12 Lunch in gathering area (Pizza & Drinks)
6. 12 -1 Research and determine materials, color schemes, prepare 3D sketches etc.
7. 1-2 Assembly a presentation to be review: Scaled Floor Plan with notes, Materials, Color Schemes, pictures, perspectives, name of facility, inside and outside, ideas etc.
8. 2-5 p.m. Presentations to Client (Required writing summary of feedback given from team).
9. 5 p.m. Leave presentations with student's names attached and summary.

Presentations will be in room 108. Teams may work all throughout the building.

KEY: Do some research ahead of time of campground bathing facilities, truck stops, rest stops, etc. Come prepared and ready to share with team. Don't be shy everyone's idea is important!

APPENDIX C

PHASE 1: Thursday Activities

Meeting at nonprofit organization with director and staff to find out needs



Students breaking into groups, meeting each other, and measuring the building.



Proposed site of facility / Storage Building



IIDA & ASID Student Chapters hosted group Thursday night for a Picnic at the Park.

PHASE 2: Friday Activities

Meeting in groups to execute the designing process.



Team Presentation to the Staff and board of directors of non-profit.




Appendix D 2021 / 2022 Interior Design and Construction Management students created something that would make a difference in someone's life in the community. Vertical assemble of groups were put together, 1 upper classman ID student and 1 CMGT student and 1 lower-level ID and 1 lower level CMGT student, plus diversity of males and females.

GUIDED CUTTING BOARD

Group 4: Carley Scott, Halie Gross, Emma Henderson, Madelyn Collins

Problem:

People with visual impairments avoid cutting food because they can't clearly see what they are cutting and it is ultimately not safe.



Solution:

We created a cutting board that allows people with visual impairments to cut fruits, vegetables, meat, etc., confidently and safely.

VS.

Inspiration

While trying to think of something that could assist visually impaired people's everyday life, we also wanted to make sure we were thinking outside the box. We went through the thought process of thinking about if we were visually impaired what would be something that we would struggle with. We all very easily came to the same ideas as cutting things in the kitchen and this is where our idea stemmed from.

Product Details


This cutting board was designed with visually impaired people in mind. The cutting board itself has slits of different distances to accompany every width of the things you will need to cut. Along with different widths, the inserts have different width cutting guidelines to accompany any and every width.

Materials:

- Pre-cut wood
- Plywood
- Mesquite wood
- Nails

Improvement Opportunities


- Add a bottom mat that would stop it from sliding on the counter and make it even more safe to use
- Label each insert with measurements written in braille so that it's quicker to identify which insert you need



Testing Methods

We asked Antoinette, an SFA student to test our prototype to see if we were on the right track. She was thrilled about our product and was very complimentary on our product to help aid visually impaired people cutting things.

Cost: Around \$20.00



Charette 2021 - Make a Difference

Balanced Meal

Andre Gagnon, Halie Gross, Julie Swinney, Maverick Graham

Balanced Meal basket is to provide physically/mentally impaired students a way to carry their food back to their dorm without any spills or carrying complications.

Charette 2021 - Make a Difference

Balanced Meal

Andre Gagnon, Halie Gross, Julie Swinney, Maverick Graham

The purpose of the Balanced Meal basket is to provide physically/mentally impaired students a way to carry their food back to their dorm without any spills or carrying complications. Balanced Meal is useful for people who are visually impaired or struggle with fine or gross motor skills.

Handle



Snack tray

Takeout box tray

Cup holder

Balanced Meal Impact

Antoinette tested the Balanced Meal basket at the Ralph W. Steen Library. She said that the Balanced Meal basket was helpful for someone who is visually impaired. The Balanced Meal basket made navigating through doors with takeout food easier than other methods she was taught when carrying a tray or a takeout box and drink on their own.



Implementation Process

Coordinated with Beverly Johnson from the SFA Orientation & Mobility program

Tested by an off-campus SFA student with a visual impairment, Antoinette

Load/unload food and drink containers

Walked on a variety of terrains:

- Brick
- Concrete
- Stairs
- Hardwood flooring

Navigated with a guide dog

Opened doors

Materials Used	Amount Spent
1/2" PVC pipe	\$20.00
3D printer	
PLA plastic	

Winner.

Advanced Technologies to Enhance Architectural History Education Experiences

Maria Delgado, Colorado State University

ABSTRACT

Relevance

The Architecture Virtual Library (AVL) is an online initiative dedicated to the digitization of historical buildings and the development of educational materials tailored for local K-12 educational systems, employing advanced technologies. This project strives to facilitate free access to digitally scanned buildings along with customized educational activities, enriching historical knowledge related to architecture. Existing literature underscores the pedagogical potential of virtual reality in enhancing learning (Asad, M. M. et al., 2021). However, a gap exists in the development of teaching methodologies and pedagogical approaches for the implementation of augmented reality in education (Hajirasouli, A., & Banihashemi, S., 2022). To empower learners in shaping the future, it is imperative to integrate these innovative technologies into classrooms at various educational levels, fostering diverse learning experiences and opportunities (Leahy, S. et al., 2019). Notably, challenges like limited technology access and educators' lack of proficiency in software usage are prevalent (Tan, Y., 2022). This is significant because virtual experiences such as virtual field trips, expose students to content beyond the classroom and foster critical insights into the subject matter (Mohammadiyaghini, E., et al., 2023).

Issue

There is a pressing need to collaborate with educators to incorporate more virtual reality experiences into K-12 education, with architecture-based virtual reality serving as a tool to address this teaching challenge. The AVL integrates Mattertags into virtual buildings, allowing learners to access information about the architectural history of these structures. From these tags, we developed educational PDF exercises that students can complete while navigating the virtual 3D scans. We are currently partnering with local teachers to provide them with training on the software and to jointly design virtual reality activities suitable for their classrooms.

Context

In the previous summer, the AVL project developed educational materials for piloting K-12 activities. In the current year, AVL initiated a pilot program to create augmented architecture educational materials, with the goal of collaboratively developing augmented activities with K-12 educators for students.

Methods

The AVL historical preservation process follows a three-pronged approach. Firstly, AVL interns research the building's history using internet resources, local archives, and the National Historic Register. All gathered information is systematically categorized across various subjects and further subdivided into architectural drawings, journal articles, pictures, videos, and more. These diverse categories are then color-coded and integrated into the digital-twin scans using Mattertags. Additionally, we have explored the use of programs to create interactive augmented architecture quizzes and scavenger hunts for the public. Specifically, the AVL has devised augmented architecture quizzes that K-12 students can engage with while navigating virtual buildings. Tools such as Treedis, a non-coding immersive experience platform, facilitate the efficient development of such experiences and are ideal for architecture research interns without coding backgrounds.

Outcomes

The learning outcomes are collaboratively codesigned by local teachers. They contribute their specific learning objectives, and we work closely with them to incorporate this content into our augmented experiences.

Significance

This presentation holds significance as it empowers interior architecture historians, educators, students, and practitioners to integrate advanced technologies into 3D scans. It encourages collaboration among interior designers in higher education with local K-12 systems to promote the co-development of learning outcomes for integration into advanced augmented architecture activities. Together, these efforts expand the learning experiences of future generations.

REFERENCES

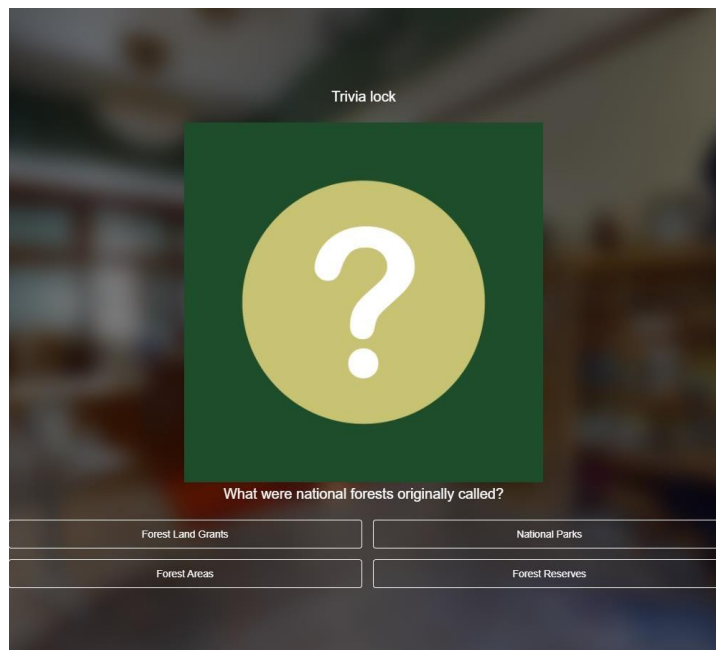
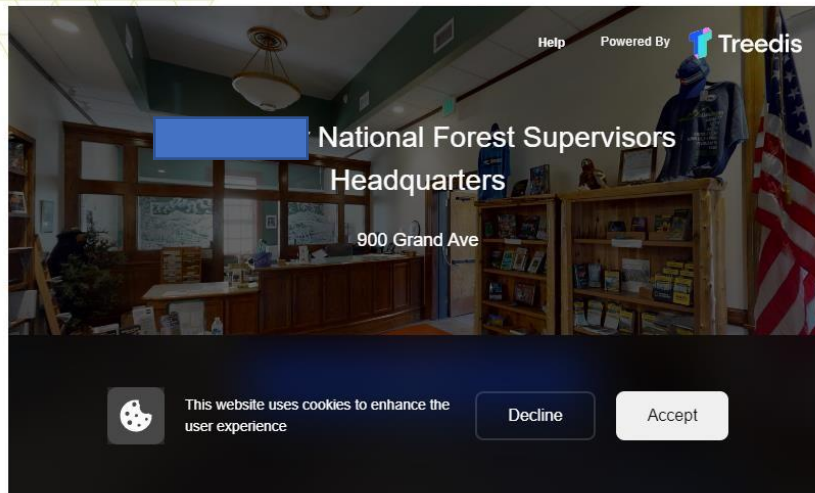
- Asad, M. M., Naz, A., Churi, P., & Tahanzadeh, M. M. (2021). Virtual reality as a pedagogical tool to enhance experiential learning: A systematic literature review. *Education Research International*, 2021, 1-17.
- Hajirasouli, A., & Banihashemi, S. (2022). Augmented reality in architecture and construction education: State of the field and opportunities. *International Journal of Educational Technology in Higher Education*, 19(1), 39.
- Leahy, S. M., Holland, C., & Ward, F. (2019). The digital frontier: Envisioning future technologies' impact on the classroom. *Futures*, 113, 102422.
- Mohammadiyaghini, E., Luo, Y., Wu, W., & Tehrani, F. M. (2023, July). Field knowledge transfer via immersive virtual field trips in architecture, engineering, and construction education. In *EC3 Conference 2023 (Vol. 4, pp. 0-0)*. European Council on Computing in Construction.

Appendix

AVL [Treedis](#) Quiz Experience

Augmented Architecture Activity

Virtual Reality Quiz Game



Note: If the question is answered correctly, celebration confetti is released. To maintain anonymity, we have not included the live link as the scavenger quiz questions feature the University logo.

The AVL research intern scans a 3D historic building using Matterport technology.



The AVL research intern walks through a virtual, customized 3D model of a historic building.



Bridging Human Creativity and Technology: AI in Interior Design Education

Eiman Elgewely, Virginia Tech University

Brad Whitney, Virginia Tech

ABSTRACT

Artificial intelligence (AI) applications have made significant inroads into our daily lives. In just a matter of months since the unveiling of ChatGPT, we find ourselves immersed in a rapidly evolving AI landscape. This transformation has prompted rigorous deliberations and informed recommendations within educational institutions on effectively normalizing and navigating these tools within the academic world. Integrating digital technology in architecture and computational design has sparked a transformative era of innovation. The evolution has progressed from Computer-Aided Design (CAD) and Computer-Aided Manufacturing (CAM) systems through the exploration of cyberspace, the adoption of Building Information Modeling (BIM), and ultimately the advent of generative design. Today, generative AI represents the pinnacle of this progression, where AI and neural networks collaborate to revolutionize design creativity, pushing the boundaries of innovation to new heights (Gallo et al., 2020; Leach, 2022; Mario Carpo, 2023).

Driven by a keen curiosity and a belief in the remarkable evolution from digital and computational tools to generative AI, an educational experiment was conducted during the spring of the 2022-2023 academic year, shortly after AI had gained traction in the architectural and design arena. Two interior design educators conducted this experiment at a southeastern interior design program involving a cohort of 39 second-year students. The experiment involved various cutting-edge AI tools, including Midjourney, DALL-E, and Stable Diffusion. The experiment aimed to harness generative AI's potential in interior design education while highlighting the role of human creativity. It aimed to keep students updated on design and technology advancements, encouraging them to blend their creativity with AI in the design process.

In a two-week team design charrette, the students used AI to propose design concepts for a groundbreaking hotel design in Las Vegas. The hotel is sponsored by a futuristic influencer who has merged three distinct personalities into one. The challenge is to choose three influencers from a provided list and create a design concept that harmonizes their merged personas for the hotel's lobby and luxury suite.

The educational experiment unfolded across three distinct phases. The first phase involved exploring and testing AI tools, primarily focusing on AI text-to-image processes (Kelly, 2022; Oppenlaender, 2022). This innovative approach utilizes advanced algorithms and neural networks to convert textual descriptions into visual content, effectively bridging the gap between words and images.

In the second phase, the students' sketches were scanned and transformed into realistic interior renders using AI technology. This transformative process, known as image-to-image, translates one image type into another, guided by precise instructions or desired transformations. The culmination of the experiment took place in the final output stage, where the AI-generated images were carefully edited to align with the structural confines of the hotel, including the door and window placements. Photo editing was pivotal in fine-tuning and enhancing these images, resulting in polished and definitive design outcomes.

The experimental findings have demonstrated that while AI is beneficial in the initial design stages, achieving the desired results often requires substantial human intervention, iterations, and modifications to reach the outcome.

The ever-evolving landscape of AI tools has prompted the teaching team to embark on a second iteration of the experiment in the current academic year. This time, the prompt is tailored to encompass the latest updates in generative AI. The primary goal is to discern how these updates influence the outcomes compared to the previous experiment. The study also includes a student survey to explore their perspectives on integrating and utilizing AI in their studio projects.

REFERENCES

Gallo, G., Tuzzolino, G. F., & Wirz, F. (2020). The Role of Artificial Intelligence in Architectural Design: Conversation with Designers and Researchers. The 7th International Conference S.ARCH 2020.

Kelly, K. (2022). What AI-Generated Art Really Means for Human Creativity. WIRED.

Leach, N. (2022). Architecture in the Age of Artificial Intelligence, An Introduction to AI for Architects. In Architecture in the Age of Artificial Intelligence.

Mario Carpo. (2023). A short but believable history of the digital turn in architecture. E-Flux Architecture.

Appendix

Scholarship of Teaching and Learning (SOTL)

Abstract Title: Bridging Human Creativity and Technology: AI in Interior Design Education

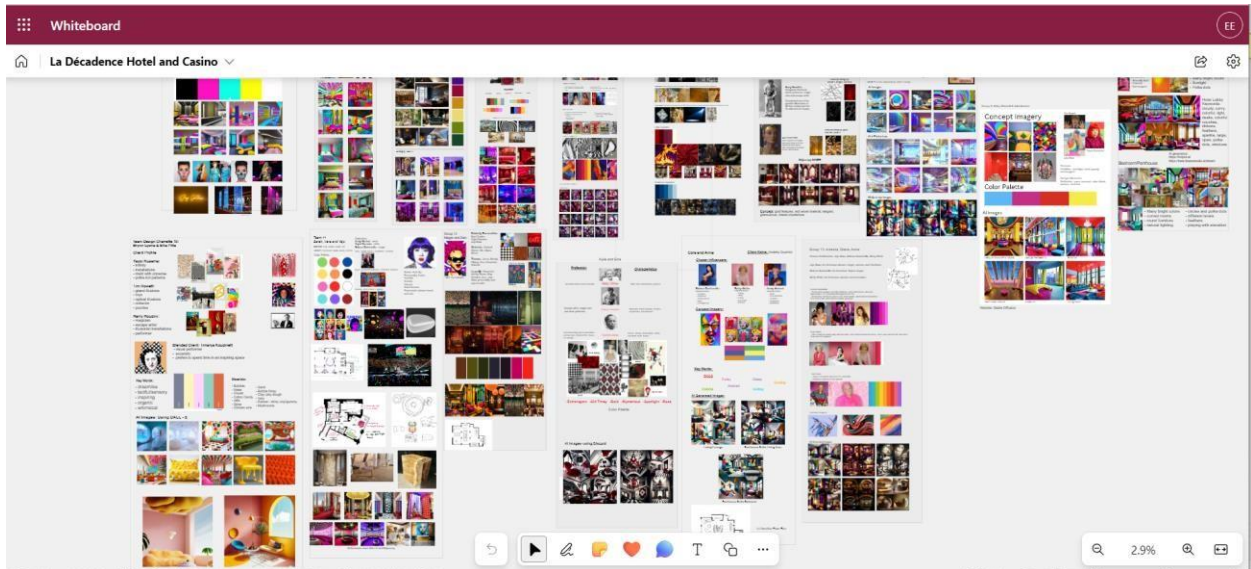
Project Prompt summary:

In the "La Décadence Hotel and Casino project," students are tasked with designing the hotel lobby and an exclusive luxury suite for a unique hotel in Las Vegas. The client, a timetraveling influencer, possesses a blend of personalities from famous individuals. Students must select three influencers from a provided list and create a design concept that integrates these personalities into one.

For the lobby, the design goal is to create a space that evokes a "never seen before" reaction from guests and visitors. The lobby should be experientially immersive and unified by a strong conceptual framework derived from the selected client's characteristics. Students are required to illustrate prominent areas in the lobby, including entry, guest check-in, concierge, waiting/lounge area, and elevators. Additionally, they must plan the lobby floor design, specifying shape, material, color, and other necessary elements.

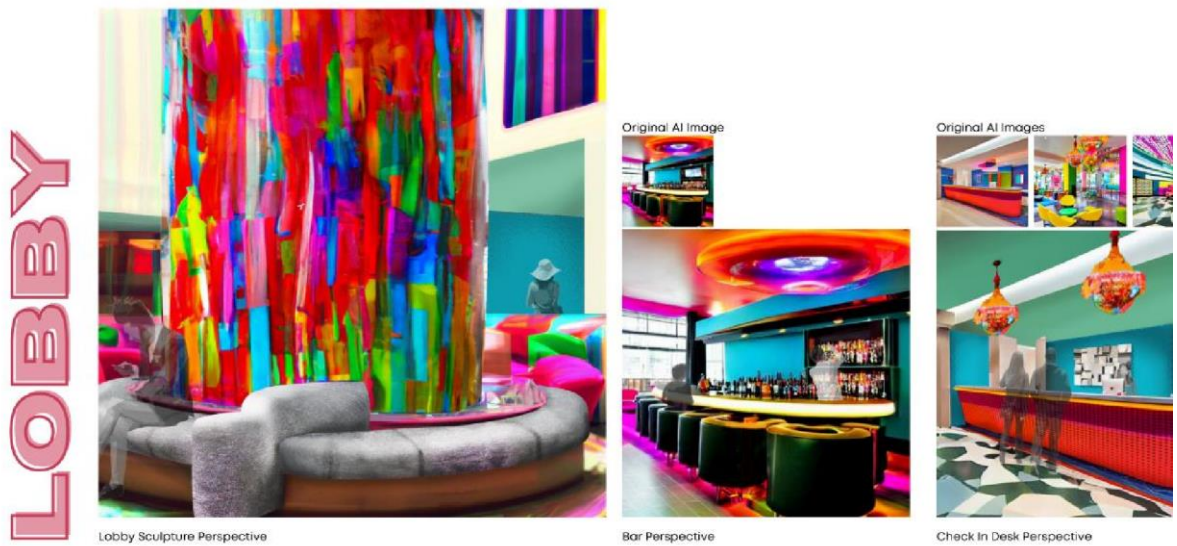
The exclusive luxury suite aims to provide an opulent and futuristic experience. The suite should feature luxurious materials, spacious layouts, and innovative furnishings. Like the client's unique personality blend, the suite should be a transcendental escape from the mundane. Students are required to illustrate various areas within the suite, including entry, living/entertaining area, sleeping area, and any other areas that express the design concept. The suite's floor design must also be presented, encompassing shape, material, color, and other relevant elements.

The presentation requirements include narrative-dominant imagery, such as collages, hybrid compositions, and AI-generated visuals. While drawings/images do not need to be to scale, they should follow believability guidelines and representation conventions. Specific ceiling height limits are set for the lobby and suite areas to effectively guide the design process. Floor plans were provided for both the lobby and the luxury suite.



A screenshot shows the Microsoft Whiteboard interface, a real-time collaborative platform for sharing students' work and discussion in the project's first phase (text-to-image process).

SCULPTURE PROCESS



AI-generated design developed from a hand-sketch (Image-to-image process).

THE PINK SUN PALACE - LAS VEGAS

TEAM DESIGN CHARRETTE 10:

CONCEPT WORK:

CLIENT PROFILE DEVELOPMENT:

YAYOI KUSAMA:
- INFINITY
- INSTALLATIONS
- MELD WITH UNIVERSE
- POLKA DOT PATTERNS



TIM ROWETT:
- GRAND ILLUSIONS
- TOYS
- OPTICAL ILLUSIONS
- COLLECTOR
- PUZZLES



HARRY HOUDINI:
- MAGICIAN
- ESCAPE ARTIST
- ILLUSIONIST
INSTALLATIONS
- PERFORMER



BLENDED CLIENT:
TIMARYA KOUDINETT

- VISUAL PERFORMER
- ECCENTRIC
- PREFERS TO SPEND TIME IN AN INSPIRING SPACE



KEY WORDS:

DREAM-SCAPE INSPIRING WHIMSICAL
TACTFUL/SENSORY ORGANIC



AI IMAGES USING DALL-E: DEVELOPED WITH IMAGES AND TEXT



DESIGN CONCEPT:

AN INSPIRING SPACE THAT ENCOURAGES SOCIAL INTERACTION AND CREATIVE THINKING



1. ENTRY PERSPECTIVE

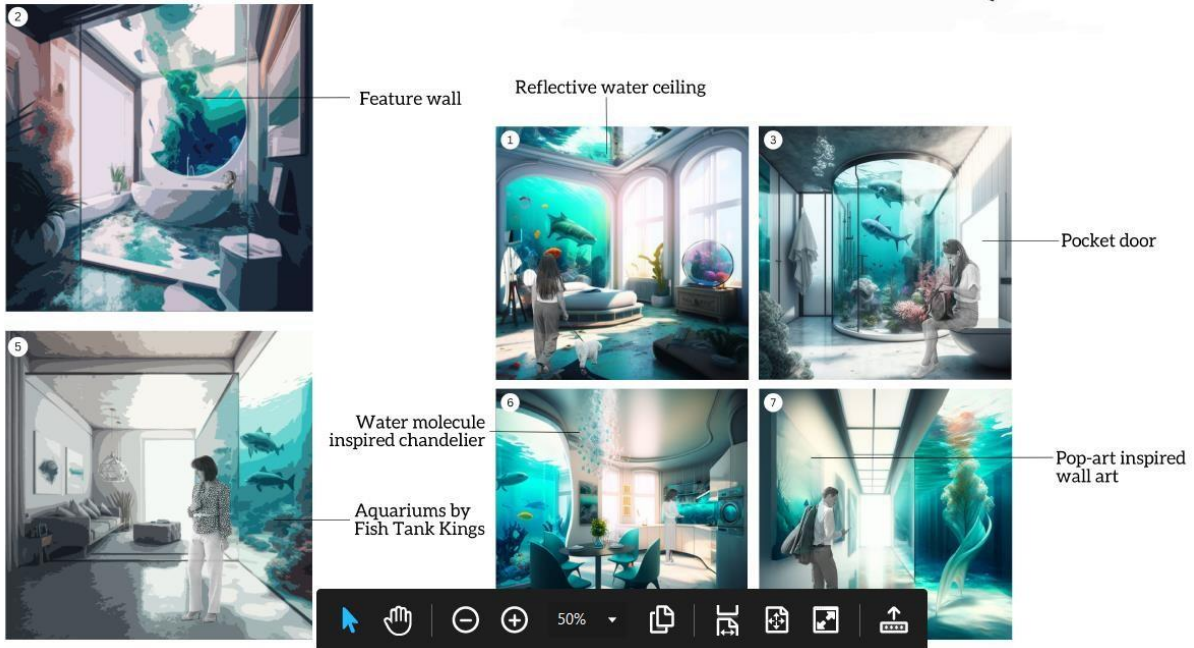


2. LOUNGE PERSPECTIVE

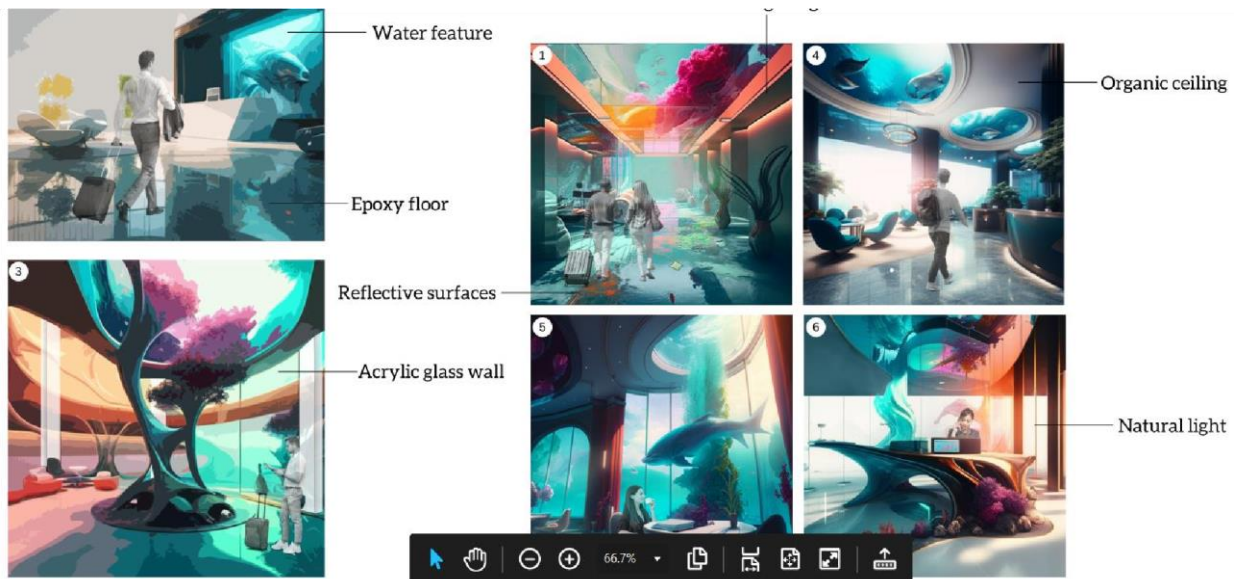


3. ELEVATORS PERSPECTIVE

An example shows how the blend of selected personalities influenced the design concept(text-to-image process using DALL-E).



An example of the luxury suite design inspired by water; the process involved using Midjourney and Photoshop editing.



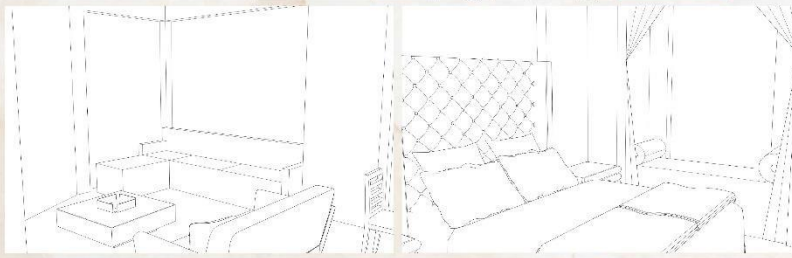
The team used the same water inspiration in the lobby design; the process involved using Midjourney tools and Photoshop editing.

Development Process

Built a rough sketchup model using pre made furniture where possible.



Turned the images into a pdf to get a transparent line art of the model.



Colored in the line art with colors that matched the pallet, added lights and shadows. A cutout filter was used to erase the line art to make it more readable for the AI.



Gave the AI the previous images and used basic prompts. To save time the previous middle living room image was used to inspire a kitchen.



Continuing off of the previous images more detailed prompts were given.



Continuing off the previous image and a more detailed prompt. Lighting and shadows were adjusted in photoshop, figures and their shadows were added as well.



An example shows how AI was integrated into the design process to enhance the 3D visualization, including light and material rendering of perspectives sketched on the Procreate app; this example combines text-to-image and image-to-image processes.

Buchette del Vino: A Uniquely Tuscan Design Feature for Social Distancing from the Bubonic Plague to COVID-19

Jamie Lynn Slenker, University of New Haven

ABSTRACT

Returning to study abroad in the Fall of 2022 during the COVID-19 pandemic provided the opportunity to invigorate curriculum with a timely and relevant focus on design measures for social distancing in the interior environment. With a spotlight on global context, students engaged with local, historically relevant design interventions and proposed contemporary design solutions. Emphasis was placed on third-place theory and the underlying principles of human behavior, place attachment and environmental preference theories for the purpose of community building in the context of a coffee shop or café project.

Drawing inspiration for curriculum development from the curious design feature of Tuscany's "wine windows" or buchette del vino, students explored our location in Prato, Italy through a new lens on the relationship between design history and the current pandemic. COVID-19 shed a renewed interest in this architectural anomaly dating back to the 1559 decree by Cosimo I de' Medici allowing wealthy wine families to sell surplus wine directly from their urban villa cellars to working class buyers. When the region was hit hard by the Bubonic plague in the 1630's, these small wine windows became a way to prevent the spread of disease by avoiding contact with customers, even exchanging money through a vinegar filled dish. (BuchettedelVino n.d.) The majority remained operational through the 1920's. Since Covid, a few businesses are reviving the historical tradition selling gelato, cappuccino and the popular Aperol Spritz contact free by unshuttering the peculiar buchette del vino. (Kohlstedt 2020)

The newly published book *Designing Coffee Shops and Cafés for Community* (Waxman 2022) was used to guide the project process. To begin, students collected evidence-based case studies where attention was given to innovative post- pandemic design. They were asked to not only record trends, but to interpret and understand the motivations behind them. Their investigation extended into related practice areas as well to reveal potential gaps in this sector.

Access to a vacant tenant space in Prato's Centro Storico, the city's historical center, provided a genuine site for students to analyze for their projects. User observation of third places drove culturally authentic design briefs. Program development included research of local code constraints that would

impact design and space planning for both interior and exterior square footage as well as current global protocols for Covid considerations of proxemics, air quality and contactless transactions. Students developed their concepts and brand identities to reflect goals they established for their hypothetical Pratese clients. Projects were brought to completion with floorplans, elevations, FF&E / finish selection and renderings that are complemented by virtual reality.

Guest critics who came to offer professional feedback at final presentations were Pierluigi Percoco and Alessia Bettazzi, founders of B+P Architetti, as well as café owner Benedetta Bonacchi, whose Bottega was a source of inspiration and respite for students throughout the semester. In evaluating student outcomes, the work reveals a clearly communicated understanding of place attachment and cultural awareness. Although the connection between the historical “wine window” and contactless transactions was initially drawn, this was not a design solution requirement. Yet, more than half of students found purpose in their projects for re-imagining the vernacular design feature through their own modern interpretations.

In summary, a presentation on this topic will explore purposeful teaching and learning processes in experiential education that cultivate design appreciation and generate a deeper understanding of context which leads to a desire to preserve our unique cultural heritages in practice.

REFERENCES

Waxman, Lisa Kinch. 2022. *Designing Coffee Shops and Cafes for Community*. Routledge.

Kohlstedt, Kurt. 2020. “Vintage Portals: Historic Italian Wine Windows Offer Socially Distanced Drinks.” 99% Invisible. October 21, 2020. <https://99percentinvisible.org/article/vintage-portals-historic-italian-wine-windows-offer-socially-distanced-drinks/>.

“BuchettedelVino.” n.d. <https://buchettedelvino.org>

Buchette del Vino: A Uniquely Tuscan Design Feature for Social Distancing from the Bubonic Plague to COVID-19 Appendix

Project Outline

An interior design study abroad studio course focused on cultural awareness and the global context of Prato, Italy. Local, historically relevant design interventions are covered and contemporary design solutions for the current global pandemic are explored. Emphasis is placed on community building in the context of a coffee shop or café project.

Local “Wine Windows”: Historical Context and Modern Interpretations



Images courtesy of Author

Student Outcomes

Sample Virtual Reality

<https://pano.autodesk.com/pano.html?url=jpgs/46e31a62-2be0-4740-ad24e76a61f17bfd&version=2>

Link courtesy of Student 4

Sample Poster & Presentation



Image courtesy of Student 1

Highlighted Design Solutions



Image courtesy of Student 1



Image courtesy of Student 2

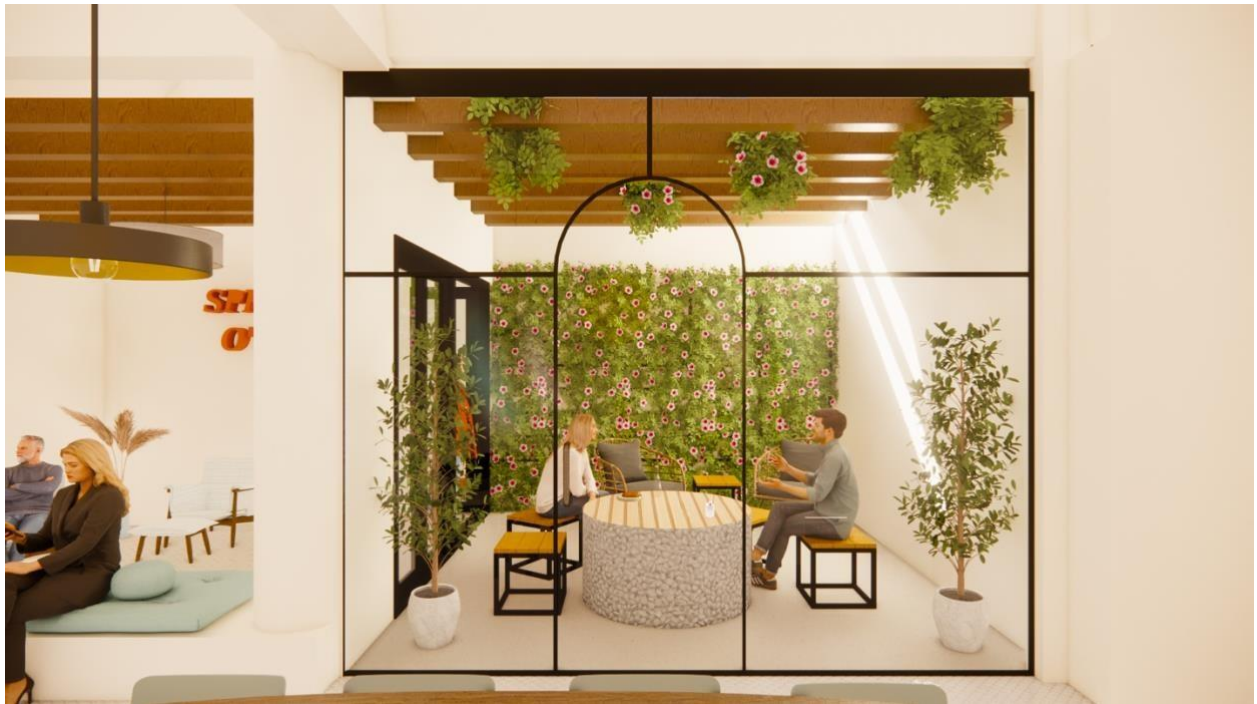


Image courtesy of Student 3



Image courtesy of Student 4

Catastrophe, Calamity, and Devastation: Using Disaster Documentaries to Emphasize the Value of Building Codes

Laura Kimball, Radford University

ABSTRACT

Codes are boring, tedious, confusing, and necessary. The written intent of CIDA Standard 16: Regulations and Guidelines notes “This standard ensures graduates understand their role in protecting the health, safety, and welfare of building occupants and the various regulatory entities that impact practice. Graduates should apply the laws, codes, standards, and guidelines impacting the development of solutions throughout the design process.” With a further expectation that “students have awareness of the origins and intent of laws, codes, and standards” and their work “demonstrates [an] understanding of... sector-specific regulations and guidelines related to construction, products, and materials” (CIDA 2022). Throughout an Interior Design education, it is communicated that building codes are important. As part of various projects and scenarios, employing building codes is an assumed real-world element to which adherence is expected. The NCIDQ exam, which includes addressing codes and standards content areas, expresses “The purpose of the exam is to protect public health, safety and welfare by demonstrating certified interior designers are qualified and competent in those areas” (CIDQ 2022). This knowledge and application are clearly professionally valued; it is a form of protecting the public. However, there is a disconnect between acknowledging codes are important and the ownership of codes. How do we express the quality of ownership as it pertains to codes? How do we emphasize an empathetic value of building codes? How do we address why codes matter so they become essential in the design process? Simply stated - by experiencing them. Simulations unavailable and actual scenarios too dangerous led to using disaster documentaries.

These films offer opportunities for viewers to experience catastrophes, calamities, and devastation with reenactments, first person accounts, research, situational analysis, and a whole-story perspective. This gives the audience a safe- distance-front-row-seat to the tragic experience, allowing a them to personally connect with the situation and the people affected.

Four disaster-documentaries were utilized as part of codes coursework to address the what of codes, emphasize the why value of codes, experience empathy to the tragedy, and to understand how codes are often a disaster response. Analyzing occupancy use and load with the 1995 Sampoong Department Store collapse then fire safety with the 1911 Triangle Shirtwaist Factory fire, the 1942 Coconut Grove fire, and the 1944 Harford Circus fire, students in two codes courses participated in the disaster documentary assignment. The methodology included qualitative student responses to question prompts while watching the documentaries as homework, analyzing the situation within the context of

building codes, this was followed by a class discussion relating their personal impressions and overall experience.

Through written and oral responses, the following results were ascertained: documentaries were an engaging way to approach building codes, first-person accounts were particularly impressionable as real people were affected, the public puts trust in the safety of public spaces, traumatic events led to specific building codes, and students found individual ownership of the impact, importance, responsibility, and relevance of codes. A later outcome of this assignment was found in post-graduation discussions with alumni working in the field, reminiscing about coursework a few remarked about this impressionable assignment “I will never forget the disaster movies we watched”, “yeah, codes are so important”, “because of those movies, I approach codes differently - people matter”. The disaster documentary assignments proved to be a successful value-approach to codes pedagogy understanding the impact of not only codes but design decisions in protecting the health, safety, and welfare of building occupants.

REFERENCES

Seconds from disaster: Sampoong Department Store Collapse. YouTube. (2015, May 20). <https://youtu.be/y8Yw9hill1k?si=CKtL4iRYNsTAr8uF>

Disasters of the century: Season 1: Episode 5: Harford Circus Fire: Ian Michael Coulson. YouTube. (2017a, April 24). <https://youtu.be/6MeIn3N13OM>

Disasters of the century: Season 3: Episode 7: Cocoanut Grove fire: Ian Michael Coulson. YouTube. (2016, July 26). <https://youtu.be/VCiBBFe6xE4?si=vFRrMldoGwEcXzoQ>

Disasters of the century: Season 3: Episode 50: Triangle Shirt Factory fire: Ian Michael Coulson. YouTube. (2017b, April 21). https://youtu.be/PB_zRcxzJRA?si=p0f-CqSFpVGX8XM

Analysis: Sampoong Department Store Collapse

Due:

Purpose: Analyze a real-life example of when buildings fail, due to occupancy use, load, code violations.

Resources: Watch the National Geographic Documentary:
Seconds from Disaster: Sampoong Department Store Collapse YouTube <https://youtu.be/y8Yw9hill1k>

Background:

The Sampoong Department Store collapse was a **structural failure** that occurred on **June 29, 1995**, in the Seocho-gu district of Seoul, South Korea. **The collapse is the largest peacetime disaster in South Korean history, killing 502 people and injuring 937.** It was the deadliest modern building collapse until the September 11 attacks in New York City, and the **deadliest non-deliberate building collapse until the 2013 Savar building collapse** near Dhaka, Bangladesh.

In the events leading up to the 1988 Summer Olympics, there was a large development boom in the Seoul area. Because of bans against international construction contractors signing contracts for projects in Seoul at the time, almost all buildings were being erected by South Korean companies, who typically built the structures quickly because of the large number of projects assigned to them.

The Sampoong Group began construction of the Sampoong Department Store in 1987 over a tract of land previously used as a landfill, with the building's plans originally calling for a residential apartment with four floors, and the apartments to be built by Woosung Construction.

Reference:

CODES TEXTBOOK: CHAPTER 3: OCCUPANCY CLASSIFICATIONS AND LOADS

The occupancy classification of a building or space is generally determined by the way that building or space is to be used. Occupancy classifications have been developed by the codes to address the different hazardous situations, often referred to as *risk factors*, associated with each type of use. These risk factors consider the typical characteristics of the environment, the activity that will occur in the space, and the occupants using the space. Risk factors may include spatial characteristics (low light levels, fixed seating, and high sound levels), fuel loads (amount of finish materials, upholstered furniture, and other flammable contents), concentration of occupants, characteristics of the occupants (mobility, age, alertness), and sometimes the familiarity of the occupants with the building. In some cases, these unique characteristics call for additional code requirements so that buildings are safe. For example, more exits are required in auditoriums (Assembly) due to the large number of people using the space, and alternate exiting methods are required in hospitals (Institutional), where occupants often are not mobile due to age, health, or security reasons. The different occupancy classifications in the codes are based on these various characteristics. The codes address these conditions for each occupancy classification so that people can be considered equally safe at work, at a crowded concert, or with any other type of use.

In some cases, the projected occupant load (OL) will be the most influential component in determining the occupancy classification. The occupant load is the number of people that is assumed to safely occupy a space or building. Since occupancy classifications and occupant loads are, in a sense, dependent on each other, both should be considered at the beginning of a project. Once the occupancy classification has been determined, the projected occupant load, or expected number of people, is used to determine a number of other code requirements. The first part of this chapter concentrates on occupancy classifications and their relationships; occupant loads are discussed in the last part of the chapter.

Analysis: Sampoong Department Store Collapse Questions:

1. What is the significance of the **Building Occupancy, Use and Load changes** (from the **original design to construction to actual use**) that led to the building collapse?
2. How did **Structural Load** address the 5th floor impact the building? (Impact from ex. Live Load/ Dead Load/ Use)
3. What **structural elements** were altered from the **design** to the **building plan approval** to the **actual construction** which impacted and led to the building collapse?
4. **Processes:** How did the **plan process, approval process, and building construction process** affect the building collapse?
5. After a series of poor construction, load and occupancy changes, the building still stood for 6 years. What alteration was the **critical point/ breaking point** that triggered the building collapse?
6. **Who** were to **liable** (to blame)? (note general job titles/ entities – names are not necessary)
7. What were those job titles/ entities (*see answer from Q:6 above*) **charged** with and/or found **guilty/ liable** of?
8. What were the **legal ramifications** for those found **liable**?
9. What **actions** did **South Korea** take, to after this collapse, to **improve building safety**?
10. What is your personal overall reaction to watching this documentary as BOTH a **user of public buildings** and in the **context of a building codes class** (specifically Building Occupancy, Use and Load)?

Analysis: Fire Prevention, Fire Safety, Egress, and the Impact of Tragedy

Triangle Shirtwaist Fire 1911 ▪ Hartford Circus Fire 1944 ▪ Coconut Grove 1942
& Recent Fire Tragedy 2000 - Current (Extra Credit)

Due:

Score: 30 points (10 Points each section, plus 5 points Extra Credit)

Purpose: Analyze real-life examples of fire tragedy through the lens of fire codes, egress, workplace and public safety.

Instruction: Watch the following **THREE** short documentaries (may contain ads) and use additional resources to answer the analysis questions.

Triangle Shirtwaist Factory Fire 1911

→ YouTube: Triangle Shirt Factory Fire – Disasters of the Century https://youtu.be/PB_zRcxzJRA

OSHA: The Triangle Shirtwaist Factory Fire <https://www.osha.gov/oas/trianglefactoryfire.html>

NFPA: <https://www.nfpa.org/News-and-Research/Publications-and-media/NFPAJournal/2011/March-April-2011/Features/The-Triangle-Fire-100-Years-Later>

Questions:

1. What **fails contributed** to the **fire, peril, and loss of life**?
 - a. Cause:
 - b. Fire Prevention:
 - c. Flammability:
 - d. Conditions (procedures, practice, situation):
 - e. Exits:
 - f. Egress:
 - g. Communications:
 - h. Fire Department Resources:
 2. How did this tragedy **influence** code, wellness, and safety in the workplace and public space, etc.?
 3. What, if anything, could have **prevented** this tragedy?
 4. **Who was liable/ responsible** and what actions, if any were taken?
 5. What is your personal overall reaction to watching this documentary as BOTH a **user of public buildings** and in the **context of a building codes class** (specifically Workplace safety, Fire Prevention, Fire Safety, and Egress)?
-

Hartford Circus Fire 1944

→ YouTube: Hartford Circus Fire <https://youtu.be/6Meln3N13OM>

Disasters of the Century - Season 1 - Episode 5 - When Laughter Turns to Tears

Questions:

1. What **fails contributed** to the **fire, peril, and loss of life**?
 - a. Cause:
 - b. Fire Prevention:
 - c. Flammability:
 - d. Conditions (procedures, practice, situation):
 - e. Exits:
 - f. Egress:

- g. Communications:
 - h. Fire Department Resources:
2. How did this tragedy **influence** code, wellness, and safety in the workplace and public space, etc.?
 3. What, if anything, could have **prevented** this tragedy?
 4. **Who** was **liable/ responsible** and what actions, if any were taken?
 5. What is your personal overall reaction to watching this documentary as BOTH a **user of public buildings** and in the **context of a building codes class** (specifically Fire Prevention, Fire Safety, and Egress)?

Coconut Grove Fire 1942

→ YouTube: Coconut Grove – Disasters of the Century <https://youtu.be/VCiBBFe6xE4> NFPA: <https://www.nfpa.org/Public-Education/Staying-safe/Safety-in-living-and-entertainment-spaces/Nightclubs-assembly-occupancies/The-Cocoanut-Grove-fire> Deadliest U.S. nightclub fire influences safety codes, burn care <https://www.cbsnews.com/news/cocoanut-grove-boston-nightclub-fire-safety-codes-burn-care/>

Questions:

1. What **fails contributed** to the **fire, peril, and loss of life**?
 - a. Cause:
 - b. Fire Prevention:
 - c. Flammability:
 - d. Conditions (procedures, practice, situation):
 - e. Exits:
 - f. Egress:
 - g. Communications:
 - h. Fire Department Resources:
2. How did this tragedy **influence** code, wellness, and safety in the workplace and public space, etc.?
3. What, if anything, could have **prevented** this tragedy?
4. **Who** was **liable/ responsible** and what actions, if any were taken?
5. What is your personal overall reaction to watching this documentary as BOTH a **user of public buildings** and in the **context of a building codes class** (specifically Fire Prevention, Fire Safety, Egress)?

Extra Credit: Up to 5pts

Investigate a Recent (last 20 years) Fire Tragedy

Explore one of the following Tragedies or find another public space fire related tragedy in the last 20 years

- KISS Nightclub Fire, Santa Maria, Rio Grande do Sul, Brazil 2013
- República Cromañón Nightclub Fire, Buenos Aires, Argentina 2004
- ▪ Station Nightclub Fire, Rhode Island 2003

Questions:

1. Recent Tragedy 2000 – Today; Note: Building, Location, & Date
2. List links to videos, articles, other resources used
3. What **fails contributed** to the **fire, peril, and loss of life**?
 - a. Cause:

- b. Fire Prevention:
 - c. Flammability:
 - d. Conditions (procedures, practice, situation):
 - e. Exits:
 - f. Egress:
 - g. Communications:
 - h. Fire Department Resources:
4. How did this tragedy **influence** code, wellness, and safety in the workplace and public space, etc.?
 5. What, if anything, could have **prevented** this tragedy?
 6. **Who** was **liable/ responsible** and what actions, if any were taken?
 7. What is your personal overall reaction to watching this documentary as BOTH a **user of public buildings** and in the **context of a building codes class** (specifically Fire Prevention, Fire Safety, Egress)?

Ch(ai)rs: Bridging from Artificial Intelligence to physical output through design

Cory Olsen, University of Oregon

ABSTRACT

In the past year it is estimated that over 15 billion new images have been produced through text-to-image generative artificial intelligence platforms. In perspective, this equals the cumulative photographic output of the last 150 years (1). Speculation is high with regards to the impact that AI will have across all professions, and designers will undoubtedly have to compete or conform (2). For logical reasons, school administrators are primarily concerned with the use and potential abuse of text based AI such as ChatGPT which can draft convincing essays and test answers. Nearly every institution now has guidance on syllabus language addressing AI, ranging from banishment to encouragement (3)(*no affiliation to author). As creatives in the physical and visual domain, the text-to-image AI has similar implications though perhaps slightly blurrier between use as process and use as product/resolution. Nascent in our experience with AI, few instances to date have jumped from the pixel based image to a real world object.

Through the vehicle of a design/build furniture studio, an opportunity presented to incorporate an AI-centric iterative process into the typical design-to-fabrication sequence that has previously occurred. The intent was multifaceted:

- 1) Require students to use an AI (Midjourney) in their process to iterate designs
- 2) Test the “intelligence” of the AI by seeing how well it could resolve inputs in a convincing and meaningful way. Our prompts never asked simply for a chair, but a chair inspired by an artist (style) or cultural phenomenon, thus requiring the AI to exhibit “intelligence” by effectively combining two or more elements.
- 3) Collect student experience responses and their reflections on using AI- is it a powerful tool or a lurking evil?

Over the course of a term, the studio began in a two-fold discussion of A) craft and traditional making and B) learning to effectively communicate with the AI, or “prompt craft”. In particular we discussed the writings of David Pye (4) and arguments of craft, “handmade” objects, and the role of a designer vs maker. Roughly three weeks were used for parallel real world precedent studies and AI image generation, resulting in literal thousands of potential chair designs. A further filtering was applied to our explorations with a three part Venn ideal of strength of AI/chair blended concept, overall aesthetics, and feasibility to physically construct by students with limited shop experience.

From the initial thousands, this three layer filter allowed the class to narrow down to a selection of 250 that were further scrutinized through peer review and discussion, with instructor input on shop techniques and perceived difficulty. Each student then narrowed to a single chair to take into design (16 in total). The design phase was the first immediate confrontation of imaginary AI 2D graphic and the real world. Students worked between 3D digital models, 2D drawings, and 3D scaled sketch models to work out dimensions, proportions, and joinery. Some students tried to stay as true as possible to the AI graphic, while others found it necessary to make informed edits in support of comfort or structure. To assist in generating ergonomically appropriate chairs, an adjustable fitting jig was utilized to enable the students to sit in their “final” chair before they began fabrication and while they were still designing.

If accepted, a significant portion of this presentation will be set aside to share AI design process, student work outcomes, and written responses about their experiences on using AI in their design process. The expectation is that these responses will be engaging, impactful, and sometimes surprising for anyone in attendance. A small selection of the work and feedback is included in the appendix material. By finishing the studio with a built artifact, the students are limited

but well positioned to reflect on the impacts AI might have on our pedagogy and broader design professions.

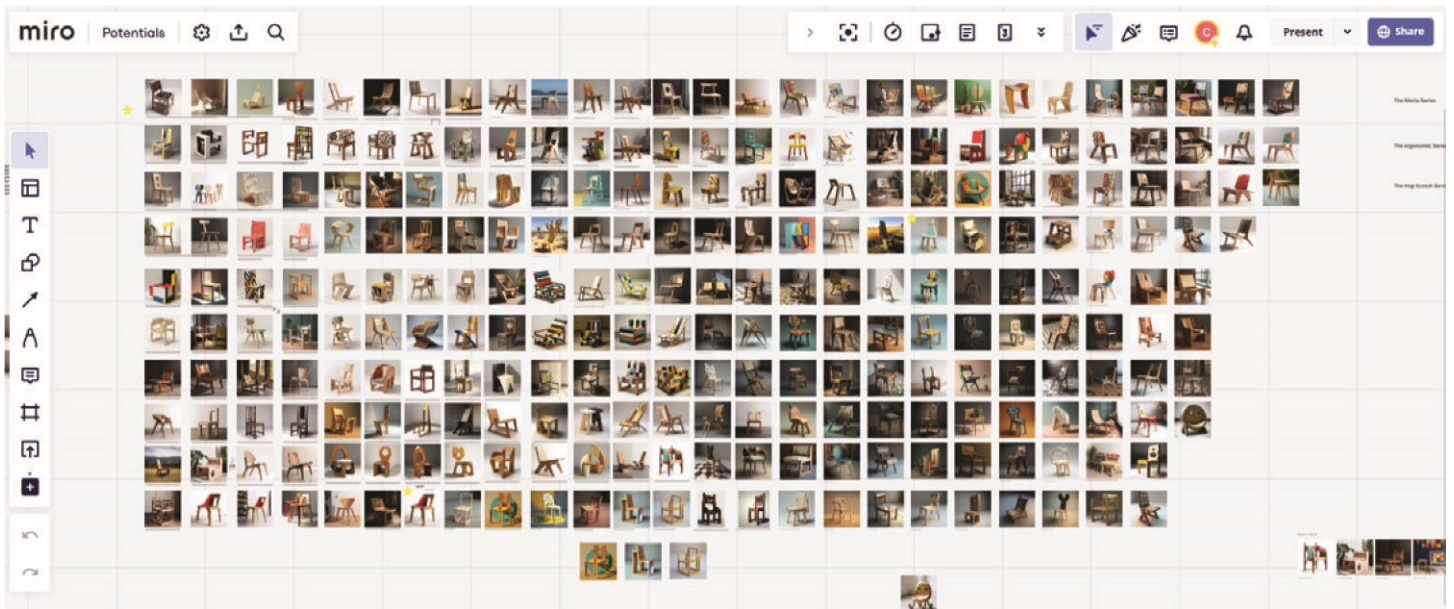
REFERENCES

Zeitoun, Lea. (2023, August 23). Ai has generated 150 years worth of photographs in less than 12 months, study shows. designboom. <https://www.designboom.com/technology/ai-has-generated-150-years-worth-of-photographs-in-less-than-12-months-study-shows-08-2>

Barandy, K. (2022, August 24). Interview with Kory Bieg on text-to-image generators & the future of AI in Design. designboom. <https://www.designboom.com/design/interview-kory-bieg-text-to-image-generators-future-ai-design-08-17-2022/>

University of Texas at Austin. (n.d.). Chatgpt and Generative AI tools: Sample syllabus policy statements. Center for Teaching & Learning. <https://ctl.utexas.edu/chatgpt-and-generative-ai-tools-sample-syllabus-policy-statements>

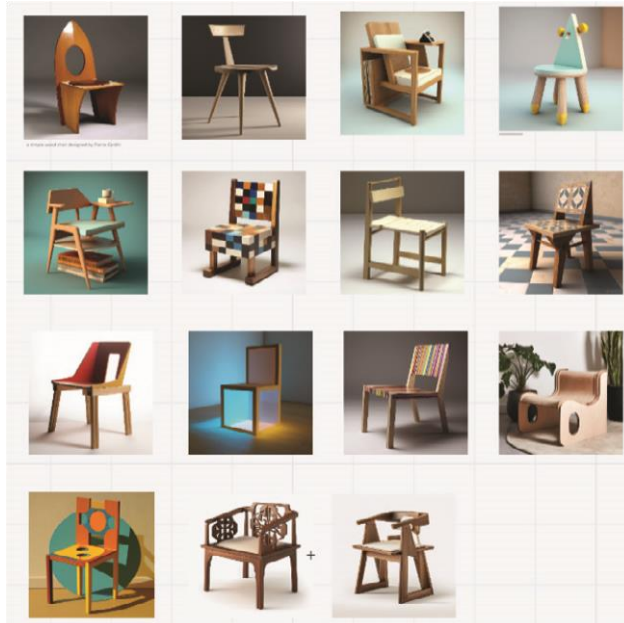
Pye, D. (1968). The nature and art of workmanship. CUP.



Course Process

The course focused on the use of Midjourney as an iterative collaboration between the students and the AI. Initial iterations were shared communally to a course specific Discord server (the exclusive platform for using Midjourney). Above is a screenshot of a class Miro board, which was utilized to isolate the most promising iterations and allow students to leave comments, sketch details, and visualize the range across a single canvas (discord is scrolling based).

Over a series of peer reviews and fabrication consultation, students narrowed from this selection down to one chair each to pursue into modeling, detailing, and ultimately fabrication. These are shown below as their AI generated versions.





AI and Design as Translation

The generative sequence focused heavily on three main design drivers: the effective implementation of the “intelligence” of the AI in asking it to develop a chair with a blended influence (ex: designer, artist, style, cultural icon), the overall aesthetic result of the chair, and a perceived feasible fabrication difficulty for a beginner woodworking student.

Once final pieces were identified, students embarked on a translation-based design process using 3D digital modeling, 3D physical modeling at 25% scale, 2D drawings of details and later full scale 2D elevations to test scale and proportion. A physical adjustable fitting jig was utilized to confirm sound ergonomics as students were developing their models and piece scaling. The image above illustrates a comparison between MJ image, left, and Rhino digital process model, right.

Role of Designer and AI

This process highlighted for students the roles that they were playing in their interactions with the AI. As the prompt crafters they were the initiators of ideas, but then the AI took over for the “heavy lifting”. Most students enjoyed the process, though nearly all of them experienced moments where the AI images couldn’t match what they were imagining when first writing the prompt. Craft prompt could then adapt or expand, or students might abandon the idea or pursue one of the AI images that was unexpected. The speed of iteration was consistently identified as a game changer. Some direct student responses are shared on the next page of this appendix document.

Student Experience

Following are a selection of direct quotes pulled from a written assignment prompting students to reflect on their experience and expectation of working with AI:

Alex, Undergrad:

“I don’t necessarily feel as if Midjourney has altered my role as a designer, instead, I feel as if I am making use of a new and valuable tool during the schematic design process. The AI software is able to produce so many creative iterations that I know I wouldn’t have been able to conceptualize by myself. When working in studio, I often try to rationalize my ideas into a design as quickly as possible so that I can work to further develop the scheme into a fleshed-out program and space. Midjourney is allowing me to take more time to explore different design styles and approaches throughout the schematic design phase.”

Sage, undergrad:

“In my experience, using Midjourney has disconnected me from the design process. I was expecting to have a little more hands-on development, and when I brought my concepts to Midjourney it pushed my design towards something that was too complex or not viable as a chair. While the program is helpful for seeing a physical object, I wish we had the ability to physically edit it to have a higher chair back for example. Or even use it more for chair inspiration, like a case study. Searching Midjourney has been a shot in the dark and tends to lean me away from my design ideas rather than enhance them.”

Joshua, grad:

“Working with Midjourney has been an absolute delight. I feel that I am still a little uneasy about utilizing the AI in a way that almost feels like “cheating”, but I am slowly coming around to the possibilities it lends to us as designers. Some of the difficulties I have noticed is trying to give the AI too specific of instructions. I have noticed that taking an image/sketch I like, or a previous chair iteration, and telling it to turn into “x” type of chair has been very helpful. Instead of holding MJ’s hand you just have to give it a direction and let it go. I believe I have yet to crack the exact code on how to instruct the technology. It’s fast paced iteration abilities are immensely useful when thinking of quick schematic ideas.”

Spencer, grad:

“No matter how the AI is directed, your approach to the problem as a designer is altered in my opinion. There is some form of filter between the idea you have and the work Midjourney spits out. This causes disconnection and, in my opinion, initially dilutes the process. The speed at which I can type a command and get a response means I forgo much of the thought process that typically goes into iterative design. That said, I think if someone is conscious and careful, they can still achieve high levels of intent in their AI journey.”



AI Prompt: A chair made of wood and tile designed by Sean Scully

Student Results

Here are shared a few of the final chairs as fabricated by the students, paired with their AI developed inspiration image. On close observation you will discern edits made in scale, proportion, and logic which represent the students overriding the AI to make their pieces real world appropriate (and occasionally, for their own aesthetic determination). The AI images are presented on the left, and the final pieces on the right.



AI Prompt: A simple wood chair inspired by James Turrell



AI Prompt: A playful wooden children's chair



AI Prompt: A simple wooden chair inspired by Vadakara tile

Final Reflections

While this studio focused on furniture, the implementation of an AI-driven iterative process can certainly lend to more traditional design studio problems. And given the rapid rate of advancement, even in the few months between the end of this studio sequence and writing this abstract AIs have evolved to address many issues students brought up in their critiques in relation to fine tuning and control of outcomes and editing. I'd expect a lively discussion to follow in a Q&A.

Scholarship of Teaching and Learning | Presentation

Chat GPT and Design Studio: A Case Study Grounded in A Taxonomy of Aesthetic Experiences

David Matthews, University of Tennessee, Knoxville

Auldyn Matthews-McGee, Carnegie Mellon University

Scott Poole, University of Tennessee, Knoxville

ABSTRACT

Design education faces a transformational moment. Artificial Intelligence is advancing at the speed of light, but we remain grounded in fundamental human experiences that give depth and definition to our lives. What if we could use AI tools, like Chat GPT, at the outset of the design process to help students generate experiences that create emotional resonance rather than beginning with traditional design approaches narrowly focused on abstract form and functional performance? This presentation outlines a pedagogical approach developed with assistance from Chat GPT to foster beginning discussions with aesthetic concepts without using disciplinary language and to explore and define essential human experiences in the design process.

The pedagogical approach, experiential aesthetics, enables multidisciplinary design research by beginning projects with investigations of human experiences at the core to of design projects. Beginning with an array of aesthetic encounters, both remembered and imagined, has the advantage of immediately connecting students to emotions and personal feelings, validating their subjective experiences. This human-centric design process circumvents the limitations of design being driven by visual impressions, allowing for a universally accessible design approach emphasizing shared human experiences. This pedagogical activity promotes inclusive, collaborative activities by synthesizing perspectives across clients, stakeholders, and designers.

The framework of experiential aesthetics has been recently implemented in the classroom and will be presented by educators from user experience design (UX), interior architecture, and architecture. The authors of the activity created a taxonomy of aesthetic experiences that serve as "building blocks" to explore and understand human experiences uniquely related to the design issues explored in studios.

The experiential aesthetics taxonomy was developed with artificial intelligence (AI). It is framed as an emerging potent tool for enhancing the breadth and depth of design investigations. Far from being a

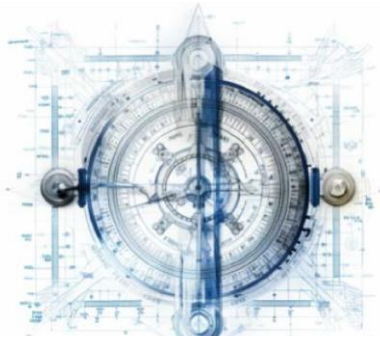
passive data repository, AI acts as an active agent in our pedagogical approach. Assisted by AI, we've created experiential aesthetics cards that offer an array of core and supporting human experiences. AI serves to refine and deepen these human-centric explorations, with Chat GPT's algorithms tuned to align with our curatorial intent. It provides a feedback mechanism that allows for immediate editing and refinement, ensuring precision and thoroughness.

This presentation will offer an interactive session featuring "experiential aesthetics" cards developed by the authors to deepen design ideation and conceptualization across disciplines. The cards, comprising 23 core verbs and 220 supporting experiences, serve as a tool for students to map and refine targeted human experiences in their design projects. Utilized in actual classroom projects—a Montessori school, a Japanese tea house, and a physical and digital interface for semi- autonomous vehicles—these cards prompted students to select 3-5 core experiences, allowing for further customization and refinement during the design process.

In navigating the complex intersections between digital and physical design, the pedagogical framework of experiential aesthetics emerges as an activity that transcends disciplinary boundaries and focuses on universal human experiences. Incorporating AI within this pedagogical construct augments the depth and breadth of design inquiry. It provides a dynamic feedback loop calibrated to the educators' curatorial objectives, inviting real-time modifications and refinements. While the preliminary implementation in the classroom has shown promising results, it is crucial to underscore the necessity for improvement through subsequent cycles of experimentation and critical review, as these will provide the evaluative metrics essential for the rigorous assessment and potential scalability of this approach.

REFERENCES

- Desmet, P. M. A., & Hekkert, P. (2007). Framework of product experience. *International Journal of Design*, 1(1), 57-66.
- Hunicke, R., LeBlanc, M., & Zubek, R. (2004). MDA: A Formal Approach to Game Design and Game Research. *AAAI Workshop - Technical Report*, 1.
- Mortati. (2022). New Design Knowledge and the Fifth Order of Design. *Design Issues*, 38(4), 21–34.
- Rasmussen, S. E. (1964). *Experiencing Architecture*. M.I.T. Press



TO DISCOVER

The essence of the discovery aesthetic lies in the joy, excitement, and enrichment that arise from exploring the unknown, encountering new experiences, and seeking knowledge. It celebrates curiosity, wonder, and the thrill of venturing into uncharted territories. The discovery aesthetic embraces the spirit of exploration, unveiling hidden gems, and finding meaning in the process of discovery itself.

Cards that may link to discovery:

**CURIOSITY | CURIOUS | EXPLORE
WONDER | QUESTIONING**

CURIOSITY AND WONDER are core elements of the discovery aesthetic. It involves cultivating a sense of intrigue, questioning, and an eagerness to explore. Curiosity fuels the desire to discover new experiences, while wonder allows for a profound appreciation of the mysteries and beauty encountered along the way.

EXPLORATION AND ADVENTURE are fundamental aspects of the discovery aesthetic. It involves venturing into new territories, physically or intellectually, to uncover new experiences, knowledge, or perspectives. The presence of exploration adds a sense of thrill, anticipation, and a spirit of adventure to the aesthetic experience.

OPEN-MINDEDNESS AND FLEXIBILITY play a significant role in the discovery aesthetic. It involves being receptive to different ideas, perspectives, and possibilities. Embracing open-mindedness allows for the discovery of unexpected insights, connections, and novel experiences.

SERENDIPITY AND UNEXPECTED DISCOVERIES are integral to the discovery aesthetic. It involves being open to the spontaneous and unplanned, allowing for the unexpected to unfold. Embracing serendipitous encounters and unexpected findings adds an element of surprise, joy, and the joy of discovery to the aesthetic experience.

LEARNING AND PERSONAL GROWTH are core elements of the discovery aesthetic. It involves the acquisition of new knowledge, skills, or experiences, leading to personal development and enrichment. The pursuit of discovery fosters intellectual curiosity, resilience, and a sense of fulfillment through continued learning and growth.



TO BE SPIRITUAL

The essence of the spiritual aesthetic navigates the profound corridors of human consciousness, moving beyond the tactile and delving into the intangible dimensions of faith, introspection, and existential curiosity. This aesthetic encapsulates the ageless journey for deeper comprehension, connection to the myriad energies of the universe, and the discovery of inner tranquility. It mirrors humanity's innate desire to resonate with the vast mysteries of existence, seeking clarity amidst life's complexities. Through the Spiritual Aesthetic, individuals are invited to explore, revere, and foster profound connections with the cosmos and the countless wonders it holds.

Cards that may link to spiritual:

**PURITY | REALIZATION | SUSTAINABLE
TRANSCENDANCE | NATURE**

TRANSCENDENCE One of the key elements in the "Spiritual" aesthetic is the feeling of transcendence—a lifting beyond the physical world into a realm of higher consciousness. This aspect can create a deep sense of peace, a detachment from worldly distractions, and a focus on what truly matters.

INNER PEACE AND ACCEPTANCE Central to the Spiritual Aesthetic, this element underscores the harmonious equilibrium and the act of wholeheartedly embracing life's nuances. It embodies tranquil refuges where clarity, insight, and a harmonious alignment with one's inner essence are discovered alongside a genuine acceptance of life's intricacies.

UNIVERSAL CONNECTION This element underscores the profound relationships that individuals establish with the intricate energies and patterns of the universe. It reflects the inherent sense of belonging and resonance with the vast tapestry of existence.

PURPOSE AND MEANING Deeply embedded in the Spiritual Aesthetic, this element underscores the continual journey to interpret the intricacies of life. It encompasses the drive to uncover purpose, align with personal truths, and acknowledge the depths of life's many experiences.

COLLECTIVE CONSCIOUSNESS A hallmark of the spiritual ethos, collective consciousness emphasizes the interconnected essence that weaves every individual together. It promotes a sense of unity, mutual understanding, and shared journeys within the vast chronicle of existence.

Two examples of core cards, to explore and to be spiritual, of the 23 core verbs used to explore and establish the essence of the aesthetic values.

CHILD-LIKE

The essence of the child-like aesthetic lies in evoking the innocence, wonder, and playful spirit associated with childhood. It emphasizes a return to a state of curiosity, imagination, and joy, freeing oneself from the constraints of adulthood. The child-like aesthetic celebrates simplicity, spontaneity, and the ability to see the world with fresh eyes, inviting individuals to embrace their inner child and find delight in the everyday.

PLAYFULNESS AND SPONTANEITY are core elements of the child-like aesthetic. It involves engaging in activities, games, or creative endeavors without self-consciousness or preconceived expectations. Embracing a spirit of playfulness fosters a sense of joy, exploration, and lightheartedness.

IMAGINATION AND WONDER The child-like aesthetic encourages the use of imagination and nurtures a sense of wonder. It embraces the ability to see the extraordinary in the ordinary, finding enchantment in everyday experiences and surroundings.

CURIOSITY AND OPENNESS to new experiences are fundamental aspects of the child-like aesthetic. It involves maintaining a sense of wonder and a desire to explore, learn, and discover. Cultivating a curious mindset allows for continual growth, creativity, and the appreciation of the world's marvels.

AUTHENTICITY AND VULNERABILITY The child-like aesthetic values authenticity and vulnerability. It encourages individuals to express themselves genuinely, free from self-consciousness or societal expectations. Embracing vulnerability allows for honest connections, emotional authenticity, and a deeper engagement with the world.

EMBRACING THE PRESENT MOMENT The child-like aesthetic emphasizes living in the present moment. It involves letting go of past worries and future concerns, immersing oneself fully in the present experience. By embracing the "here and now," individuals can find joy, wonder, and a sense of presence in their surroundings and interactions life.

EXPRESSION

The essence of the expression aesthetic lies in the authentic, individualistic, and personal mode of creative self-expression. It celebrates the uniqueness of individual voices, emotions, and perspectives. The expression aesthetic emphasizes the power of art, creativity, and personal interpretation in communicating and evoking deep emotions, thoughts, and experiences.

INDIVIDUALITY AND AUTHENTICITY are core elements of the expression aesthetic. It involves embracing and expressing one's unique voice, perspectives, and experiences through creative means. Individuality and authenticity contribute to the rich diversity and depth within the expression aesthetic.

EMOTIONAL RESONANCE plays a significant role in the expression aesthetic. It involves the ability of artistic creations or experiences to evoke and resonate with deep emotions within the viewer or participant. Emotional resonance adds depth, impact, and a sense of connection to the expression aesthetic.

SELF-EXPLORATION AND IDENTITY are fundamental aspects of the expression aesthetic. It involves using creative outlets to delve into one's inner world, explore personal narratives, and discover or shape one's identity. Self-exploration allows for self-discovery, self-expression, and a sense of empowerment within the expression aesthetic.

UNCONVENTIONAL FORMS OF EXPRESSION are key elements of the expression aesthetic. It involves exploring diverse mediums, unconventional techniques, or experimental approaches to express thoughts, emotions, or ideas. Unconventional forms of expression foster innovation, push boundaries, and expand the possibilities within the expression aesthetic.

SUBJECTIVITY AND INTERPRETATION play a significant role in the expression aesthetic. It involves the acknowledgment that artistic creations can be subject to multiple interpretations, allowing for personal connections and diverse meanings. Subjectivity and interpretation invite viewers or participants to engage actively with the artwork or experience, adding layers of depth and richness to the expression aesthetic.

FELLOWSHIP

The aesthetic of "fellowship" is akin to the warmth that emanates from a communal fire, embracing all those who gather around it. It's an atmosphere of inclusive camaraderie, mutual respect, and a shared sense of purpose. To engage with this aesthetic is to willingly step into a collective embrace, one that transcends differences and acknowledges the fundamental human need for community and belonging. It's an experience that enriches your soul, offering both support and a platform for individual growth.

INCLUSIVE UNITY: At the heart of fellowship lies the feeling of inclusivity, where each individual's uniqueness is celebrated. Whether in a family, a team, or a community, this element welcomes diversity in unity, providing a feeling similar to a symphony where each instrument plays a crucial role in creating a harmonious sound.

COLLECTIVE JOY: In fellowship, there's an innate sense of shared happiness. It's like the exuberance you feel when your sports team wins, magnified by the collective cheers and high-fives. The aesthetic incorporates the delight in shared experiences and triumphs, making each victory sweeter because it is enjoyed together.

MUTUAL SUPPORT: The experience of fellowship is akin to the steadiness of a sturdy bridge. When you're down, you can feel the community lifting you, and when someone else needs it, you become a part of that supportive structure. The aesthetic encourages a reciprocation of emotional and sometimes physical support that reinforces the bonds of the community.

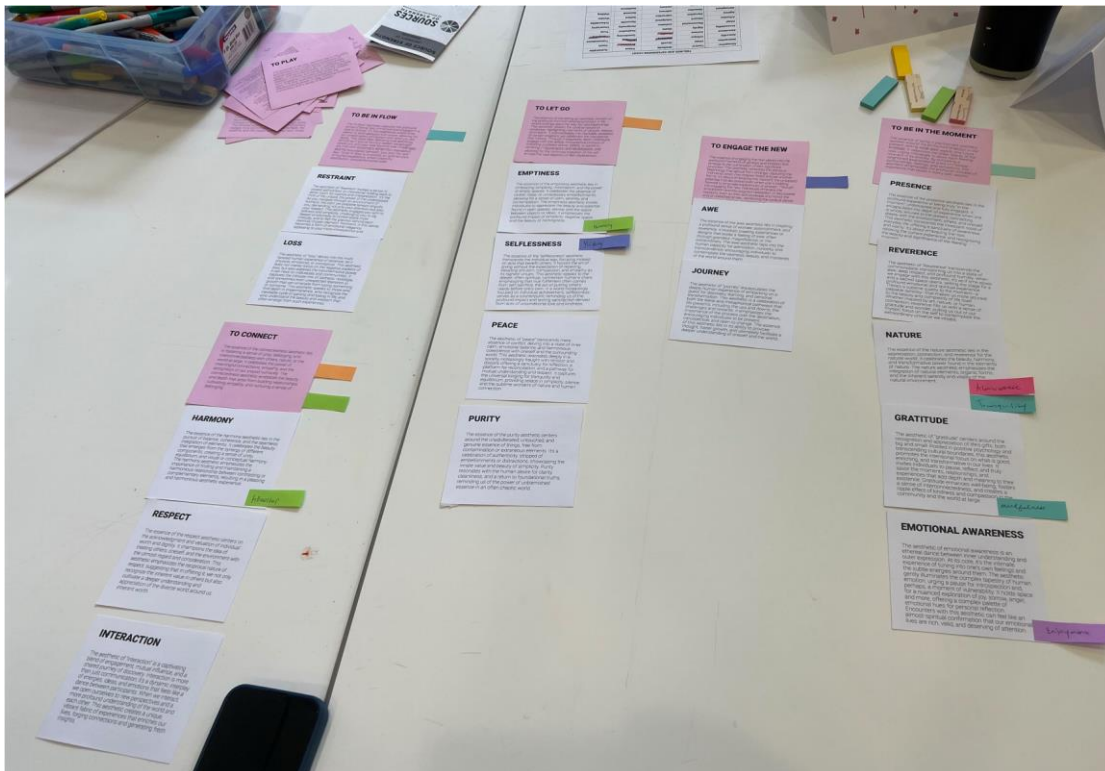
DEEP CONVERSATIONS AND LIGHT-HEARTEDNESS: This aesthetic recognizes the value of both deep, meaningful conversations and light-hearted, joyful interactions. It's like the dynamic between the depth of the ocean and the light that dances on its surface, offering both a space for introspection and the joy of uninhibited laughter.

COLLECTIVE ACTION AND RESPONSIBILITY: Fellowship also embodies the sense of shared goals and collective action. It feels like a well-coordinated dance where everyone knows their steps and yet remains alert to synchronizing with others. This element emphasizes the need for social responsibility and the fulfilling experience that comes from working toward a common purpose.

Three supporting experience cards, child-like, expression, and fellowship, of the 220 supporting experiences were used to establish the essence of aesthetic values.



Client engagement using the aesthetic experience cards to explore the essence of a demonstration tea house for a local Asia Festival. Fourth-year Interior Architecture students.





Mapping and refinement of experiences for a demonstration tea house. Fourth-year Interior Architecture students.



Collaborative Reflective Assessment (CRA): A Student-Centric 'Ungrading' Model in Senior Interior Design Studio

Genell Ebbini, Purdue University - Main Campus

ABSTRACT

The shift to hybrid and remote learning models due to the COVID-19 pandemic has had a noticeable dual impact on interior design education—decrease in student engagement and 'creative gap.' Traditional grading methods exacerbate these issues by prioritizing the product over process, limiting creativity, and hindering growth. This study addressed these challenges by introducing a student-centric 'ungrading' model, Collaborative Reflective Assessment (CRA), which values student reflection and collaboration. The CRA model also aims to promote equity and inclusion by giving students a voice in their own assessment. The study evaluates its efficacy within the context of a senior interior design studio.

Grounded in interpretive constructivism, this study considers learning and assessment as socially constructed experiences. Drawing from formative and summative evaluation theories, it frames the CRA model as a possible innovative approach to interior design pedagogy and explores the research question: "How does the 'Collaborative Reflective Assessment (CRA)' model impact student engagement and reflective design processes within senior interior design studio course?"

This research employs a qualitative case study approach, set within a senior interior design studio course. One-on-one meetings capture students' experiences and attitudes towards the ungrading system, filling gaps often missed in quantitative studies. Classroom observations serve a dual role. They not only corroborate data but also offer an in-depth look at the dynamics between student engagement and the instructional setting, particularly how the ungrading system is integrated into the teaching and learning process. Content analysis of student reflections and assignments adds understanding, showing how thought processes evolved. This multi-pronged approach allows for a rich understanding of the educational phenomena under study. The CRA model unfolded in four phases, each aligned with a stage of the interior design process. During each phase, students engaged in self-assessment exercises aligned with the current stage of their design project. Students composed reflective narratives where they documented their thought processes, challenges faced, and crucial design decisions. One-on-one meetings with the instructor provided targeted qualitative feedback and guided the students toward future directions in their projects.

Preliminary data show the CRA model improved student engagement and work quality. There was also a marked reduction in grading-related anxiety (Brookhart, 2019). Students valued self-assessment, allowing them to defend their design decisions using the rubric. However, there were challenges in the initial implementation. First, students expressed a preference for one-on-one meetings to occur during

class rather than during traditional office hours, highlighting the need for more flexible scheduling. Secondly, some students encountered difficulties in articulating their thought processes through reflective narratives, suggesting that additional guidance or scaffolding may be beneficial in this aspect. Despite these challenges, the observed benefits underscore the potential of the CRA model in fostering a more engaged, reflective, and collaborative learning environment.

This research supports the increasing call for pedagogical innovations in design education (Asojo & Vo, 2020) and offers practical solutions to the limitations of traditional grading practices. This study contributes valuable evidence to the growing discourse on learner-centered pedagogy and assessment. It underscores the need for a balanced approach that aligns educational practices with institutional requirements. Yet, the study also identifies areas for refinement. These challenges serve as constructive indicators for educators wishing to adopt or adapt the CRA model, helping to inform ongoing efforts to optimize learner-centered approaches in design education.

REFERENCES

- Asojo, A. O., & Vo, H. (2021). Pedagogy + Reflection: A problem-based learning case in interior design. *International Journal of Designs for Teaching*, 12(2), 1-14. <https://doi.org/10.14434/ijdl.v12i2.25372>
- Black, P., & Wiliam, D. (1998). Assessment and classroom learning. *Assessment in Education: Principles, Policy & Practice*, 5(1), 7-74.
- Kohn, A., & Blum, S. D. (2020). *Ungrading: Why rating students undermines learning (and what to do instead)*. West Virginia University Press.
- Brookhart, S. (2019). *The case for ungrading: How assessment can improve learning*. Jossey-Bass.

APPENDIX

Course Material: Ungrading Terms & Agreement

Course Philosophy and Policy

This course adopts a unique hybrid approach that combines traditional grading and an "ungrading" philosophy. While the university requires that final grades be submitted, the focus within the course environment will be less on assigning a single letter grade and more on meaningful, ongoing dialogue about your learning journey, achievements, and areas for growth.

Phases of Evaluation

The evaluation of your work will be divided into four critical stages, strategically timed to coincide with the end of weeks 5, 9, 13, and 16. These stages correspond with the deadlines for your course unit topic final submissions.

- **Preparation:** Ahead of each scheduled one-on-one meeting, students are required to complete a detailed rubric for the assignments corresponding to that phase.
- **Reflection and Self-Assessment:** During these meetings, you will have the opportunity to reflect on your accomplishments, challenges, and overall growth. You will assess your work based on the course rubrics as well as your personal learning objectives.
- **Feedback and Grade Assignment:** Subsequent to each stage, you will receive comprehensive feedback from me, both in written form and verbally during our meeting. Together, we will discuss and agree upon a "grade" for that specific phase.

Student Responsibilities

1. **Self-Reflection and Goal Setting:** You are expected to continually assess your own learning, set achievable goals, and work diligently toward meeting them.
2. **Participation in Assessment Activities:** You are required to actively participate in ongoing assessment processes, which include but are not limited to, filling out self-assessment rubrics, peer reviews, and one-on-one evaluation meetings.
3. **Ownership and Proactivity:** Take full responsibility for your own learning experience. Be proactive in seeking additional feedback, clarification, or academic support when needed.
4. **Utilization of Feedback:** Make meaningful revisions to your work based on the feedback you receive.

For more detail on how this course's ungrading philosophy aligns with the university's traditional grading policies, please refer to the course syllabus.

Instructor Availability

I am committed to supporting you throughout this course. My role is to provide the guidance, feedback, and resources necessary for your academic success. I encourage you to reach out and schedule appointments during my office hours if you have questions or concerns about the ungrading process or any other aspect of the course.

Important Dates and Deadlines

Please note that there will be deadlines for revisions and additional important dates that pertain to the ungrading process. It is your responsibility to stay informed of these dates and adhere to any deadlines.

Ungrading Agreement Form

By signing below, you acknowledge that you understand the course will operate under an ungrading philosophy. You are committing to active participation, self-reflection, and adherence to all outlined responsibilities and deadlines.

Student Name: _____

Student Signature: _____

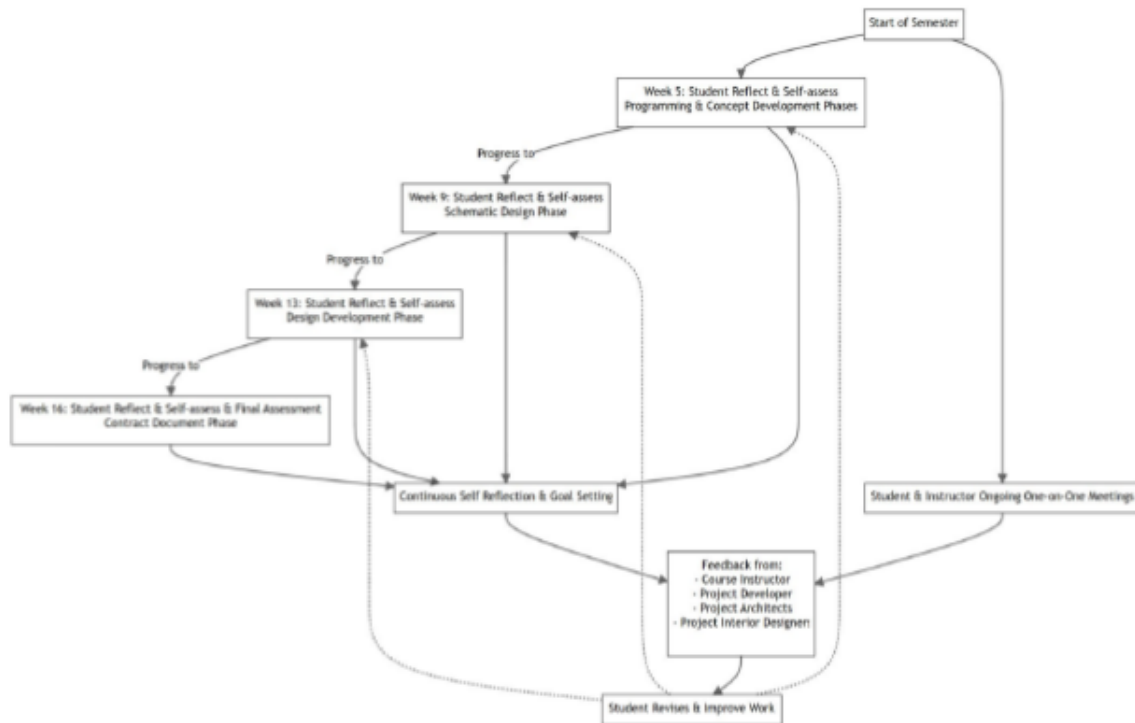


Figure 1. Overview of the Collaborative Reflective Assessment (CRA) Model (source author)

Summary Table: Aligning Features, Philosophies, and Theories of the Collaborative Reflective Assessment (CRA) Model with Student Feedback

Note: The following table summarizes key features of the Collaborative Reflective Assessment (CRA) model implemented in the course. The table offers an overview of how these features align with the model's philosophy and are informed by underlying theoretical frameworks like interpretive constructivism and formative and summative evaluation theories. Student comments and challenges are also included to provide a multi-dimensional perspective on the course's impact.

Table 1: Overview of Key Features, Alignments, and Challenges in the Course Reflection and Assessment (CRA) Model

Key Features	Description	Examples	Student Comments	Reflections / Instructor Notes	Alignment with CRA Model	Theoretical / Methodological Foundation
Student-Led Evaluations	Facilitates individualized conversations between instructors and students, encouraging a	Students scheduled one-on-one meetings during each course phase	"This empowered me, but it was a lot of work."	Found to be highly effective but may be overwhelming for some.	Fully aligns with the CRA model's focus on student-centric assessment.	Interpretive Constructivism, Qualitative Case Study

Key Features	Description	Examples	Student Comments	Reflections / Instructor Notes	Alignment with CRA Model	Theoretical / Methodological Foundation
	personalized learning journey.					
Rubrics and Reflective Learning	Utilizes carefully designed rubrics and reflective exercises to cultivate self-awareness and intrinsic motivation.	Student self-assessment reflection submitted after each phase	"The rubrics clarified my standing, but being reflective was hard."	Rubrics need further refinement; reflective aspect challenging for some.	Aligns with the CRA model's emphasis on reflection.	Interpretive Constructivism
Iterative Feedback	Deploys a robust feedback mechanism providing both formative and summative insights.	Feedback through annotated drafts at each phase and one-on-one meetings for clarification	"I knew exactly what to improve but sometimes felt overwhelmed."	Continuous improvement noted; may be intensive for some.	Aligns with CRA's continuous feedback cycle.	Formative and Summative Evaluation Theories
Comprehensive Learning Goals	Employs diverse assessment methods ranging from skill development to the presentation of original work.	Multi-stage, industry-sponsored design project covering design, implementation, and presentation	"I felt like I was learning something new constantly, it was hard to keep up."	Goals may require diversification; pacing may be challenging for some.	Partially aligns; could consider more student-defined objectives.	Interpretive Constructivism
Mentorship and Professional Development	Offers direct engagement opportunities with industry professionals.	Key touchpoints with client and industry design team during each phase	"Talking to professionals was eye-opening and intimidating."	Highly beneficial but intimidating for some students.	Aligns by providing real-world context and application.	Qualitative Case Study
Nurturing Professional Conduct	Evaluates students' professional behavior, preparing them for real-world settings.	Peer reviews during project milestones, accompanied by industry critiques during final presentation	"This prepared me for the workplace, yet stressful."	Stricter guidelines to be implemented; can induce stress.	Partially aligns; could consider student-led reviews.	Formative and Summative Evaluation Theories
Student Accountability and Instructor Support	Adopts an open-door policy encouraging students to take ownership of their educational experience.	Open-door policy for unscheduled meetings and scheduled progress check-ins (one-on-one meetings)	"I felt supported throughout the course but also felt pressure to perform."	Essential but can be stressful for some students.	Fully aligns with CRA's emphasis on student ownership and personalized guidance.	Interpretive Constructivism, Qualitative Case Study

Notes:

1. **Interpretive Constructivism:** A research paradigm that emphasizes the subjective experiences of participants and how they construct their own understanding of reality. It's often used in qualitative research to understand context-specific experiences and views.¹
2. **Formative and Summative Evaluation Theories:** Formative evaluation refers to ongoing assessments, reviews, and adjustments during the learning process aimed at improving student learning outcomes. Summative evaluation, on the other hand, assesses learning at the endpoint, typically for grading or certification purposes. Together, they offer a comprehensive view of student learning and development.²

¹ Lincoln, Y. S., & Guba, E. G. (1985). *Naturalistic Inquiry*. Newbury Park, CA: Sage Publications.

² Scriven, M. (1967). The methodology of evaluation. *Perspectives of curriculum evaluation*, 1, 39-83.

Reflections as per the Ungrading Process and Student Self-Assessment Under the CRA Model

Note: The reflections included in this appendix aim to provide insight into students' experiences and attitudes towards the ungrading process and self-assessment under the Collaborative Reflective Assessment (CRA) model.

Student P08

Reflection: End of Week 16 (Construction Documents) (International Student)

At one time the CD package was one of my least favorite parts of the program because I usually don't pay attention to a lot of details, I still have some things I don't really understand in this program, but my fear of the program has improved a lot compared to before! Since I missed the first redline, you used the extra time to help me correct it while giving me a lot of suggestions and teaching me how to revise at the same time, so I really appreciate your help. I still had some problems with the interior sections and details page due to the final session, but the rest of the pages I completed them well with the help of you and my classmates. This is a success for me. I appreciate the help [INSTRUCTOR NAME] gave me throughout the semester. I wasn't able to keep up very well at the beginning of the semester, and with your help and constant pushing I was able to succeed, keep up, and get your approval. I really like your teaching style. When I was doing redline, I could find a lot of deficiencies in my project while reviewing my classmates' projects, and I could see a lot of different aspects in more detail, while my classmates could also point out my various deficiencies. I also enjoyed the individual time with you every week. It was hard for me to change professors at first, and I had low self-esteem because of the language problem, but you kept telling me that I could ask you when I was in trouble, and I slowly tried to communicate with you and got a lot of advice. I was not afraid of communicating with you alone, and I gradually enjoyed it, and you gave me a lot of ideas, encouragement, and motivation.

Student P11

Reflection: End of Week 9 (Schematic Design) (Domestic Student)

Concept & Theory.

I love story telling, and think I am strong in this arena. I ended up using the experience plan as the primary means of communicating my story: Soaring, grounded, growing, and resting. Those words showcase how the space is diverse while maintaining harmony. I struggled with my environmental graphics initially, but I think they were well communicated in the end.

Programming.

I believe my grasp of the project was strong, but I do think I could have included more client information in the SD presentation. I spent a lot of time on the 1st and 2nd floor amenities and believe I reached a cohesive, functional, and interesting 1st and 2nd floor plan. I did not have as much time to delve into typicals as I wanted. I do struggle with adjacency matrixes. The number of lines is a lot for my brain, and I find I'm not as clear when doing them. I do much better with bubble diagrams and linking connections. I think the mapping diagram was helpful in this area as well. In some areas my programming was strong, and other areas weak. It might be partly due to the project scale/time limitations.

Space Planning.

I am very happy with how my floor plans turned out. I think they emphasize the exterior connections, which was one of my sub-goals. Again, the experience plan really helped me communicate and understand the user experience. After hearing feedback from presentations, I do think it would have been

good to identify the users of space more directly. I focused on the resident experience instead of the larger community.

Initial RCP, 3-Dimensional Development & Design.

I believe my concept is strong throughout and I'm happy with the layers of materials/finishes I was able to include. I think I should emphasize transparency more throughout. I did successfully explore several options and did think about the relationship between all 5 floors. However, I feel like I'm just scratching the surface but also must be aware of time constraints.

Design as an Iterative Process.

I do think I thought deeply about the user experience, architectural forms, and atmosphere of the space overall. Again, going back to my experience plan helped me understand (and communicate) the emotions I want the user to experience in each area. Those emotions became design drivers. My bubble diagrams also allowed me to recognize where strong connections needed to occur to make the experience more intuitive. Overall, I am very happy with the mood and direction of my FF&E. I selected materials and finishes that fit WELL Guidelines to ensure no harmful VOC etc. I do need to ensure flooring transitions are flat. I did get some feedback on reconsidering my furniture selections as the arm heights were not conducive to older adults. I'll be making those changes in DD.

Time Management and Organization Skills.

I am pretty good at time management and organizational skills by necessity. I work on my projects daily and try to focus on 1-2 tasks at a time for 2-4 hours and avoid super late nights. This method also allows me to have time in-between design work where my mind unconsciously works on the problem. It's worked well for me. I believe I was ready for all the in-class critiques.

Representation and Visual Communication.

I am very happy with how my SD presentation came together. I struggled with creating a cohesive package and had to re-work it a few times, but I am happy with the result. I wasn't sure the exact amount of client information to include, I think I would have done a better job describing the users of the space. I was also afraid that my renders would look sloppy (I had a limited number of marker colors) so I had to re-do them several times. I'm happy with the result. I've hand-rendered before, but not directly from Revit so it was a good experience.

Verbal Presentation.

I received good feedback on my presentation. I opened with a story of me spending time with my grandparents on the beach and how it brought on feelings of comfort and discovery. That story related well to the audience and allowed the mood of the space to be clearly communicated.

Conclusion.

Overall, I am happy with what I was able to accomplish in SD, especially considering this space is 10X larger than previous school projects. I think my concept is clear while there still being room for further development. I have a good sense of the overall space, including what I would like on each floor and the relationship between each floor. I will need to continue to work on selecting furniture, complete AL & MC typicals (I have Independent Living typicals already), and cleaning up the floorplan.

Cross-Curricular Project Based Learning: coordinating studio, human factors, and communications for enhanced student outcomes

Casey Franklin, University of Kansas

Abbey Ockinga, The University of Kansas

Ann Hossler, The University of Kansas

ABSTRACT

This presentation covers student outcomes and instructor insights from the successful implementation of cross-curricular project-based learning (CCPBL) in three interior design curriculum areas: studio, human factors, and communications.

Project-based learning fosters an immersive learning environment, where students engage in assignments that mirror real-world applications of learned skills. A recent review found that project-based learning had a positive outcome on students' resulting knowledge, ability, motivation, learning strategies, and project quality (Guo, Saab, Post, & Admiraal, 2020). In our project, second-year students worked on a studio assignment with supporting assignments in human factors and communications courses. This pedagogical approach used an interdisciplinary cross-curricular method, which allows students to combine knowledge from different subject disciplines resulting in a deeper response to a single project, assignment, or experience (Barnes, 2015). The benefits of cross-curriculum learning include authentic real-world experiences, increased satisfaction, personal creativity, and instructor resilience (Barnes, 2015). Our goals as instructors were to enable students to effectively combine skills acquired in different subject areas, to optimize student workload, and to deliver efficient instruction. The resulting outcomes were student presentations of interior design projects with emphasis on communication and human-factors content. Student presentation received outstanding professional reviewer praise. Further outcomes include instructor insights about how cross-curricular planning was a more effective method of delivering content and allocating time.

In this degree program students have one year of general architectural education before entering into interior design specific coursework in the second year. Instructors designed second year courses to coordinate learning content so that students could benefit from a reduced workload through focusing on one project. Students were assigned a 10-week, 6,000 square foot co-working space in studio. In human factors, coordinated assignments allow students to apply inclusive design, proxemics,

anthropometrics, and ergonomics. Meanwhile, in their communications course students explore graphic design and verbal presentation skills by applying them directly to their final studio presentation. This cohesive cross-curricular approach, as opposed to isolated projects in each course, allowed students to focus their learning with enhanced efficiency and work quality.

Feedback from industry professionals validated the success of this CCPBL approach. Professionals noted that student presentations were refined, effectively employed storytelling, and allowed for engaging feedback. One architect noted, “It was hands down the best studio review I have ever experienced, both as a student and now as a professional.” While this is a relatively new degree program and second year course curriculum is just one example, we believe that CCPBL has contributed significantly to student professional post-degree success. Graduates from 2022 and 2023 all either continued into a Master of Architecture programs or had full time job placements with the exception of one student who choose a different career path.

From an instructional perspective, this collaboration between classes mirrors a real-life workflow for students and instructors. It allowed for focused energy on one project, enabling students to immediately apply cross-curricular knowledge while instructors eliminate redundancy in content delivery. Lastly, coordination among instructors benefited us by fostering a communicative, vibrant, and supportive educational community. In conclusion, we believe that the use of CCPBL has benefited students learning – helping them to efficiently produce a higher quality of work that effectively incorporates all the topics needed for excellent project outcomes in real life.

REFERENCES

Barnes, J. (2015). An introduction to cross-curricular learning. *The primary curriculum: A creative approach*, 320.

Guo, P., Saab, N., Post, L. S., & Admiraal, W. (2020). A review of project-based learning in higher education: Student outcomes and measures. *International Journal of Educational Research*, 102, 101586. Retrieved from <https://www.sciencedirect.com/science/article/pii/S0883035519325704>. doi:<https://doi.org/10.1016/j.ijer.2020.101586>

Appendix. Project Statements & Outline

Studio Project Statement:

For this project students were tasked with designing a 6,000 SF co-working space in an existing downtown building; past and current workplace trends informed the design solutions. Throughout the course of the project students learned about the interior design process including research, concept development, site and building analysis, programming, schematic design, and design development. Deliverables included:

Poster:

- Historical & Precedent Analysis
- Project Summary & Site Context
- Project Concept
- Blocking Diagram
- Floor Plan and Elevations
- FF&E: Products and Materials
- 3D Interior Views
- Branded Wall Design

Physical Model: Section model cut through main conceptual elements of the space.

Human Factors Project Statement:

Human Factors had multiple assignments where students worked to apply knowledge at different project phases. Notably they were required to annotate their studio project plans to include and annotate the following human-factors requirements:

- Emergency exits, maximum travel distances
- Hallway and Aisle Spacing
- ADA Door Approach
- Counts of private offices, hot desks, telephone booths, group workstations, and accessible workstations
- ADA seating options, reception approach, paths through the space, turning radiuses, and bathroom stalls with turn radiuses
- Ergonomic furnishings and benefits
- Zoning of social, group, and individual work areas

By identifying this information students understood where they were meeting requirements or where they needed additional attention to accommodate ADA, code, and ergonomic needs.

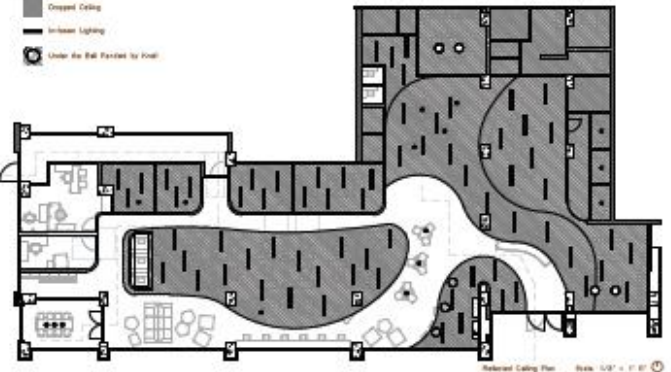
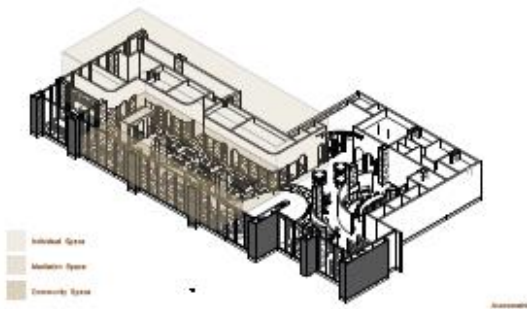
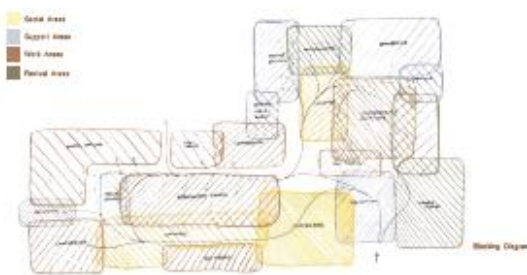
Communications Project Statement:

For the final project students applied cumulative knowledge learned over the course of the semester to create a compelling poster design and persuasive speech. Visual communication topics covered design principles, composition, color theory, and typography. Students also utilized class resources and time to write and revise a speech for their final studio review.

- Visual Communication: Poster Design and Branding for Co-Working Space
- Oral Communication: Persuasive speech that utilizes appropriate design language

Project Timeline by Week

Project Week	Studio	Human Factors	Communications
1	Research		
2	Concept		
3	Concept & Site Analysis		
4	Site Analysis		
5	Programming	Reception Area Assignment	
6	Schematic Design	Reception Area Assignment	
7	Schematic Design	Furnishing Selection Assignment	
8	Design Development	Plan Analysis Assignment Given	Branding
9	Design Development	In-Class Group Analysis	Branding & Poster Design
10	Design Development	In-Class Individual Analysis	Poster Design & Speech Preparation
11	Presentation	Presentation	Presentation



* Student transcript available.



blend

coworking space

site analysis

2ND LIGHT TOWER, FIRST FLOOR
1000 WEST 10TH AVE, DENVER CO, 80202



concept

Blend is a design for a coworking space located in downtown Denver CO, on the 2nd floor of The Light Tower apartments.

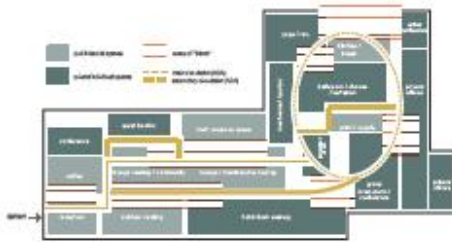
The coworking space is centered around the idea of **blending** - creating an environment that encourages interaction, variety, and possibility.

The concept of blending is an iterative interpretation of the color wheel. The color wheel is not that it influences possibilities of combinations that blend together well. This concept is executed and iteratively refined through the space, emphasizing the idea of blending - organic, clean, simple - and the possibility that offers a combination of less can mean more.



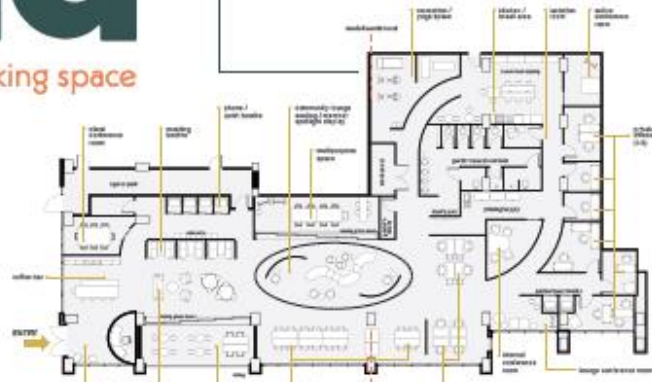
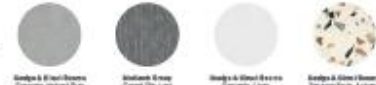
goals

- 1. Increase the opportunity for members to connect as locally and globally as possible.
- 2. Allow for organic, creative, and design concepts to evolve without needing to require the space.
- 3. Create a design that represents the concept of "blending" over time.



blocking diagram

flooring materials



SCALE 1/4" = 1'-0" © floor plan

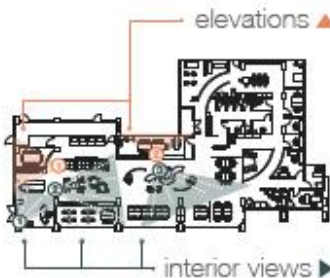


coffee bar / client conference room



SCALE 1/4" = 1'-0" multipurpose space, full sliding glass doors

lively modern
inspiring



interior views



meeting booths / coffee lounge area / outdoor seating



wayfinding / lounge / member display / hotel desks



- 1. DesignTex Alcantara Vinyl, Charcoal
- 2. DesignTex Nylon, Charcoal Cord
- 3. Design & Direct Granite Through-Frame, Alabaster
- 4. Classenstone Quartz, Black-Tripoli
- 5. Design & Direct Granite BNTA, Stone Charcoal





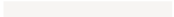






materials & finishes

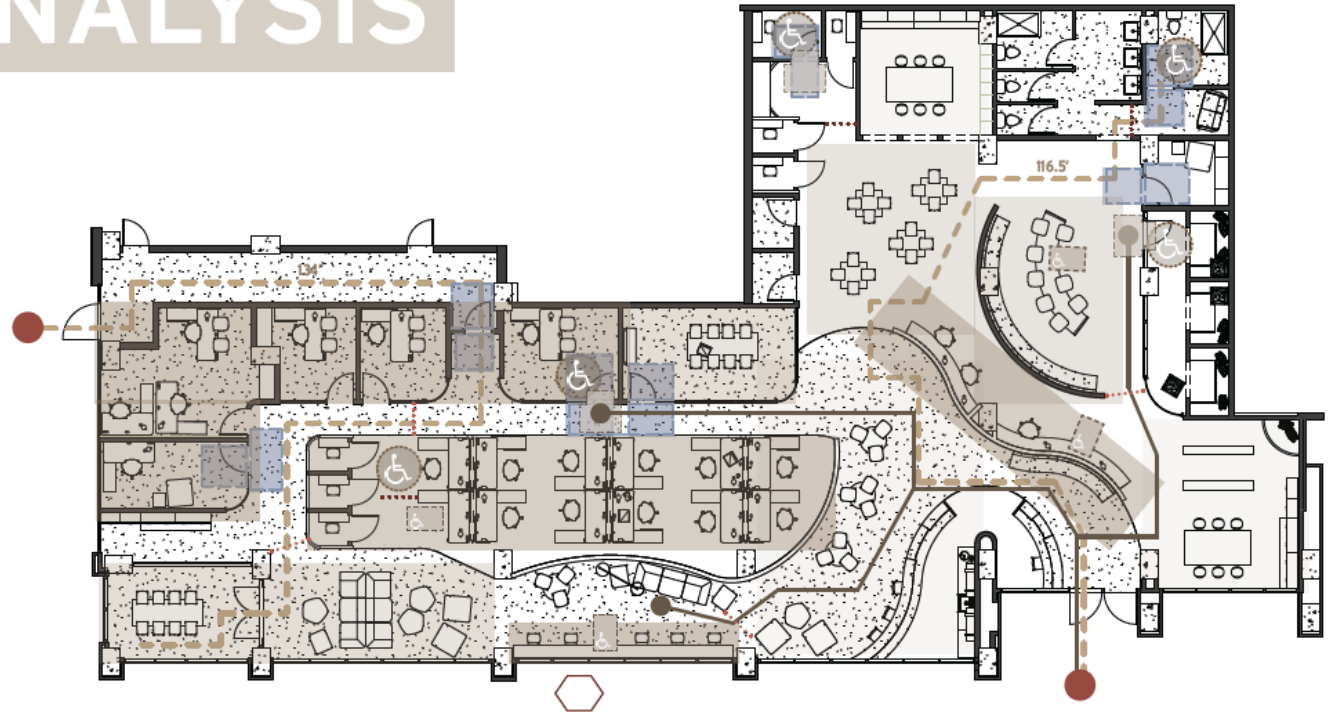


furniture & fixtures

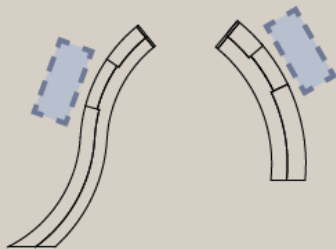
PLAN ANALYSIS

FLOORPLAN KEY

-   Hallway Width
-  Travel Path of Escape
-  Emergency Exit
-  Social Work
-  Group Work
-  Individual Work
-  ADA Seating and Turn
-  Wheelchair Turn Radius
-  ADA Path of Travel
-  ADA Door Approach



RECEPTION & CAFE APPROACH



BY THE NUMBERS

- 5 SMALL OFFICES
- 2 ACCESSIBLE SMALL OFFICES
- 3 CONFERENCE ROOMS
- 7 PHONE BOOTHS
- 13 HOT DESKS
- 4 ACCESSIBLE HOT DESKS
- 12 PERMANENT DESKS
- 2 ACCESSIBLE PERMANENT DESKS
- 11 GROUP WORK AREAS
- 4 BATHROOMS
- 1 ACCESSIBLE BATHROOMS

ERGONOMIC OPTIONS



GENERATION CHAIR BY KNOLL

This ergonomic piece has benefits for the users because it is adjustable in all areas, thus allowing it to conform to each person. This increases productivity for longer periods of time.



EXPANSION CITYLINE BENCH ADJUSTABLE DESKING BY TEKNION


This ergonomic desking system is beneficial for the space because it allows users to adjust the height for their personal size. This is helpful for wheelchair users and for standing and sitting through the day.



TIP TABLE LAMP BY MUUTO

This lamp is a good ergonomic option because it allows for proper lighting for numerous tasks. Its adjustable nature allows for any user to direct the light to where it works for them.

HUMAN FACTORS IN PLAN

SCALE 3/32" = 1'0" 

Space Type & Seating Totals

- 6 private offices - 10 seating total (4 ADA)
- 6 phone/quiet booths
- 16 hot desk seating (8 ADA)
- 8 permanent desk seating (4 ADA)
- 5 conference/group meeting rooms
34 seating total (12 ADA)
- 18 cafe/kitchen seating (6 ADA)
- 23 lounge seating

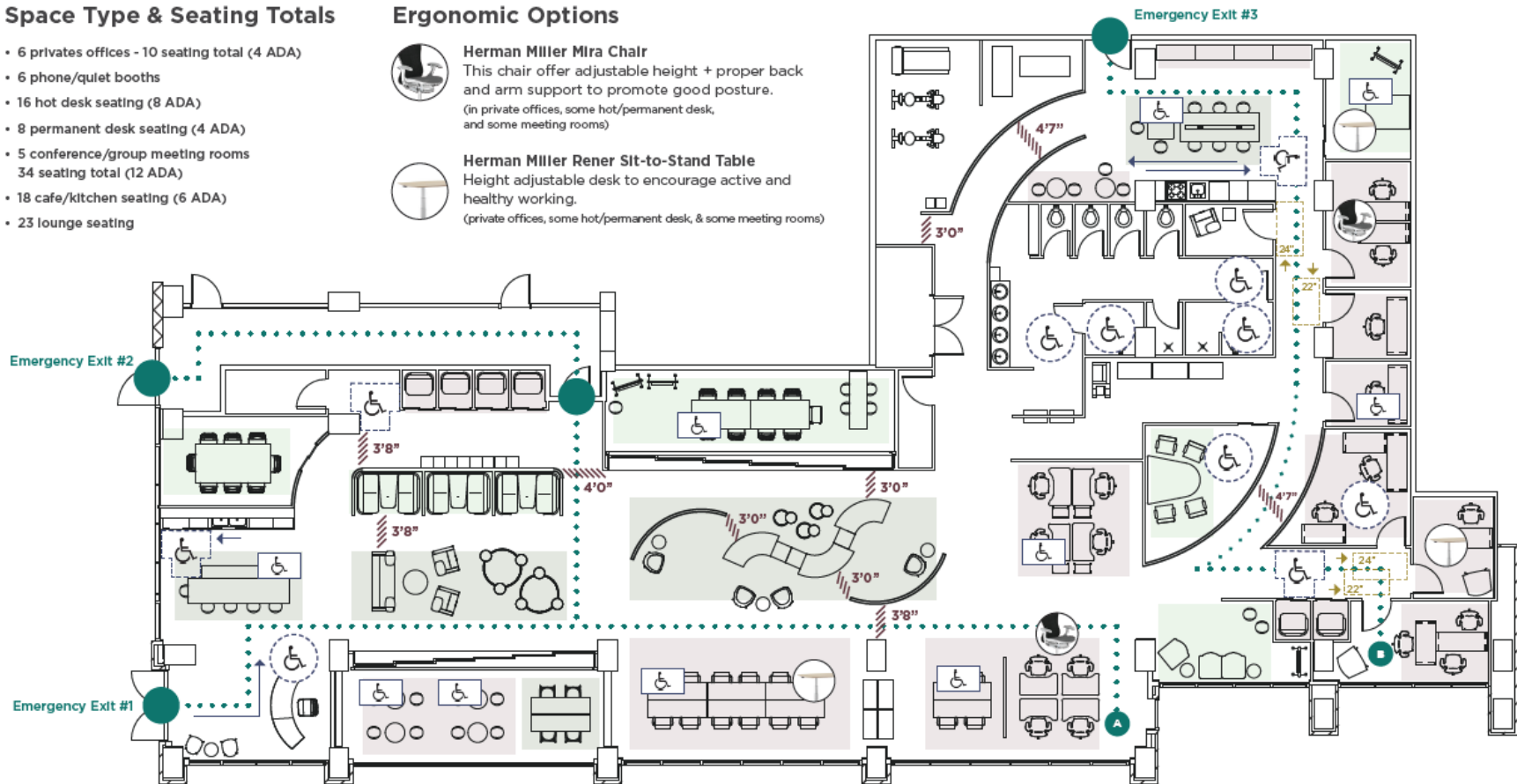
Ergonomic Options




Herman Miller Mira Chair
This chair offer adjustable height + proper back and arm support to promote good posture.
(in private offices, some hot/permanent desk, and some meeting rooms)



Herman Miller Renner Sit-to-Stand Table
Height adjustable desk to encourage active and healthy working.
(private offices, some hot/permanent desk, & some meeting rooms)








KEY

-  **Emergency Exit Travel Paths**
Path from Point A to Emergency Exit #1 = 115'
Path from Point A to Emergency Exit #2 = 120'
Path from Point B to Emergency Exit #3 = 95'

Hallway/Aisles Dimensions


Door Approaches


-  Accessible Stalls, Paths, Turns
-  Accessible Seating

-  Individual Work Area
-  Group Work Area
-  Social Work Area

Cultivating Studio Culture: The Challenge of Student Engagement

Rebecca Brewer Moore, Belmont University

Kelly R. Gore, Belmont University

ABSTRACT

In *The Chronicle of Higher Education*, a classroom phenomenon was addressed that echoed sentiments of faculty during departmental discussions: today's learners are disengaged in the classroom (McMurtrie, B., 2022). The central purpose in department meetings was re-imagining curriculum to address revised CIDA Standards, alignment with University mission, issues reported affecting the overall "studio culture" (reflected in quality of student interactions), and ultimately engagement in the classroom. Evidence via classroom observations and project outcomes pointed to a lack of soft skills among incoming first-year students that permeated throughout leveled studios. Faculty hypothesized that addressing soft skills in curriculum may lead to better engagement in the classroom.

An introductory course was developed to establish soft skills early in the curriculum map, specifically in the first semester for interior design students. The intention was to include key ingredients to foster student interaction and participation, facilitated by the teacher, to encourage engagement. "The goal is high student participation and high cognition, thus cognitive engagement...collaboration is the key to engagement" (Stobaugh, R., 2019, p. 24).

Previously, introduction of skills had not produced desired results of retention and utilization in later courses. Ackoff (1989) illustrated one aspect of this issue in the *Journal of Applied Systems Analysis*: access to data does not equate to knowledge and understanding. It requires key learning connections between bits of information that educators may have previously assumed "college-ready" students should know. As stated in *The New College Classroom*, "we, as instructors, can both pave the way and step out of the way as we help our students transition from lacking insider knowledge to navigating smarter" (Davidson, C.N. and Katopodis, C., 2022, p. 28).

After identifying the problem, skills identified for success in the studio were documented using a markerboard mapping exercise. Faculty members organized topics into a chart, creating key categories, and aligning them with CIDA Standards. Course objectives were derived from this process. Multiple modes of learning were embedded in the course to connect with varied learning styles: discussion, film viewing, writing, sketching, model-building, storytelling, field trips, and peer reviews. Collaboration was

identified as the foundation of each assignment; however, this does not eliminate the opportunity for student autonomy during portions of the learning process.

This course veers away from the traditional sage-on-stage model and instead focuses on learning-centered classrooms that promote engagement among students, giving them authority over their own learning (Stobaugh, R., 2019). Recognizing the need for closing gaps between assumed knowledge prior to entry into higher education, teachers would equip students with the skills needed for critical and creative thinking. This is accomplished initially by the instructor as demonstrator, shifting to facilitator, and finally into the role of observer.

The curriculum revisions were presented to the university for review and were approved. This introductory course was offered in Fall 2023 in two sections with 16 students in each. Observations from each of two instructors have been: 1) improved participation from students; 2) increased collaboration; 3) improved outcomes – including process work demonstrated; and 4) the appearance of overall student engagement.

Evidence is still being gathered to determine retention and utilization of skills for use in future studios. Results are promising for improved student engagement and enhancement of “studio culture”. Thus, this type of introductory course that addresses soft skills with a foundation of collaboration and intentionally varied teaching methodologies could be useful for other design programs to improve issues pertaining to student engagement.

REFERENCES

Ackoff, R.L. (1989). From data to wisdom. *Journal of Applied Systems Analysis*, Vol 16, 3-9.

Davidson, C.N. and Katopodis, C. (2022). *The New College Classroom*. Cambridge, Massachusetts: Harvard University Press.

McMurtrie, B. (2022). A stunning level of student disconnections. *Chronicle of Higher Education*, Vol 68, Issue 17, cover story.

Stobaugh, R. (2019). *Fifty strategies to boost cognitive engagement: Creating a thinking culture in the classroom*. Bloomington, IN: Solution Tree Press

APPENDIX

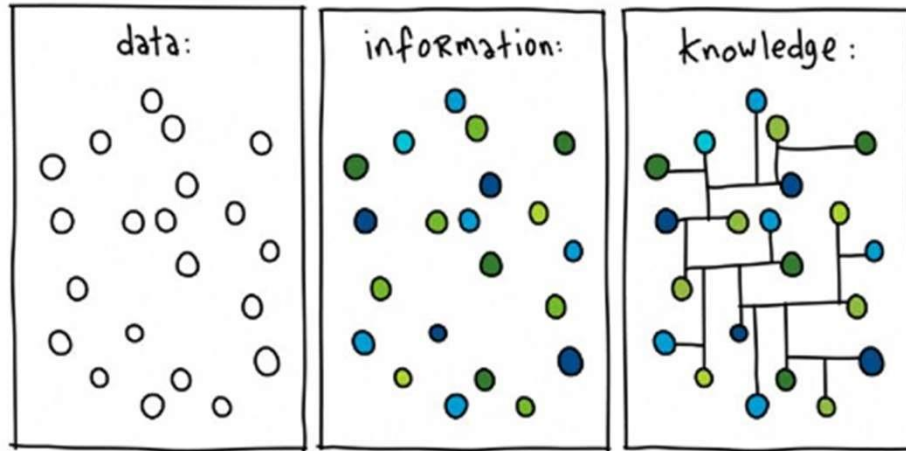
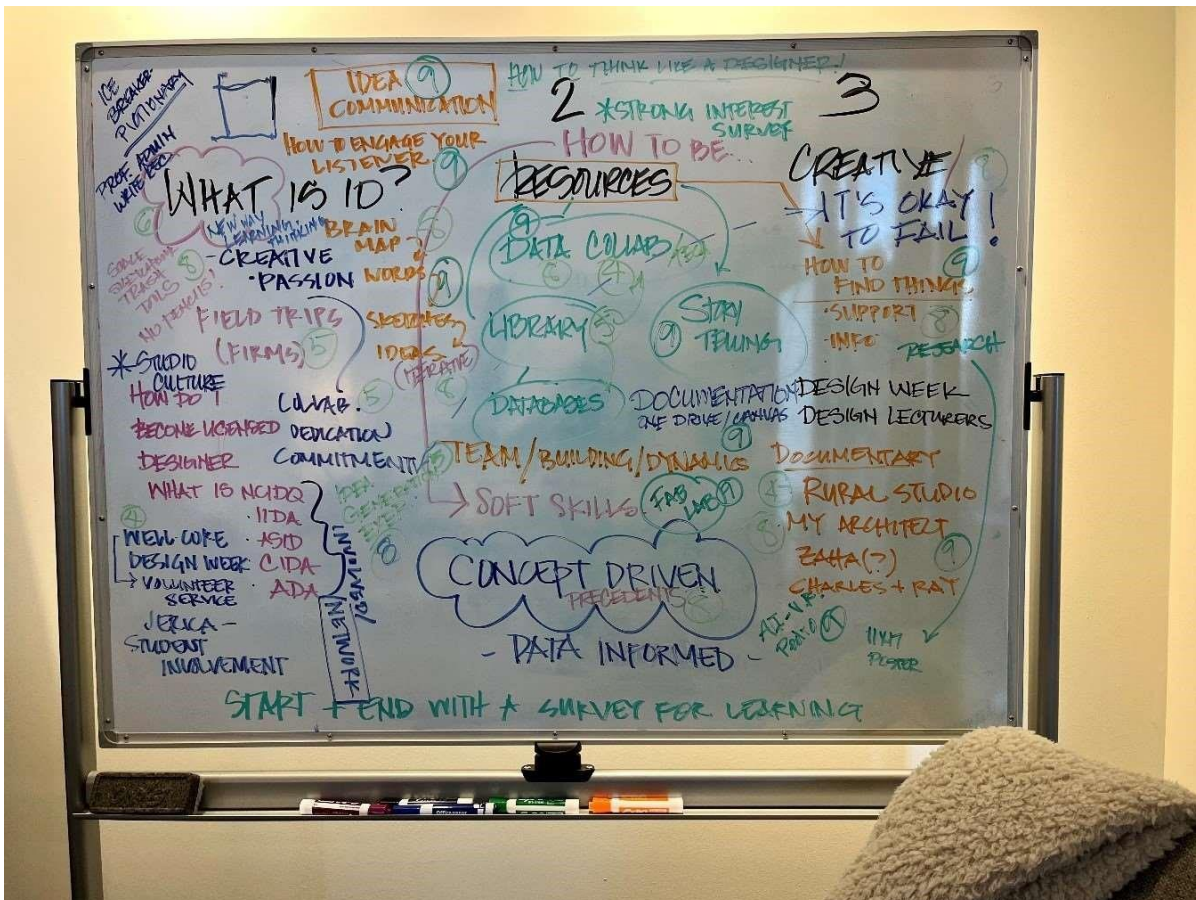


Image 1: From Data to Wisdom (Ackoff, R.L. 1989). Image retrieved from <https://www.gapingvoid.com/blog/2019/03/05/want-to-know-how-to-turn-change-into-a-movement/> on September 27, 2023.



APPENDIX

Syllabus with objectives and outcomes

Course Goals

- To introduce skills needed for the field of Interior Design – observation, inspiration, creativity, and iteration (failure leads to success model)
- To expose students to guest lecturers and professionals in the field to begin understanding practitioners' varied vocations and concentrations
- To build relationships in the design college, emphasizing studio culture
- To explore mental and emotional wellness in a stressful vocation, considering work/life balance
- To be introduced to and begin to visualize the role of Data-informed outcomes and the potential for societal impact
- Students will develop problem-solving skills using the DDIA (dilemma, data, insights and action) framework to demonstrate mastery of the Data Thinking Model.
- Additionally, students will construct a data-driven dilemma by interacting with the Data Thinking Model.

Student Outcomes

Students will better understand the field of Interior Design, will be better prepared for success in the program, and will better grasp the transformative potential for Design with a data-driven and evidence-based approach. They will have established relationships in their college to help them in their degree path.

APPENDIX

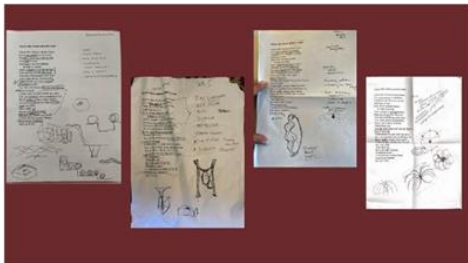
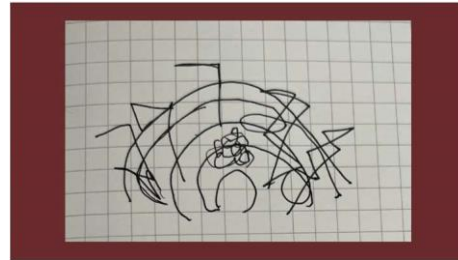
Conceptualization and Communication

Watch the videos posted in Canvas describing concepts. After discussing what a concept is during class, break into four groups. Each group will be assigned a reading to contemplate. What words stand out to you? Is there a rhythm? How does the reader feel? Use these words as a starting point to determine the concept behind the words.

- Create a list of words that evoke emotion or feeling from the reading.
- Sketch the words. If the word has a shape or form, what would it be?
- Discuss with your team. What works? What doesn't work?
- Build a rough conceptual model to represent the conceptual words from your reading. Each team member will build a rough model.
- Discuss the outcome of the models. State one thing that the teammate did well and one thing that needs further explanation.
- Collaborate to design a final concept model using Bristol paper and tape. The team will only have one model.
- Create a presentation that takes the viewer from sketch to final model.
- Each team will present the model and the visual to the class



I know this vicious minute's hour;
 It is a sour motion in the blood, That, like a tree, has roots in you, And buds in you,
 Each silver moment chimes in steps of sound,
 And I, caught in mid-air perhaps, How and am still the little bird, You have offended,
 periodic heart;
 You I shall drown unreasonably,
 Leave you in me to be found Darker than ever,
 Too full with blood to let my love flow in.
 Stop is unreal,
 I want reality to hold within my palms, Not, so a symbol, stone-speaking or no, But it,
 reality, whose voice I know I to be the circle not the star of sound.
 Go is my wish;
 Then shall I go,
 But in the light of going
 Minutes are mine
 I could devote to other things,
 Stop has no minutes, but I go or die.
 Dylan Thomas



BONDAGE
 SUSPENSION
 REPATITION
 TANGLED
 TRAPPED
 TEETERING ON THE EDGE
 PURGATORY
 BLOOD



APPENDIX

Challenge: THRESHOLD:

Working in groups of 3-4, select an area on the third floor of the Interior Design Space to construct a meaningful threshold. Work with “found objects” to create the threshold. Be prepared to describe the intent, the feelings or emotions your group intended to evoke, and the desired overall experience when moving through the threshold

Objective(s):

Work effectively with a team

Create a meaningful design (know why you are designing)

Construct the design

Present and “defend” your design and reasoning

Provide meaningful peer critiques



Design Iteration and Multidisciplinary Collaboration for Creative and Practical Design Solutions

Eun Young Kim, University of Tennessee at Chattanooga

Bryan Strickland, University of Tennessee at Chattanooga

ABSTRACT

ISSUE:

Design iteration is an essential part of the design process needed to create successful solutions to design problems. It is defined as “the goal-directed process in which designers transition between, or repeat, design activities as needed to progress from an ill-defined problem to a design solution (Carlson et al., 2020, p. 1).” This design repetition allows designers to improve previous ideas to reach optimal solutions. Multidisciplinary collaboration is another important element in interior design, necessary to achieve creative solutions (Kim et al., 2015; Russ & Dickinson, 1999). Because team members from multiple disciplines bring in-depth knowledge from a broad set of perspectives, collaborative teamwork leads to better clarification of design problems, generates a greater number of creative solutions, and allows for a more thorough analysis of the final design (Denton, 1997; Kim et al., 2015). The CIDA Professional Standard 5, Collaboration, reflects the significant role of collaboration with allied disciplines in creative design and ensures that program graduates can work in teams and can recognize the value of integrated design practices (CIDA, 2022).

METHODS:

This presentation introduces how a sophomore studio from a CIDA-accredited Interior Design (ID) program successfully employed both design iteration and multidisciplinary collaboration into a bench design project. Collaboration was conducted with students in Construction Management (CM) and Civil Engineering (CV) courses. ID students designed the bench, and CM and CV reviewed the designs and will build the bench based on the final collaborative design. This presentation focuses on the design iteration and interdisciplinary communication that occurred throughout the design process.

- 1- Define the Design Problem: ID, CM, & CV instructors presented the basics of the bench design and the dimension and material constraints to the students. A Q & A session followed.

The main constraint of the project was buildability, defined by the CM and CV students' ability to build the bench out of concrete or wood (Appendix 1).

- 2- Exploration of Design Ideas: ID students individually created ideation drawings. Then, in pairs, students explored their initial designs to create 3 newly developed ideations. The final ideations included dimensions and annotations for added detail.
- 3- Multidisciplinary Review 1: The 3 ideations were reviewed by an interdisciplinary group of students and instructors from the CM and CV courses. Reviews were conducted with a focus on buildability with a secondary priority set on aesthetics. One idea was selected per group by the multidisciplinary team for further design refinement (Appendix 2).
- 4- Design Refinement 1 & Study Model: Each group further refined their selected bench design based on the feedback provided and developed final concept drawings and a study model (Appendix 3 & 4).
- 5- Multidisciplinary Review 2: The refined designs and study models were reviewed by the same multidisciplinary team as in Step 3. Feedback included written comments by CV students (Appendix 5).
- 6- Design Refinement 2 & Presentation Board: After final refinement of the designs, ID students in each group created a presentation board (Appendix 6).

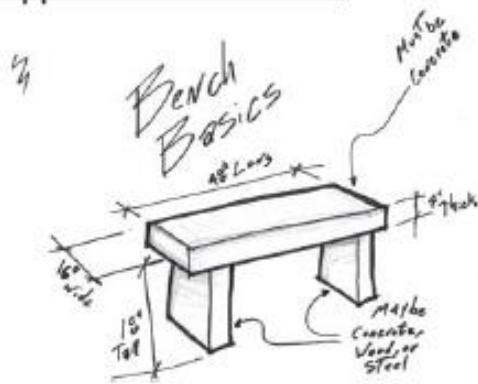
CONCLUSIONS:

Student work demonstrated creative and practical bench solutions from multidisciplinary collaboration with CM and CV. Additionally, the multidisciplinary effort fostered students' understanding of the critical role of communication, particularly visual communication, as demonstrated by their reflections and final presentations. Notable feedback from the students was that they learned the importance of identifying and addressing practical issues in design, as they affect the design significantly. The importance of practical design was reinforced by the next step of the project, which will be the build and installation of the top 3 designs at the university stadium for public use.

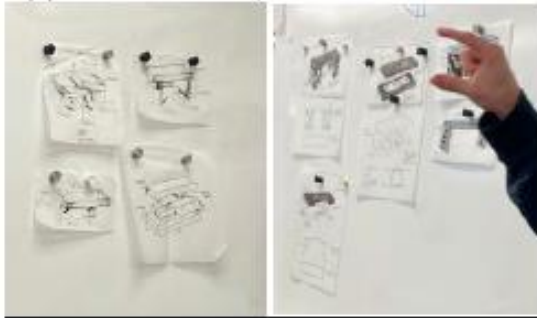
REFERENCES

- Carlson, S. E., Rees Lewis, D. G., Maliakal, L. V., Gerber, E. M., & Easterday, M. W. (2020). The design risks framework: Understanding metacognition for iteration. *Design Studies*, 70, 100961. <https://doi.org/https://doi.org/10.1016/j.destud.2020.100961>
- Council of Interior Design Accreditation. (2022). Professional Standards Retrieved September 20 from [https://static1.squarespace.com/static/5c9ae7530490796e32442342/t/61def12b98890e3d27744c59/1642000683919/Professional+Standards+2022.pdf](https://static1.squarespace.com/static/5c9ae7530490796e32442342/t/61def12b98890e3d27744c59/1642000683919/P+rofessional+Standards+2022.pdf)
- Denton, H. G. (1997). Multidisciplinary team-based project work: Planning factors. *Design Studies*, 18(2), 155-170. [https://doi.org/https://doi.org/10.1016/S0142-694X\(97\)85458-0](https://doi.org/https://doi.org/10.1016/S0142-694X(97)85458-0)
- Kim, M. J., Ju, S. R., & Lee, L. (2015). A Cross-Cultural and Interdisciplinary Collaboration in a Joint Design Studio. *International Journal of Art & Design Education*, 34(1), 102-120. <https://doi.org/10.1111/jade.12019>

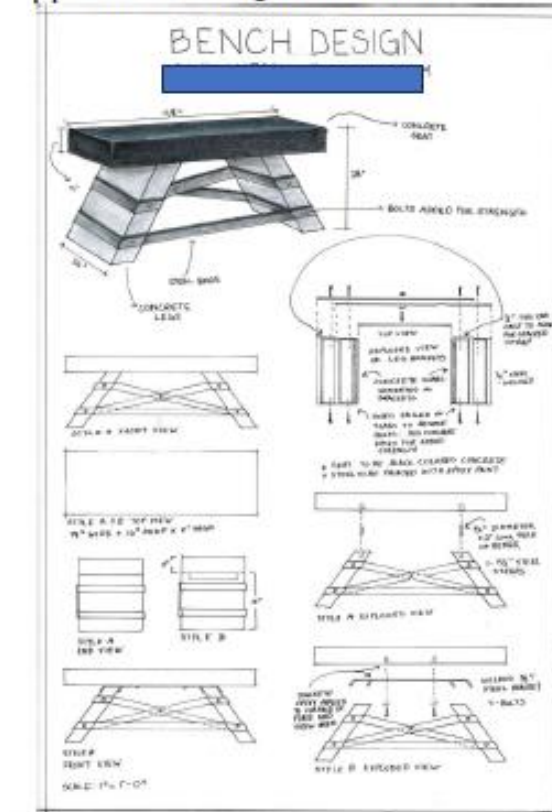
Appendix 1. Bench Basic



Appendix 2. Pin-up Review



Appendix 3. Design Refinement



Appendix 4. Study Models



Appendix 5. Written feedback from CV students regarding Buildability

Bench Design 1

- The heat of black concrete outside in the sun
- The weight and transportation of the bench
- Does the bench seat fit into the taller column (increasing the bench length?)
- Is the tricolor in the drawing desired?

Bench Design 3

- Attachment method for bench top slab to planter block & bench slab support leg?
- Is cutout in planter box intended to extend through the entire planter?
- If not a through-hole, what are the recess dimensions?
- Are all vertical faces intended to have a grooved finish or only the labeled faces?
- Please specify width and depth of grooves.
- Cast in place lettering.
- Is this intended to be relief lettering or recessed into the concrete with?
- an alternative material
- Please specify the lettering font, height, & width
- Unknown material for the planter box
- Increase bench seat slab thickness.
- Increase top planter inset dimensions to reduce concrete material usage/structure weight.
- Add another through-hole on the bottom outside face of the planter box to further reduce concrete material usage/structure weight.
- Consider making the bench seat one solid concrete slab and splitting the planter box into two pieces. The bottom piece would support the slab and the top piece would sit on top of the slab. This would improve the overall structural integrity and constructability of the bench.

Bench Design 5

- What are the dimensions of the short edge of the trapezoidal cutout?
- What is the intended attachment method of the leg supports to the bench slab?

Bench Design 8

- What are the dimensions for the legs?
- What is the overhanging dimensions of each block/shelf?

Bench Design 9

- Forming the columns and shaping the molds.
- The height of the bench seems a bit short, can that be adjusted?
- Is there an attachment mechanism between the seat pieces?
- Can we increase the diameter of the legs?

Bench Design 10

- What are the dimensions of the square cutout in the leg supports?
 - What is the depth of the inset on the bottom of the bench?
 - What is the overhang dimension from the leg supports to the edge of the bench?
 - Is there a desired aesthetic connection between the bench seat and the legs?
 - Is there a base to the bottom of the planter or is the whole column intended to be hollow?
-

Appendix 6. Presentation Boards

B
E
N
C
H

D
E
S
I
G
N

IDEATION SKETCHES

DESIGN ITERATIONS

STUDY MODEL

ORTHOGRAPHIC VIEWS

Side views

TOP view

FRONT view

INSPIRATION

Ideation Sketches:

Design Iterations:

Bench Design Ideation

FINAL ALTERNATIVE IDEAS

IDEA 1

IDEA 2

STUDY MODEL

CONCEPT STATEMENT

The bench design is inspired by the architecture of modern buildings, specifically William Holabird and Martin Roche's Marquette Building in Chicago, 1895. An angular and busy look is incorporated, with square cut outs in the bench legs reflecting the windows of the Marquette Building. The bench will be constructed using all concrete materials, providing unity to the design. The top concrete slab has a slot inset on the underneath where the legs slide into place. The legs are a darker concrete than the seat, creating contrast and highlighting the unique assembly style. The design evolved from multiple ideas, combining square cut outs, and the inset leg assembly.

ORTHOGRAPHIC VIEWS

Developing Advocacy through a Critical Service-Learning Project

Julie Emminger, University of Florida

Nam-Kyu Park, University of Florida

ABSTRACT

The World Health Organization (2021) estimates that around one billion people globally live with some form of disability. Adding to this challenge is the issue of older, inaccessible homes and the ongoing costs of maintaining them. Interior design students have the potential to make a significant impact on improving the homes of underserved communities in the United States. The Council for Interior Design Education (2022) emphasizes that interior design students should have a strong understanding of building systems and construction to ensure occupant safety, health, and well-being. Service-learning, as a part of the educational process, encourages students to apply their course knowledge through community experiences (Sterling, 2007). However, implementing meaningful service-learning projects in higher education is often hindered by a lack of critical analysis of social issues and policies, leading to challenges in meeting advocacy and accountability expectations (Mitchell, 2008).

In light of these opportunities and challenges, a critical service-learning project was developed for the Fall 2022 within an Interior Environmental Technology course. This project aimed to provide students with practical experience, helping them grasp current principles and practices related to interior environmental systems and the need for home rehabilitation in underserved communities. The class collaborated with a nonprofit organization specializing in home rehabilitation within the communities it serves. The project had the following objectives to enhance students' learning:

Understand how building systems, including plumbing, mechanical, and electrical systems; integrate through hands-on experience.

Develop interior design skills necessary to enhance the health, safety, and well-being of underserved individuals.

Gain exposure to public services with a focus on equity, inclusivity, and sustainability. Foster effective communication skills within the context of professional collaboration. To guide the project, it was divided into three phases:

Project Introduction: This phase includes a guest lecture and a pre-survey to assess students' attitudes toward designing for occupant health, safety, and well-being.

Field Work: During the semester, students are required to spend a minimum of 8 hours in the field participating in hands-on activities.

Critical Reflection: This phase involves reflective essays, a final survey, and interviews.

Data were collected including 18 students' pre-and post-surveys, students' reflective essays, field observations by two instructors, and in-depth interviews with five students. Data analysis provided a comprehensive understanding of the overall project experience.

Interior design students reported that their service-learning experiences with a non-profit organization significantly increased their willingness to help those in need, boosted their confidence in collaboration (despite a slight post-experience decrease), and instilled a greater commitment to designing for social justice. However, the experience did not significantly impact their understanding of the global context regarding the intersection of underserved populations, poverty, housing, and interior design. Yet, the real-world exposure affected them at a local level. Students found interior environmental systems fascinating, appreciated the opportunity to do fieldwork, and emphasized the importance of empathy in interior design. Overall, the service-learning experience strengthened community bonds, enhanced the importance of equity, inclusivity, and sustainability in interior design, raised sensitivity to human variability in the built environment, developed design skills related to building systems, and empowered students as designers through real-life exposure.

REFERENCES

Council for Interior Design Education. (2022). Professional Standards 2022. <https://www.accredit-id.org/professional-standards>

Mitchell, T. D. (2008). Traditional vs. critical service-learning: Engaging the literature to differentiate two models. *Michigan Journal of Community Service Learning*, 14(2), 50-65.

Sterling, M. (2007). Service-Learning and interior design: A case study. *Journal of Experiential Education*, 29(3), 331-343. DOI: 10.1177/105382590702900305.

World Health Organization. (2021, November 24). Disability and Health. <https://www.who.int/news-room/fact-sheets/detail/disability-and-health>

Note: This description is abbreviated to remove identifying information to comply with the blind review process.

INTRODUCTION

Students will partner with a local non-profit organization that has more than 40 years of experience rehabilitating and repairing homes. The core values of the organization are safe and healthy housing specifically targeting hazards that are shown through research to have negative health impacts on household occupants.

PROJECT OBJECTIVES

The objectives of the project are:

- 1) To understand integration of building systems including plumbing, mechanical, and electrical systems through field experience.
- 2) To develop the interior design skills required to improve the health, safety, and wellbeing of neighbors in need.
- 3) To provide exposure to public services in consideration of equity, inclusivity, and sustainability.
- 4) To develop effective communication skills in the context of professional collaboration.

PROJECT SCOPE

The proposed project is a **home repair work focusing on renovating a kitchen and dining area**. The project site is in a rural town in the southeast United States (See Figures 1 and 2). The project will be divided into 3 phases:

Phase 1: Project Introduction

- A) Pre-survey on Qualtrics will be conducted by **Monday, October 17th, 2022**
- B) On **Tuesday October 18th**, a Guest Speaker from the non-profit organization will be invited to introduce organization, policies and procedures, critical issues, and the project itself. Additionally, detailed information on safety and security for field work will be provided.

Phase 2: Field Work

The field work of a home repair will take place over **two weekends**. Thus, students are required to participate for a **minimum of 8 hours** in the field during the semester.

A) WEEKEND #1 (October 22, Saturday – 23, Sunday)

During the first weekend, students will participate in demolition and installation of kitchen cabinets, counters, and plumbing. (*See detailed tasks in the Field Work Schedule below*)

B) WEEKEND #2 (November 05, Saturday – 06, Sunday)

The second weekend will focus on repairing subfloor damage, installing new flooring, and finishing the cabinet install. (*See detailed tasks in the Field Work Schedule below*)

Phase 3: Critical Reflection

A) **Critical-Reflection Paper:** Students will write two reflective essays regarding the two weekends of their field experiences. Critical and reflective prompts will be provided.

*Developing Advocacy through a Critical Service-Learning Project
Project Description*

- Each essay should be between **500 and 750 words long** by following the APA format
 - Electronic files are due 1) **Friday, October 28th**; 2) **Friday, November 11th by 11:59PM**
- B) Post-survey on Qualtrics will be conducted by Friday, November 18th
- C) Student interviews will be conducted during the week of Nov 15th

FIELD WORK EXPECTATIONS

The internal repair team at the non-profit will supervise the discovery processes, provide equipment and materials, instruction, and personal protective equipment. Prior experience in construction or equipment use is not necessary to complete this project. Each student will be assigned to **one of four groups**. Each group has an assigned date and time to be on the project site. Each group will consist of 4- 5 students. Team collaboration, active listening, and following safety procedures will be crucial to ensure a successful outcome.

Students are expected to **arrive on time to the project site** as assigned and stay throughout their shift. **Drinks and lunch will be provided**, and breaks are encouraged. Students are required to **wear long pants and appropriate closed-toe shoes** (runners are fine; no sandals or Crocs). **Hats** are beneficial and those who have allergies or asthma may wish to bring a N95 or N100 mask. There will be a **portalet onsite**.

FIELD WORK SCHEDULE

Project Site: [...]

WEEKEND #1	SATURDAY (October 22)		SUNDAY (October 23)	
SHIFT 1 8am – 12pm	Group A	Demo base cabinets + counter; plumbing; kitchen subfloor under cabinets; drywall repair	Group C	Set cabinets Set countertops (2 sections)
12pm – 1pm	<i>Lunch and drinks provided</i>		<i>Lunch and drinks provided</i>	
SHIFT 2 1pm – 4pm	Group B	Repair subfloor under cabinets, drywall repair behind cabinets	Group D	Template + cut-out sink, set sink, plumbing connections

Project Site: [...]

WEEKEND #2	SATURDAY (November 05)		SUNDAY (November 06)	
SHIFT 1 8am-12pm	Group A	Patch subfloor in kitchen, dining, and hallway; cabinet painting	Group C	Install vinyl plank flooring kitchen and dining area; install cabinet hardware
12pm – 1pm	<i>Lunch and drinks provided</i>		<i>Lunch and drinks provided</i>	
SHIFT 2 1pm-4pm	Group B	Patch subfloor in kitchen, dining, and hallway; cabinet painting	Group D	Install vinyl plank flooring kitchen and dining area; install cabinet hardware

Developing Advocacy through a Critical Service-Learning Project
Project Description



Figure 1: Existing project conditions.



Figure 2: Proposed project perspective.

Difficult Dialogues and the Design Studio: Examining a pedagogy to explore the place of race in the interior design studio

Asha Kutty, UNC, Greensboro

ABSTRACT

This paper explores the importance of engaging in challenging conversations surrounding race in the interior design educational settings. With a focus on issues of racial reconciliation, truth telling and healing, the paper explores the place of open dialogue, critical pedagogy and interdisciplinary teaching and learning, in the design studio. Using a case study of a third-year design studio focused on creating a museum to showcase the life and death of a lynch victim, along with its continuing community outreach, the paper highlights the significance of creating inclusive spaces in the classroom and beyond where students can engage in difficult dialogues and explore the place of interior design concerning social justice issues. The paper discusses the role Beverly Daniel Tatum's (1997) racial identity framework in approaching interior design education and suggests incorporating this lens with the aim of creating the next generation in the interior design work force who fosters active engagement to bring about societal transformation.

Systemic and structural inequities have long persisted within interior design education, contributing to a lack of diversity in student and faculty representation, and a lack of curriculum content that considers histories and cultures of non- Eurocentric groups. However, there has recently been a growing body of work that has shed light on the urgent requirement for change in the status quo and is contributing to a growing shift in the myopic lens of interior design education. These studies emphasize the transformation of design education to recognize the presence of diverse audiences with varying life experiences. This shift underscores the importance of fostering emotional growth in students and nurturing essential soft skills like empathy, acceptance, collaboration, and effective communication.

This paper adds to this growing and important body of work. In particular, it explores the place of challenging conversations around racial injustice and racial reconciliation in the interior design studio. The reluctance to engage with discussions about race is fairly extensive in academia, where professors have up until the recent past, tended to shy away from these conversations. bell hooks (2003) notes, "teachers are often among the group most reluctant to acknowledge the extent to which white-supremacist thinking informs every aspect of our culture including the way we learn, the content of what we learn, and the manner in which we are taught". (p. 25). This resistance is sometimes rooted in

personal discomfort or is justified under the guise of objectivity for a 'professional' arts field such as interior design.

Nevertheless, this paper suggests that such dialogues are essential in interior design education, where graduates are eventually situated within systems of privilege and oppression upon entering the profession and play a role in either challenging or perpetuating them. The paper elaborates on the interdisciplinary collaboration that facilitated the pedagogical outcomes, assignments lectures and dialogues that happened during the course of the semester, and the beyond-classroom activities that the students were involved in, such as exhibiting their work in a civil rights museum. It examines themes from student interviews that were held after the semester, about their learning journeys and their experiences of taking deep-dives into discussions centered on race. It concludes with a look into the education systems in place that facilitated the project, such as the Black Studies program involved in collaboration, the university's core values and internal funding grants that supported the collaboration. The paper stresses the need for such systems to be in place in order to continue bringing about meaningful dialogues on race in the interior design studio and programs.

REFERENCES

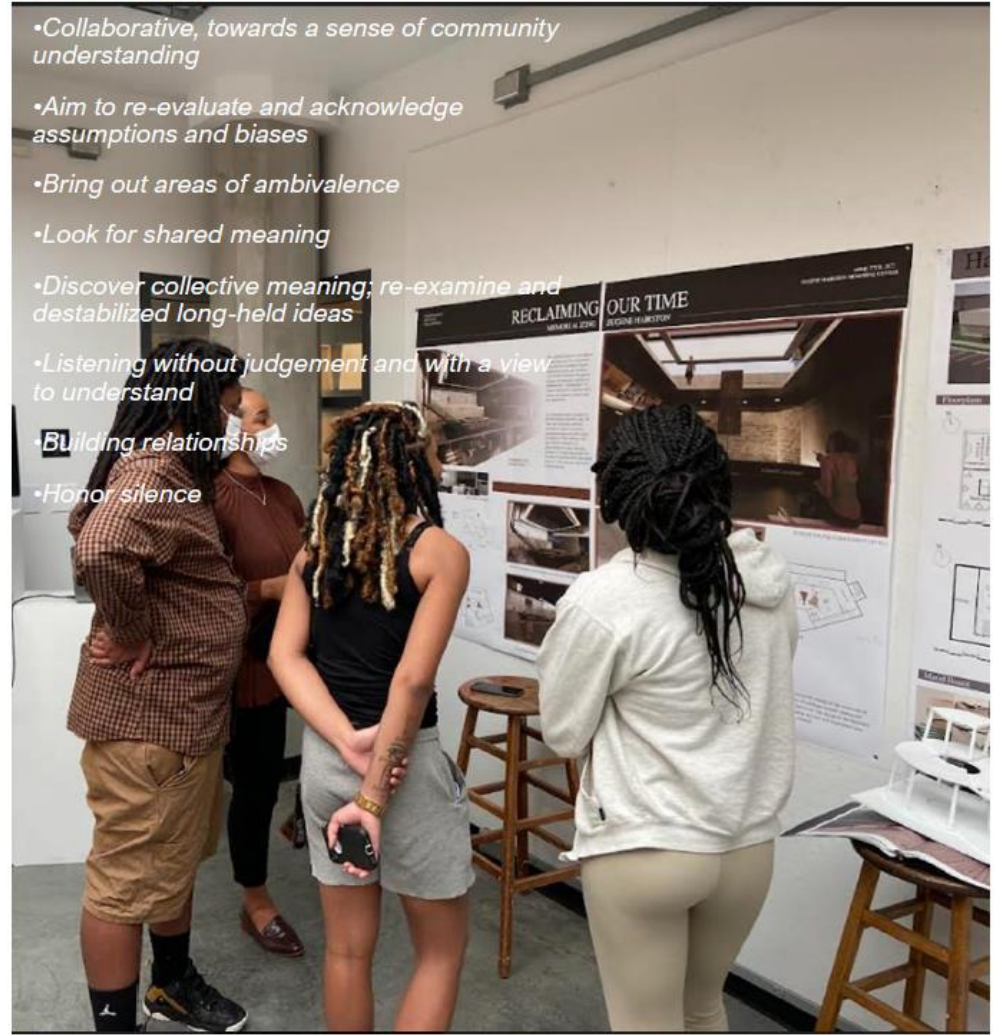
Tatum, Beverly Daniel. *Why Are All the Black Kids Sitting Together in the Cafeteria? And Other Conversations About Race*. New York: Basic Books, 1997.

hooks, b. (2003). *Teaching community: A pedagogy of hope*. New York, NY: Routledge.



DIALOGUE

- Collaborative, towards a sense of community understanding
- Aim to re-evaluate and acknowledge assumptions and biases
- Bring out areas of ambivalence
- Look for shared meaning
- Discover collective meaning; re-examine and destabilized long-held ideas
- Listening without judgement and with a view to understand
- Building relationships
- Honor silence





Free, at last.

A Japanese garden for Eugene's memorial. Japanese gardens are designed to evoke tranquility, and self-reflection. They are intended to be meditative, where one can gaze upon the textures and colors of rocks, foliage, water and sand and peacefully be in touch with one's presence in space. In this Japanese garden, Eugene's memorial and the brass statues of his mother and sister are placed within a serene, textured context, typical of Japanese gardens. The visitor upon entering the garden, becomes a part of this silent trio. Each visitor will have their unique experience of coming into touch with the presence/absence of Eugene, his mother and his sister.

Lucky for them that they have the privilege to feel sad and then avoid things

There's conflict in the department-the topic among my peers, made them uncomfortable. I want to strive for something like this to be mandatory, because it will do nothing but make the environment better. It will push people to feel uncomfortable, but eventually they will be more comfortable. That really upset me as to why people didn't take the class. I don't think that's a reasonable explanation as to why you didn't take the class

I think its humbling and embarrassing. I just thought that I saw racism like everyone lese did. So, I was asking the other students. What is it like for you to hear these stories? What is It like for you to hear these lectures? because was like my face was red, this is horrible. And she was like I am pretty numb to it at this point.

And so, I think that was very eye opening. Yeah that was a big bias on my part. I also realized that as a girl, when you go to a gas station, you don't look at anyone, but then again, I don't have to worry about so many other things.

I think im just starting to see things in a different way that I never ever seen before.

It was unfortunate, we were having this really, really deep discussion with Dr. Barnes, and the people in the other studio section had no idea, had no idea What we were talking about. I felt that everybody in the building needed to be in that space. It was something about that ..disconnection between people on the other side of the wall. It really bothered me.

END OF SEMESTER STUDENT INTERVIEWS



THE DIALOGUE OF LYNCHING WILL CONTINUE

Engaging Student Voices: A Five Year Exploration from the Student Perspective of the Higher Education Learning Ecosystem

Rebekah Matheny, The Ohio State University

Stephanie Orr, The Ohio State University

ABSTRACT

As one of the country's largest Universities, 60,000+ students form a distinct community dedicated to the pursuit of knowledge and the cultivation of a diverse body of leaders. The University's physical places serve multiple functions: social, learning, working, or living, and the intersection of the four, or third places (Wyckoff, 2014). Third places, defined as social spaces that are neutral with few formal obligations, have regular participants but welcome newcomers, have become the new norm for working (Oldenburg, 1999). A recent study showed most workers do not want to choose either the office or home, rather choosing a hybrid model to foster balance, well-being, innovation, and a community of belonging (McLaurin, 2021). Gensler's 2022 Education Engagement Index reported that 49% of students prefer to learn in a hybrid model, noting the main reason students come and stay on campus is to socialize and work with classmates. Supporting these findings, this University's research reported 73% of students learn best in-person and 69% stated third places such as libraries, lobbies, cafes, and labs were where they spend the majority of their outside-of-class time. These places support well-being, providing chance encounters, classroom break-out spaces, collaboration areas, individual working alongside others, and relaxation spaces (Gensler, 2022). By engaging students in the design of these places, design can positively impact the culture and community of higher education settings (Marshall, 2023). Realizing this need to design WITH, rather than FOR, the students, the University's Learning and Collaborative Environments group partnered with an interior design professor to engage students in creating spaces that meet their needs.

Over five years, advanced interior design students did precisely that. Through participatory design research, student teams engaged various stakeholders, identifying existing pain points, current needs, and envisioning the ideal future learning experience. Applying their findings, students individually created a third place design for one of six buildings identified by the Campus partner. Their design needed to address the research above along with insights from the sponsoring furniture manufacturer. The design goals of the project were to foster a community of belonging, support well-being, facilitate collaboration, encourage learning beyond the classroom, and increase campus engagement. The

designs were reviewed by the furniture manufacturer and campus partner, selecting a winning project that was then implemented on campus.

Analyzing 93 student design projects over five years, recurring themes emerged, providing guiding design principles for the University. See Figures 3-6 for application of the principles in student projects.

1. A new level of universal design is needed to design space for all, creating a sense of belonging, inclusion, and equality and including Introverted, extroverted, and neurodivergent learning/working behaviors.
2. Environments should promote physical, emotional, and social wellness through biophilia, daylighting, and visual stimulus.
3. Individual and collaborative spaces can co-mingle, creating a new together-yet-alone zone.
4. Students prioritize functional places through flexible and comfortable furniture settings/postures, artificial light variation, and acoustics.
5. Integrating art, interactive technology, and resimercial/hospitality cues creates meaningful connections between students, majors, and the University. Leverage these elements to creatively bring the University brand identity to life and design spatial storytelling moments.
6. Sustainability education can become part of spatial storytelling.
7. University branding colors often imply athletics and masculinity and should be used sparingly and strategically. Instead, consider color theory, patterns, and materials for specific behavioral outcomes such as respite, motivation, productivity, happiness, or inclusivity.

REFERENCES

Gensler. (2022). Education Engagement Index. Gensler Research Institute. Retrieved from: www.gensler.com/doc/research-education-engagement-index-2022.pdf

Marshall, A. (2023). To Foster an Engaged Student Body, Holistic Campus Design Is Key. Retrieved from: <https://www.gensler.com/blog/holistic-campus-design-to-foster-an-engaged-student-body>

McLaurin, J. (2021). 4 Emerging Patters About Hybrid Work and the Future of the Office. Retrieved from: <https://www.gensler.com/blog/4-emerging-patterns-about-hybrid-work-and-the-future-office>

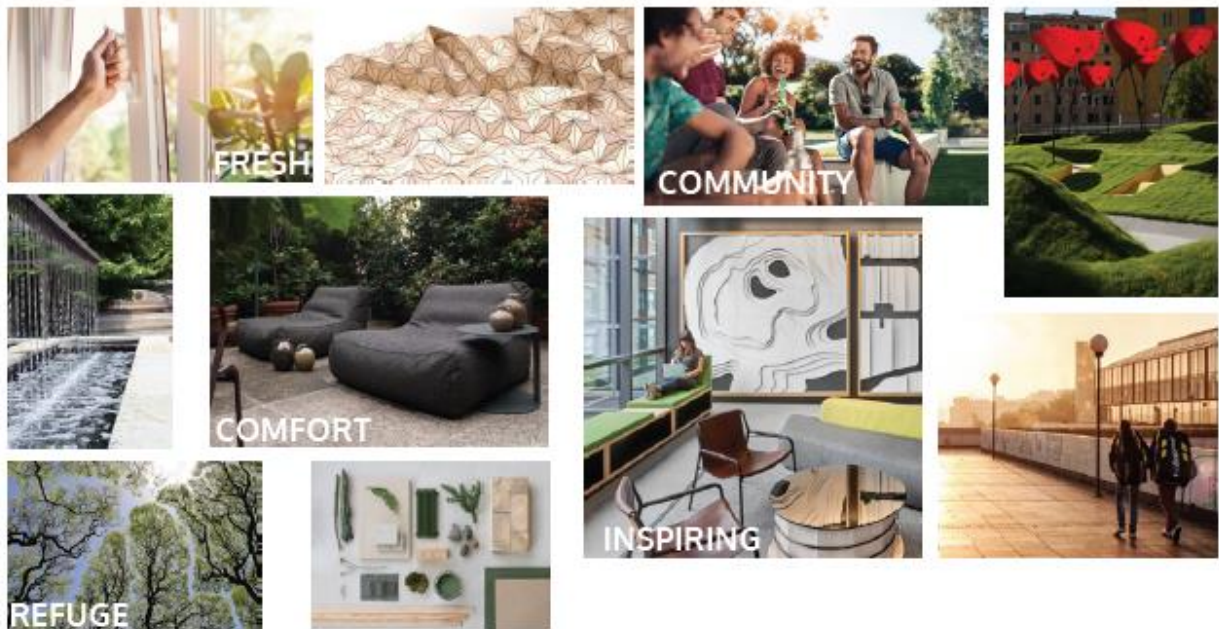
Oldenburg, R. (1999). *The Great Good Place: Cafes, Coffee Shops, Bookstores, Bars, Hair Salons, and Other Hangouts at the Heart of a Community*. Hachette Books. ISBN 0786752416

Engaging Student Voices

Figure 1. Example of co-design research outcomes: Word cloud of needs to cultivate learning environments for a diverse body of leaders.



Figure 2. Example of co-design research outcomes: Collective visioning the future campus ecosystem experience.



Engaging Student Voices

Figure 3. Conceptual design for the first floor lobby in the Journalism Building. This project is currently under construction with an opening date 2024. This project won the IIDA chapter student design award in 2022.



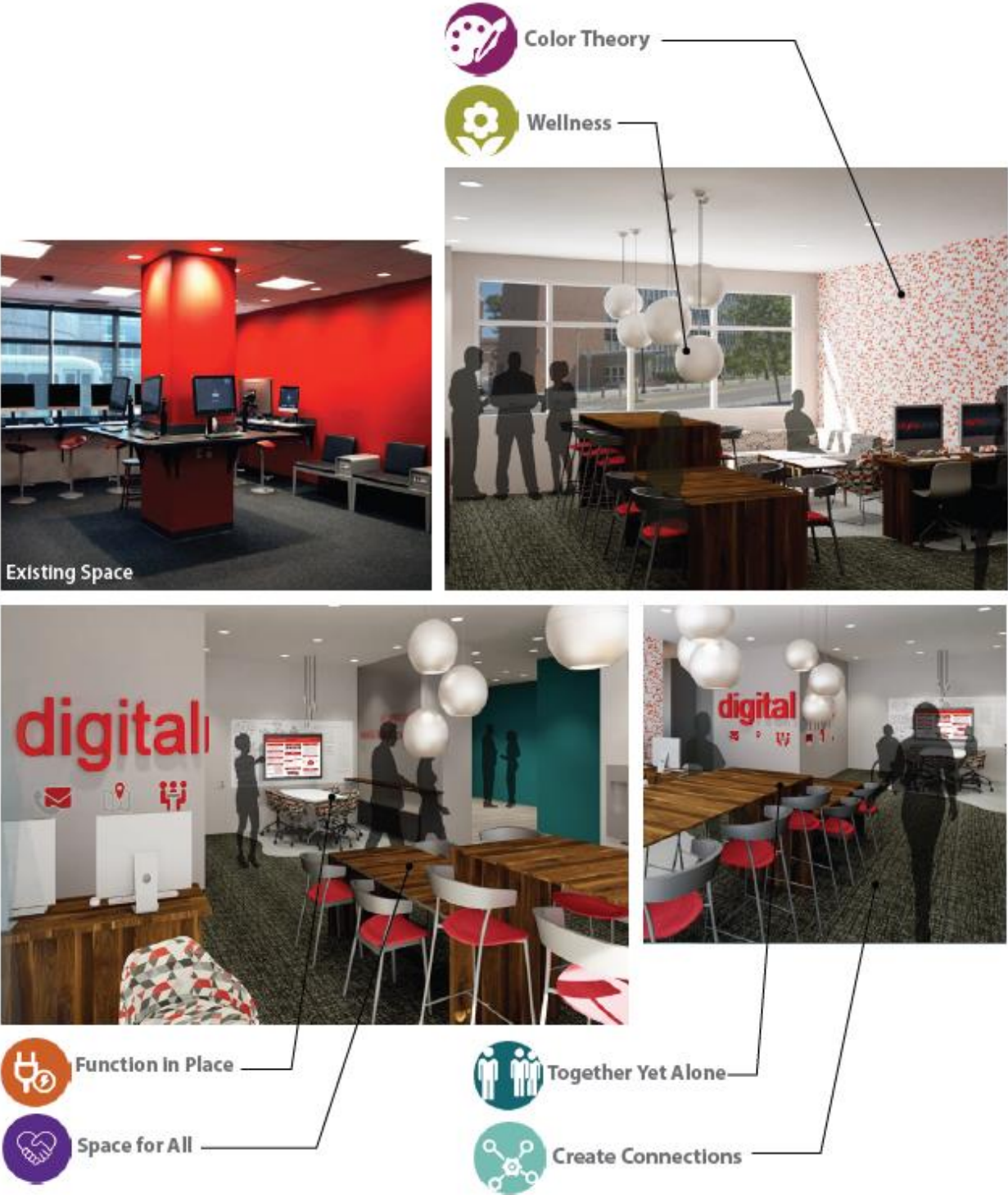
Engaging Student Voices

Figure 5. Conceptual design for the second floor hallway in Denny Hall implementing fractal design research.



Engaging Student Voices

Figure 6. Conceptual design for the Open Access Digital Union in Stillman Hall.



Enhancing Student Learning Through Industry Connections in Tiny House Furniture Design

Maria Delgado, Colorado State University

ABSTRACT

Relevance

The concept that real-life experiences foster meaningful learning is well-documented in pedagogical literature (Dewey, 1986). Dewey advocated for hands-on learning approaches that prioritize problem-solving and critical thinking. The significance of his work underlies the Experiential Learning Theory (ELT). Kolb emphasized the importance of real-life experiences for effective learning and proposed a four-stage model that begins with direct experiential learning. ELT has been widely adopted by educators in higher education as a framework for college courses (Kolb, A., & Kolb, D.).

Specifically, in the fields of architecture and interior design, opportunities such as access to digital fabrication labs, participation in live projects, and field trips provide pedagogical benefits. These experiences promote creative thinking and experimental methods, offering students real-life opportunities for problem-solving and critical analysis while accommodating various learning style preferences (Rodriguez, C., 2018; Thakur, A., & Cai, Y., 2018).

In transdisciplinary courses that include both interior design students and those from outside design fields, it is especially important to be mindful of various learning styles. Additionally, in digital fabrication lab-based environments, students acquire new machinery skills and enhance model-making abilities (Celani, 2012). This course effectively leveraged the lab environment and industry connections across Kolb's four stages of learning to cater to diverse learning styles. Industry connections play a pivotal role in hands-on learning, and the synergy of hands-on approaches with industry connections in transdisciplinary programs enhances meaningful learning and compounds the experiential learning impact.

Issue

The Tiny House on Wheels (THOW) project is a transdisciplinary, multi-grade level course that tasks students with designing and constructing a THOW, including the furniture design. When teaching this course, it is crucial to acknowledge that each student possesses varying levels of expertise. Integrating

field trips and out-of-classroom experiences that illuminate the entire process, from conception to completion, can be highly effective in communicating processes with precision.

Context

The objective was to provide students with impactful industry connections that could inform their furniture design project.

Methods

Teachers organized industry field trips to a cabinet maker. During the trip, students visited the showroom, where they had the opportunity to witness advanced technologies and the final products. Following the showroom visit, the class embarked on a behind-the-scenes shop tour. This tour allowed students to observe the fine cabinetry process from start to finish. They were introduced to a lean construction method, where casework construction is compartmentalized, spanning from woodwork, forming, parts assembly, sanding, painting, to final assembly, packaging, and shipping.

Students also gained insight into the quality assurance process.

Outcomes

The students applied their newfound knowledge by designing their custom furniture. The class was divided into four interior furniture groups: the Murphy bed team, kitchen cabinetry west wall, kitchen cabinetry east wall, and bathroom storage. The designs were created using Revit or SketchUp software, incorporating processes observed during the field trip, such as parallel construction methods, lean construction assembly line techniques, and quality assurance principles.

Significance

This work holds significant value as industry connections are instrumental in shaping students' skills and future opportunities. Such connections enhance students' design abilities, inspire future career prospects, and enable them to market themselves effectively, among other benefits. Design-build projects that integrate industry connections foster memorable learning experiences.

REFERENCES

- Celani, G. (2012). Digital Fabrication Laboratories: Pedagogy and Impacts on Architectural Education. In K. Williams (Ed.), *Digital Fabrication* (Nexus Network Journal). Birkhäuser. https://doi.org/10.1007/978-3-0348-0582-7_6
- Dewey, J. (1986, September). Experience and education. In *The educational forum* (Vol. 50, No. 3, pp. 241-252). Taylor & Francis Group.
- Kolb, A. Y., & Kolb, D. A. (2017). Experiential Learning Theory as a Guide for Experiential Educators in Higher Education. *Experiential Learning & Teaching in Higher Education*, 1(1), Article 7. <https://nsuworks.nova.edu/elthe/vol1/iss1/7>
- Rodriguez, C. M. (2018). A Method for Experiential Learning and Significant Learning in Architectural Education via Live Projects. *Arts and Humanities in Higher Education*, 17(3), 279–304. <https://doi.org/10.1177/1474022217711878>

Appendix

Image 1: Students attend the cabinetry field trip.



Image 2-4: Students design in the computer lab.



Image 5-8: Students utilize the fabrication lab resources to construct the furniture design.



Image 9-11: Student murphy bed/couch system pre-final product.*



Image 12-13: Student kitchen countertop/workspace system pre-final product.*



Image 15-16: Student bathroom built-in cabinet storage system pre-final product.*



Image 17: Home exterior night view



**The home is currently under construction and will be completed in the coming weeks to display at Homecoming to the public.*

Expanding Cultural Awareness in Interior Design Education utilizing the Dubai, UAE Building Codes

Selena Nawrocki, Valdosta State University

ABSTRACT

Expanding Cultural Awareness in Interior Design Education utilizing the Dubai, UAE Building Codes

Higher education institutions in the U.S. actively encourage the development of courses with content that includes global awareness and internationalization. CIDA Standard 4 – Global Content addresses definitions of culture relating to design and how culture might evolve in the future. Faculty in interior design programs are challenged to move beyond teaching about other cultures to facilitating student research of what culture means within specific contexts and how such meanings come to be defined. Instilling interior design students with a feeling of empowerment to take responsibility and gain knowledge surrounding diverse people and customs may well advance the disciplinary discourse around culture. (Hadjiyanni, 2013). CIDA Standard 16 – Regulations and Guidelines addresses the interior designers' role in protecting the health, safety, and welfare of building occupants. Therefore, the purpose of this project is to present examples of interior design work located in Dubai, UAE with the primary objective of utilizing building codes from this country to increase cultural awareness of undergraduate students majoring in Interior Design.

Dubai has become known for its architectural wonders, and as such, the Dubai Municipality has put in place strict building codes to ensure that these structures are safe, sustainable, and aesthetically pleasing. The Dubai building code is a comprehensive set of regulations that covers everything from design and construction to operation and maintenance of buildings.

The objective of the Dubai Building Code (DBC) is to unify building design across Dubai, and to create a building code that is easy to use and clearly mandates the minimum requirements for: a) the health, safety, welfare and convenience of people in and around buildings; b) the health, safety, welfare and convenience of people who might be affected by buildings; c) building design to reduce the impact on the surrounding environment; and d) the sustainable development of buildings.

The purpose of the Dubai Universal Design Code is to define how the built environment and transportation systems in the Emirate shall be designed, constructed and managed to enable one to approach, enter, use, egress from and evacuate independently, in an equitable and dignified manner, to the greatest extent possible, in line with the Universal Design concept. The UAE now presents itself as a central hub for commercial, industrial, residential and tourism developments involving high density of

population and activities. The dreams and aspiration of the UAE government and community call for a high level of expertise in planning architectural, engineering and construction work which unconditionally must collaborate with an elevated standard of Life and Fire Safety to ensure the protection of precious life and property.

For this hotel project, students are referencing the Dubai Building Code, the Dubai Universal Design Code, and the UAE Fire Code focusing on life safety. Students are required to document elements on their life safety plans which include identifying occupancy type and load, travel distances to the nearest exit, main and secondary exits, fire extinguisher locations, visual and audible alarms, manual call points, smoke detectors, smoke control system, standpipes, and fire rated walls. As a result of this assignment, students have the opportunity to improve the safety and comfort features of their design with the implementation of universal design and building codes.

REFERENCES

Roehl, A., Reddy-Linga, S., Kucko, J., & Prestwood, L. (2013). The Importance of Teaching Cultural Awareness in Design Education: Evidence from Interior Design. *Global Journal of Human Social Science*, 13(12), 39-45.

Hadjiyanni, T. (2013). Rethinking Culture in Interior Design Pedagogy: The Potential Beyond CIDA Standard 2g. *Journal of Interior Design*, 38(3), v-xii.

Government of Dubai. (n.d.). Dubai Universal Design Code. Retrieved from <https://www.dha.gov.ae/uploads/112021/2b372137-cade-4be0-88a2-4828fac05deb.pdf>

Government of Dubai. (2021). Dubai Building Code. Retrieved from https://dm.gov.ae/wp-content/uploads/2021/12/Dubai%20Building%20Code_English_2021%20Edition_compressed.pdf

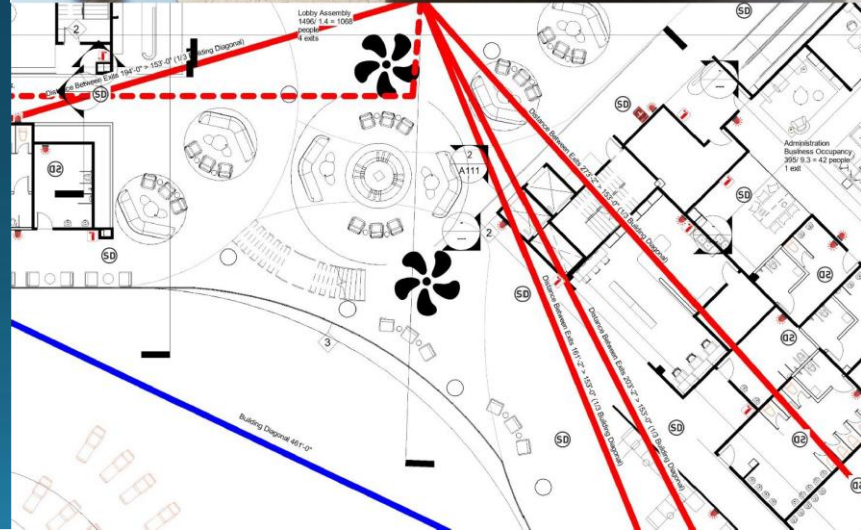
Project: Hotel Design

Life Safety Plan – identification of life safety features using the Dubai Building Code, Dubai Universal Design Code, and the UAE Fire Code

Duplicate Furniture Plan, place the following life safety elements and code information on floor plan:

- Label **Occupancy Type** and **Load** for all spaces
- **Exit Access Travel Distances**
- **Main and Secondary Exits**
- **Fire Extinguisher** locations –
- **Sprinkler** locations (on RCP)
- **Visual and Audible Alarms** – p. 294 UAE Fire Code
 - 15 decibels (dBA) above the ambient sound or 5 dBA above the maximum sound level
- **Manual Call Points** (pull stations)
- **Smoke Detectors**
- **Smoke Control System** in Atrium
- **Standpipes** in Egress stairway shafts
- **3 Hour Fire Walls** (compartmentalization) – (Annotate – Tag by Category)
- **2 Hour Fire Walls** – (compartmentalization) – (Annotate – Tag by Category)
- **1 Hour Fire Walls** – (compartmentalization) – (Annotate – Tag by Category)

* see handout for ratings



Occupancy Types

- Hotels are classified as R1 (Transient Residential) which applies to the guest rooms.
- Hotels are Mixed Occupancy types – mainly Assembly and Business.
- Lobby Space (Assembly – Less concentrated) 1.4 m2/ Net area
- Restaurant, Coffee Shop, Lobby Bar (Assembly – Less concentrated) 1.4 m2/ Net area
- Administrative Offices (Business Office – enclosed offices, low concentration) 9.3 m2/ Gross area
- Conference/ Banquet Rms (including conference in administration and business centers) - Assembly – Conference rooms, meeting rooms) 1.4 m2/ Net area
- Fitness Center – Assembly (Exercise room – with equipment)– 4.6 m2/ Gross area
- Commercial Kitchen (Assembly) – 9.3 m2/ Gross area

B.5.1 Occupant loads

Occupant load factors shall be determined in accordance with Table B.2.

Occupancy	Use	Occupant load factor (m ² per person unless otherwise stated)	Area used for calculation
Assembly	Concentrated – ballrooms, multipurpose-assembly halls	0.65	Net area
	Mosques, prayer halls and prayer rooms	0.9 for prayer area	Net area
	Less concentrated – outdoor buildings, restaurants, dining areas, seated waiting areas	1.4	Net area
	Conference rooms, meeting rooms	1.4	Net area
	Exhibition halls, production studios	1.4	Net area
	Bench seating	455 mm linear	Net area
	Fixed seating spaces (cinemas, theatres and similar)	According to number of fixed seats provided	Net area
	Waiting areas – standing	0.65	Net area
	Kitchens (e.g. in restaurants, not private residential)	9.3	GA
	Library – reading areas	4.6	Net area
Library – stack areas	9.3	GA	

Table B.2 Occupant load factor per person

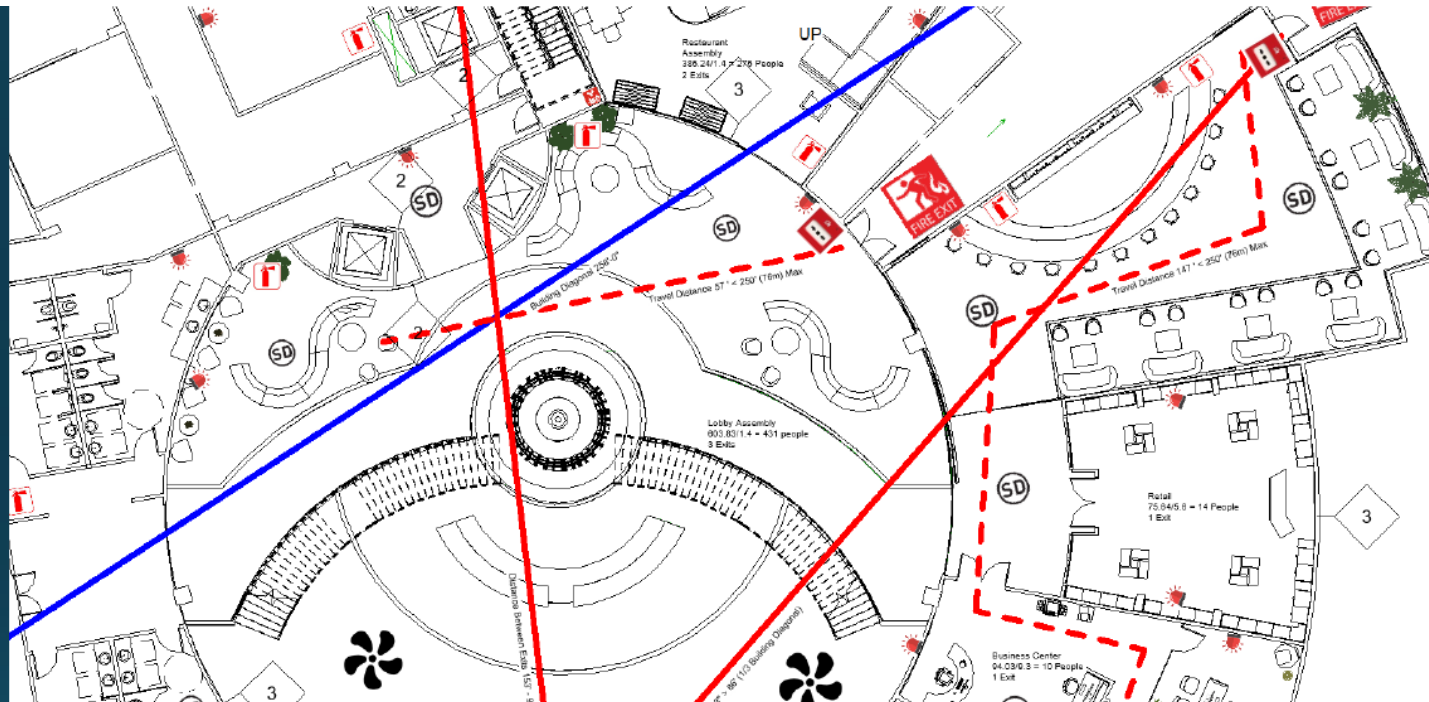
Occupancy	Use	Occupant load factor (m ² per person unless otherwise stated)	Area used for calculation
Assembly	Swimming pools – water surface	4.6	GA
	Swimming pools – deck	2.8	GA
	Exercise room – without equipment	1.4	GA
	Exercise room – with equipment	4.6	GA
	Stages	1.4	Net area
	Gaming, amusement arcades	1.0	GA
	Skating rinks	4.6	GA
	Food courts – seating areas	1.4	Net area
	Airport waiting areas	1.4	GA
	Airport baggage claim	1.9	GA
Art galleries, museums	5.0	GA	
Business	Office – enclosed offices, low concentration	9.3	GA
	Office – open offices, high concentration	4.6	GA

Occupancy	Use	Occupant load factor (m ² per person unless otherwise stated)	Area used for calculation
Retail	Retail shops	5.6	GA
	Department stores, multi-level retail	3.7	GA
	Floors used for goods not accessed by public	27.9	GA
Mall	Mall – less than 14,000 m ² in area	2.8	Gross leasable area in accordance with UAE FLSC [Ref. B.1]
	Mall – more than 14,000 m ² in area	3.3	Gross leasable area in accordance with UAE FLSC [Ref. B.1]
Industrial	Factories	9.3	GA
Storage	Warehouse	27.9	GA
Educational	Classrooms	1.9	Net area
	Laboratories, vocational	4.6	Net area
Residential	Accommodation, shared sleeping spaces	5.0	Net area
	Labour accommodation – sleeping spaces	3.7	Net area
Healthcare		Refer to DHA regulations and guidelines [Ref. B.3 to Ref. B.18]	

Table B.2 Occupant load factor per person (continued)

Source: Dubai Building Code

Occupancy Loads



Noted with

- Occupancy type
- Sq. m. divided by occupant load
- Number of exits required

Table 3.7: Number and width of exits

NO OF OCCUPANTS	MIN NO OF DOORS	MINIMUM WIDTH OF AISLES
50 - 200	2	1120
201-500	2	1120
501-1000	3	1220
>1000 to 2000	4	1220

Source: UAE Fire Code

5.19. Accessible toilet stalls

Accessible toilet stalls can be located both inside the toilet blocks provided for each gender or outside the blocks.

Family toilets should be located outside of the block of toilets.

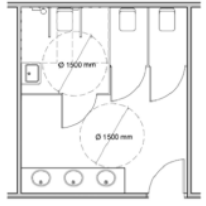
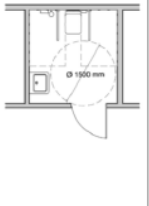
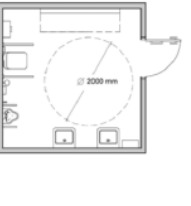
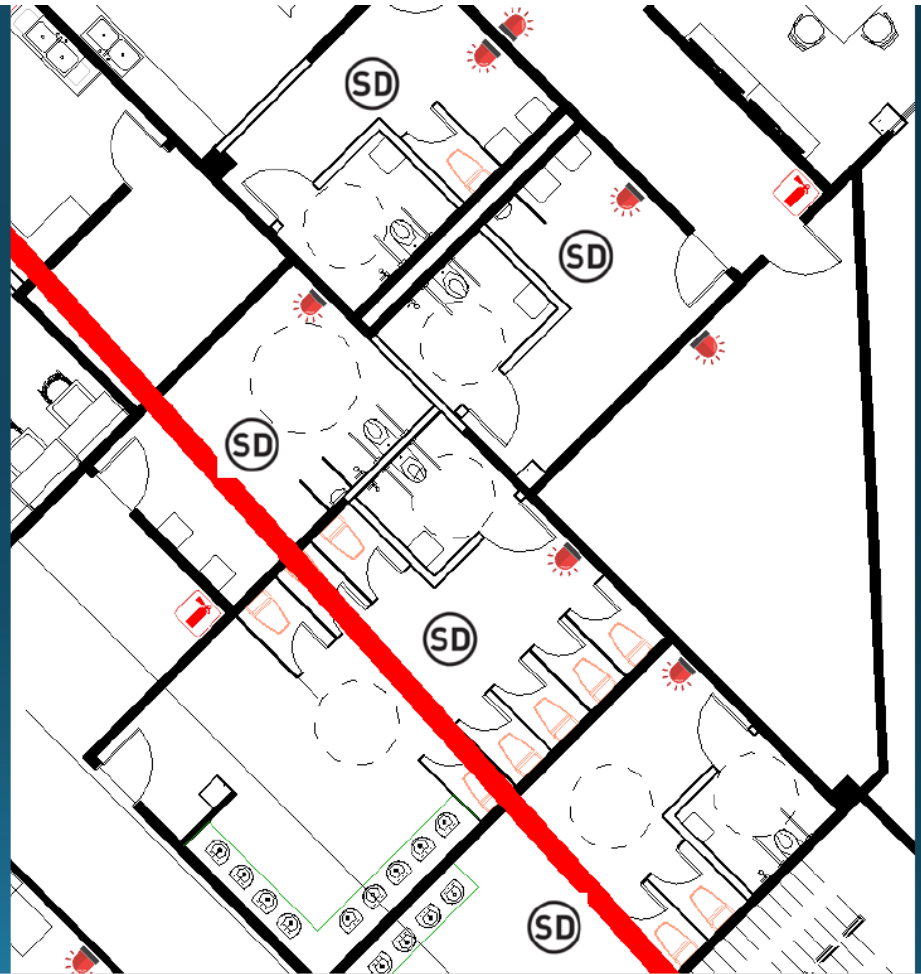
Types of toilets		
		
Accessible toilet within a toilet block	Detached accessible toilet that can be used as family toilet in certain building types	Full Family Toilet

Table 6. Types of toilets

Source: Dubai Building Code



Scholarship of Teaching and Learning | Presentation

Exploring LGBTQ+ Identity and Design in a Student-Led Exhibition Project: Lessons from a Collaboration on the Stonewall National Monument Visitors Center

Cotter Christian, Parsons School of Design

Alfred Zollinger, Parsons School of Design

ABSTRACT

This Scholarship of Teaching and Learning (SoTL) project examines the complex interplay between faculty and student identities in co-designing an exhibition for the new Stonewall National Monument Visitors Center in New York City.

Sponsored by Pride Live, the ambitious project involved close collaboration between three faculty members—two course instructors and one administrative liaison who provided ongoing guidance.

The resulting exhibition was designed for installation on campus and at the monument site itself. Students were challenged to integrate elements of their personal identities, experiences, and perspectives into their creative work—a process that often required courage and vulnerability. The instructors aimed to guide students through thoughtful self-reflection by modeling openness and by sharing their own relevant experiences and knowledge. For example, the two LGBTQ+ identifying instructors candidly discussed their own coming out journeys, encounters with discrimination, and connections to LGBTQ+ culture. Meanwhile, the straight-identifying instructor provided an outside perspective on the diversity within the LGBTQ+ community, describing their process of building understanding as an ally.

This identity-driven approach raised thought-provoking questions: What classroom methods can encourage students to safely and meaningfully bring their identities into the design process? How can instructors foster enough openness for creative growth while respecting student privacy and comfort levels? What are the benefits and risks of identity-based co-design?

To promote a supportive environment, the instructors established clear ground rules for mutual respect, encouraged peer-to-peer story sharing, and were mindful of the power dynamics inherent in the teacher-student relationship.

However, balancing student needs remained an ongoing challenge requiring ethical discernment.

Ultimately, the identity-focused methodology yielded an impactful exhibition that introduced Stonewall's legacy through the fresh lens of a new generation. The diversity of student backgrounds, orientations, and perspectives produced an inclusive design that confronted heteronormative conventions in creative ways. This achievement would not have been possible without the courageous vulnerability and identity engagement modeled by both students and faculty.

In presenting this project, we share lessons on helping students thoughtfully engage their identities through design:

- - Fostering a safe classroom culture of mutual respect, sharing, and reflection
- - Mindfully navigating complex teacher-student power dynamics
- - Leveraging instructor identities and experiences to build trust
- Using storytelling and reflection to deepen engagement.
- - Producing meaning by embracing identity-driven co-design
- - Navigating the benefits and risks of identity disclosure
-

REFERENCES

Page, M. L. (2016). LGBTQ Inclusion as an Outcome of Critical Pedagogy. *International Journal of Critical Pedagogy*, 7(1), 115-142.

hooks, b. (1994). *Teaching to Transgress: Education as the Practice of Freedom* (1st ed.). Routledge.

Clarke, V., & Braun, V. (2009). Editors' Introduction: Is the Personal Pedagogical? *Sexualities and Genders in the Higher Education Classroom*. *Feminism and Psychology*, 19(2), 155-156.

<https://doi.org/https://doi-org.libproxy.newschool.edu/10.1177/09593535>

Cates, R. M., Madigan, M. R., & Reitenauer, V. (2019). 'Locations of Possibility': Critical Perspectives on Partnership. *International Journal for Students as Partners*, 2(1), 33-46.

<https://doi.org/10.15173/ijasp.v2i1.33>









Fabrication and the Interior Design Studio

Nate Bicak, University of Nebraska-Lincoln

Maggie Coolidge, Clark & Enersen

ABSTRACT

INTRODUCTION

This presentation explores the strategic integration of fabrication studies into an interior design studio. This studio sought to explore and expand the roles of prototyping and fabrication for interior design students. Stakeholders for the project include third- and fourth-year interior design students and engagement partners at a local non-profit nature preserve. The renovation of a midcentury home into a Welcome Center for the nature preserve served as the catalyst for design and fabrication undertakings.

CONTEXT

To activate the Welcome Center for public functions and enhance visitor experiences, in Spring 2020 students in the University's Interior Design program participated in a community-engaged design/build studio to design and prototype exhibition, library, and lighting elements. Students worked with members of the non-profit to develop design ideas that would fulfill the non-profit's mission to provide people with lasting connections to nature. The focus of student work was on design development to the point of buildability, which included physical prototypes, construction-worthy drawings, and fabricated components. Prototypes and construction documents were developed in 2020, but the pandemic delayed the implementation of design elements on site. Fabrication work resumed in 2022 and 2023.

PROBLEM

This studio set out to illustrate to students that fabrication and customization are not activities outside of their design process, nor are they processes outside their control. The customization of design elements through fabrication can and should be seamlessly integrated into a designer's process. When fabrication thinking is integrated into a novice designer's process, it allows them to confront the production realities of conceptual work(1), gives them the ability to better communicate with fabricators and tradespeople(2), and empowers them to take ownership of fabrication processes in future work.

METHODS

The exercises and learning objectives of the course included:

1. A two-week design charette/competition for light fixture elements, which included full-scale prototypes and detail drawings (APPENDIX A). The learning objectives of this exercise were to develop design ideas within existing spatial proportions, learn how to work with readily available materials, and to develop speculative ideas into full-scale prototypes. At the conclusion of this phase, the engagement partners selected a winning light fixture to be fabricated and installed in the welcome center.
2. A ten-week, team-based design project for shelving and seating in a library space, as well as a multi-functional media and exhibition wall for a conference space (APPENDIX B). The learning objectives for this exercise were to design within spatial and technological constraints (integrating display and technology elements predetermined by the engagement partners) and to prepare a budget for construction implementation.
3. A three-week construction documentation phase in which the learning objective was to document design ideas through a comprehensive set of construction drawings (APPENDIX C).
4. The fabrication of the winning light fixture, in which the learning objective was to develop a prototyped idea into a refined finished element ready for installation (APPENDIX D).

OUTCOMES and DISCUSSION

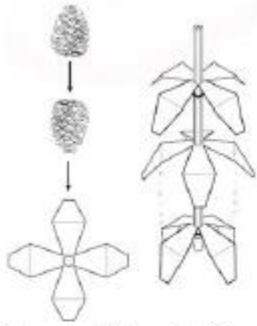
This presentation will offer discussion on the merits of fabrication activities and construction understanding for interior design students generally, and the specific pedagogy outlined above. It will also describe how these methods can aid in the communication of design intentions for a diverse audience. Project briefs, instructional materials, and student work outcomes will be presented to facilitate this dialogue. Finally, the presentation will expand on additional making, fabrication, and customization initiatives that were developed following knowledge gained from this project.

REFERENCES

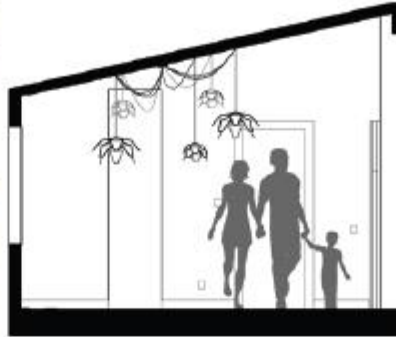
- (1) Chamel, Oliver. "Design/Build: A Relevant Pedagogy for Architecture Education." *Vitruvio: International Journal of Architectural Technology and Sustainability*, Vol 1, No 2 (2016): 52-65. <https://polipapers.upv.es/index.php/vitruvio/article/view/6773>.
- (2) Sennett, Richard. *The Craftsman*. (New Haven: Yale University Press, 2008), 289.

Appendix A

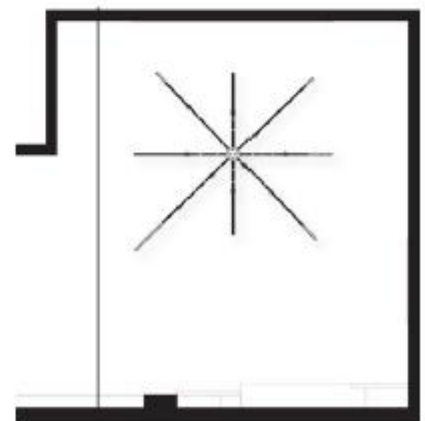
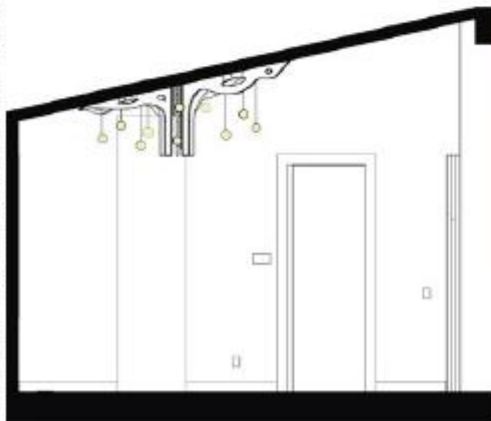
The two-week design charette/competition for light fixture elements, which included full-scale prototypes, detail drawings, and voting from the engagement partners as to which fixture should be fabricated.



Proposal Sample 1



Proposal Sample 2



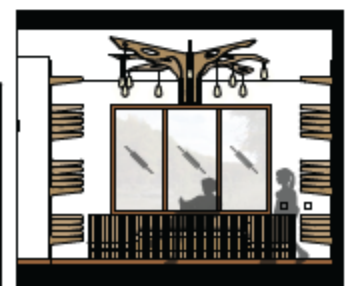
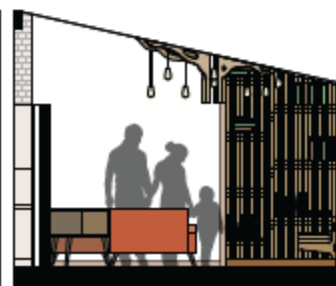
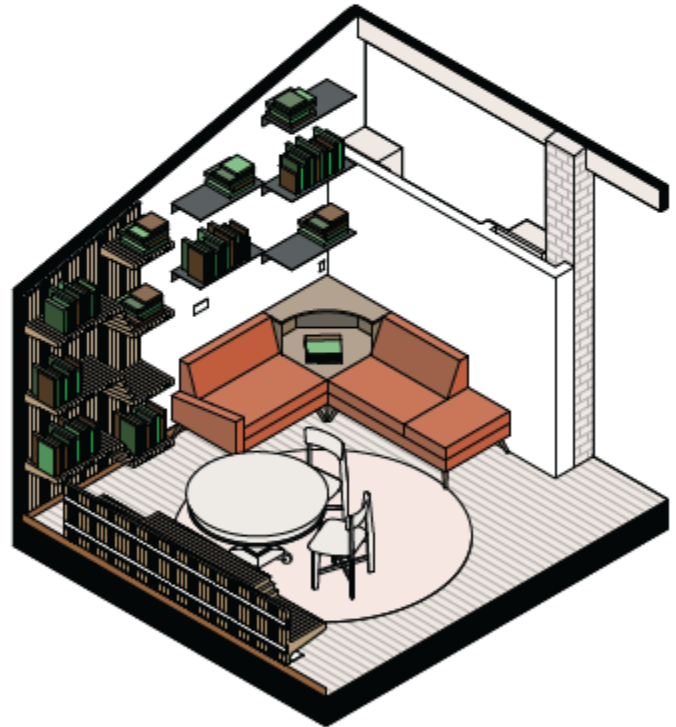
Winning Proposal

Appendix B

The ten-week design phase. Proposals for library seating and shelving, as well as a multi-functional media wall for the conference space.



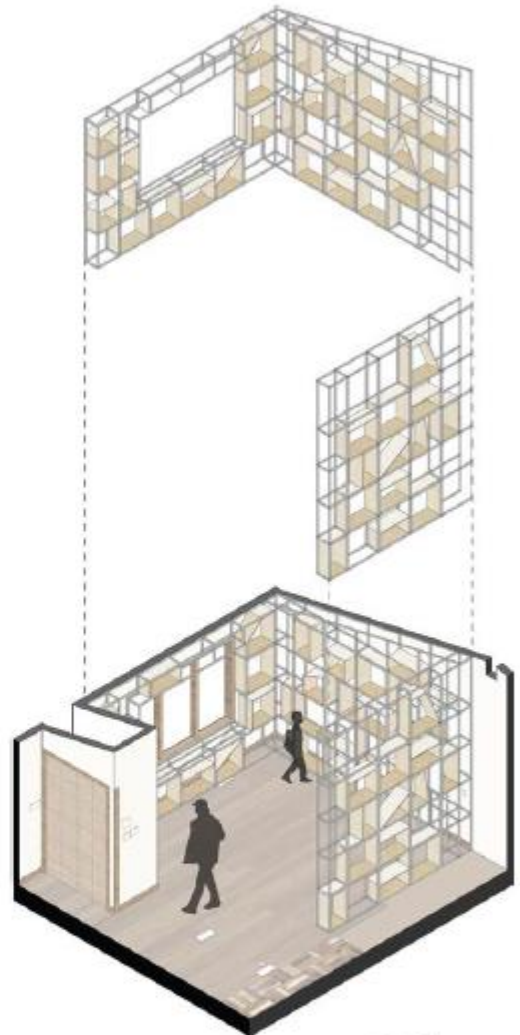
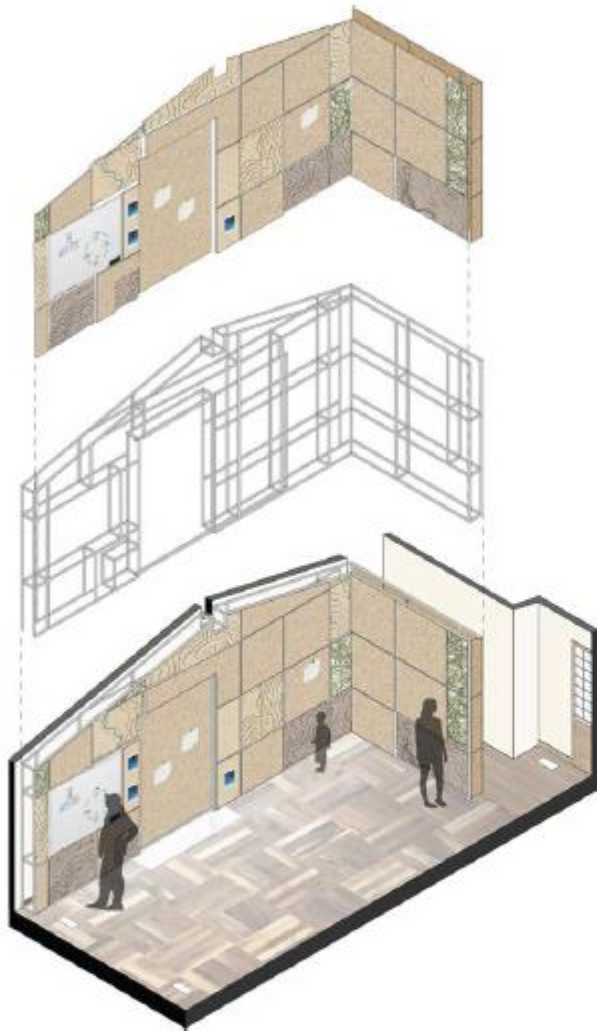
Media Wall Proposal Sample 1



Library Proposal Sample 1

Appendix B (continued)

The ten-week design phase. Proposals for library seating and shelving, as well as a multi-functional media wall for the conference space.



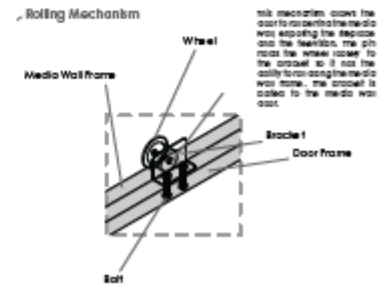
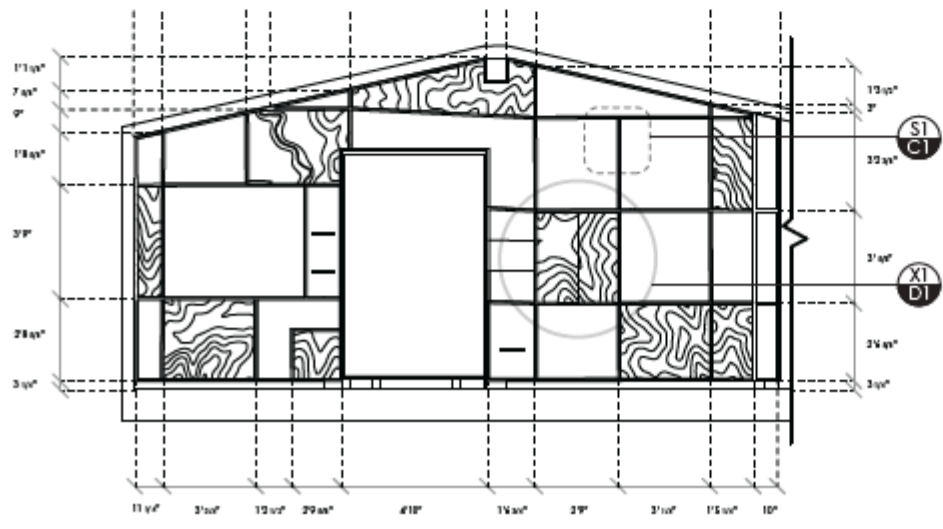
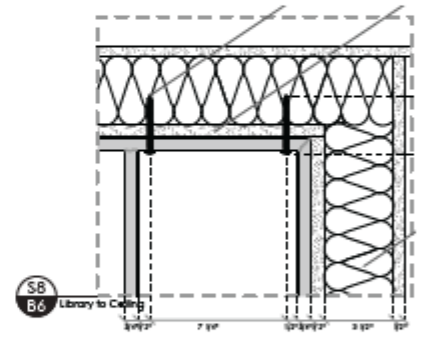
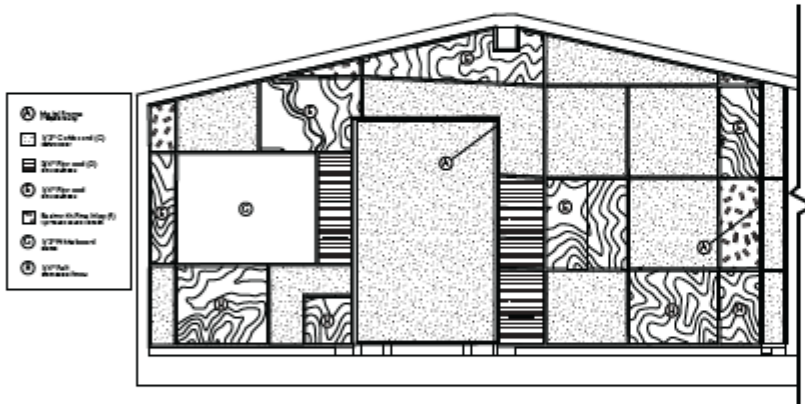
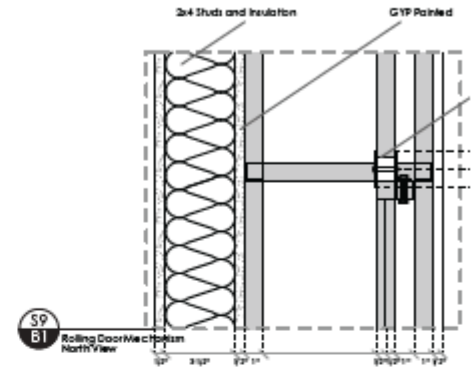
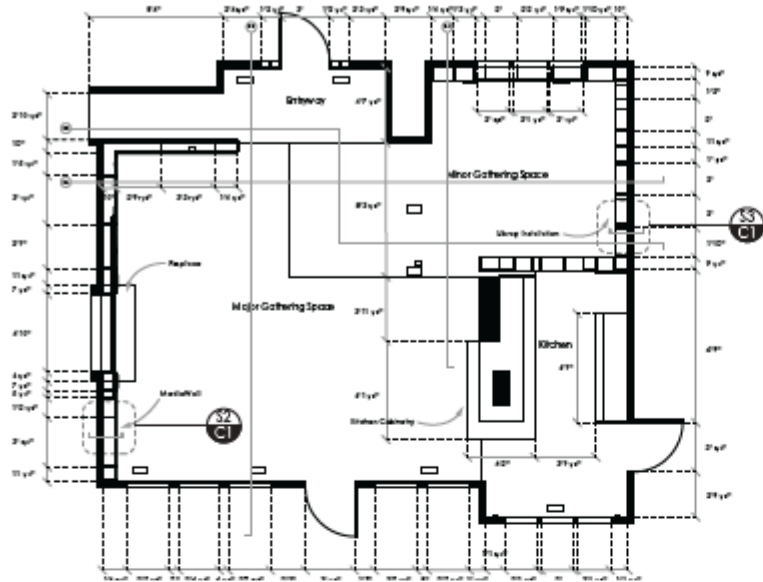
Media Wall Proposal Sample 2



Library Proposal Sample 2

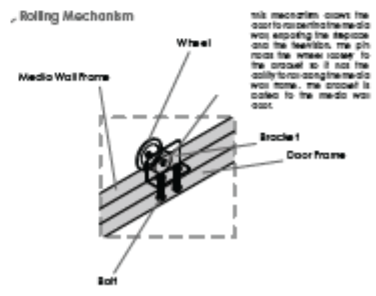
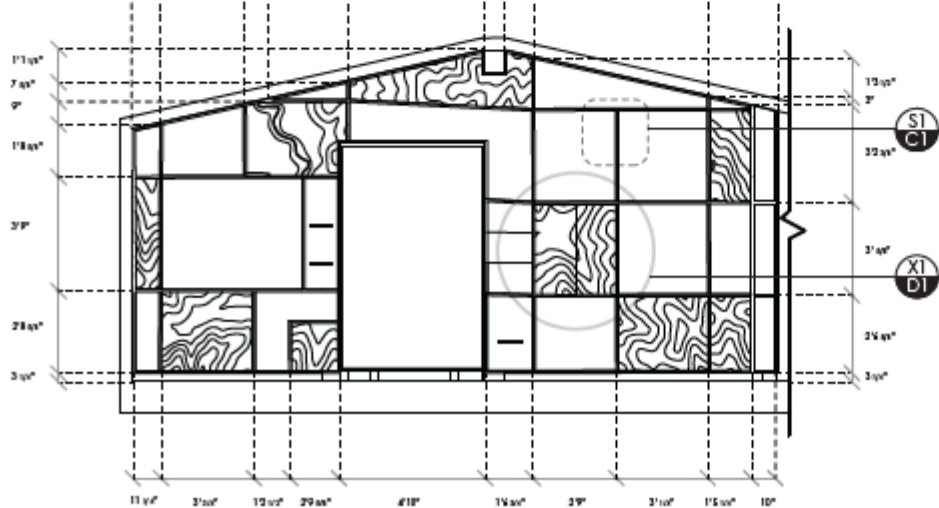
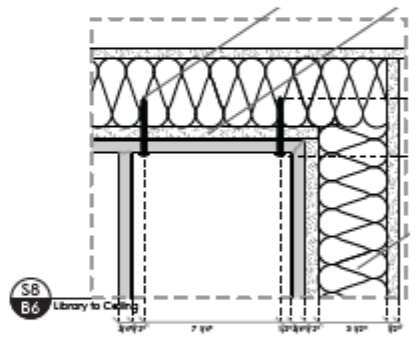
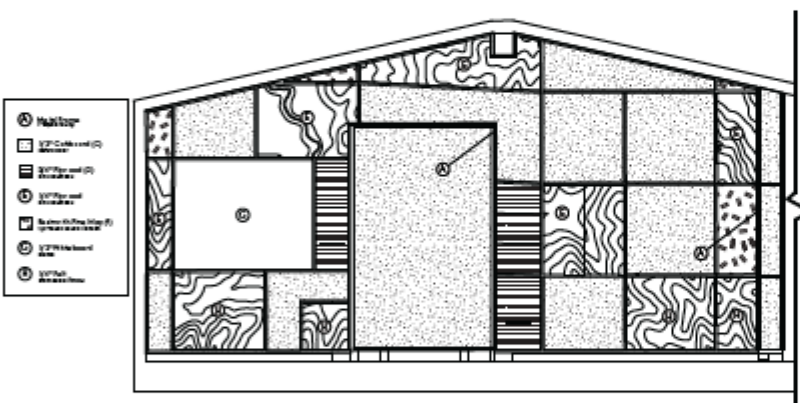
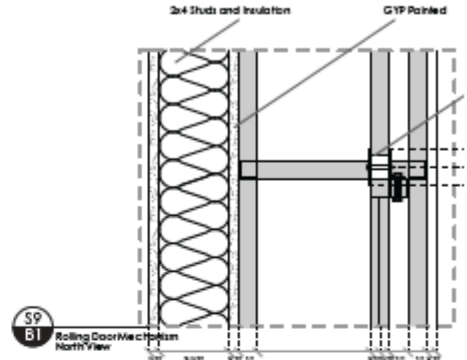
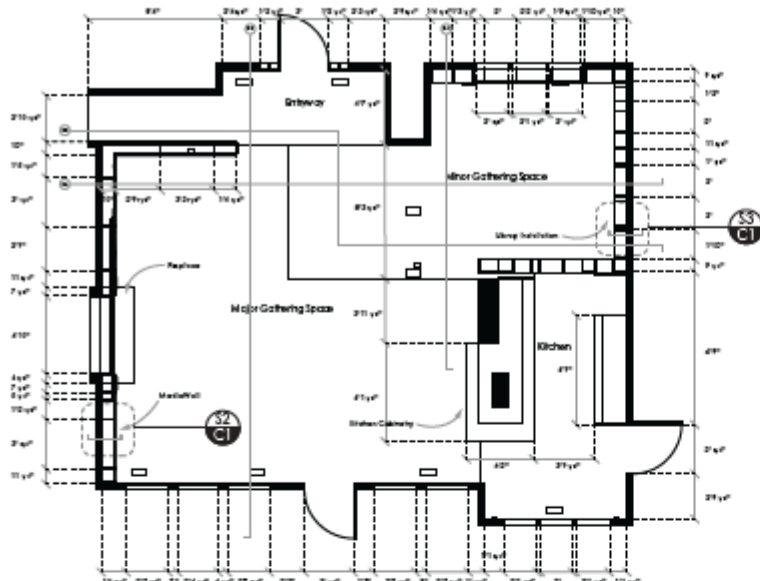
Appendix C

The three-week construction documentation phase.



Construction Document Samples

Appendix C
The three-week construction documentation phase.



Construction Document Samples

From Perspective Perception of Light to Lighting Design – A Pedagogical Research

Jun Zou, Louisiana State university

ABSTRACT

As a fundamental medium, light reveals interior spaces. As James Turrell says, "We eat light, drink it in through our skins." Light makes things visible; Turrell claims light is feelable through men's skin. Very often, students think of lighting fixtures rather than think of light first in lighting design. The luminaires are concrete objects, and yes, light comes with luminaries. However, as an invisible media, light needs attention by itself in design. It is more of a challenge to introduce light free from luminaries. So, how do we encourage students to first think of light in lighting design education before introducing luminaires? This pedagogical study makes experimental exercises to answer the question.

Light is an invisible element to grasp until it hits surfaces. As Turrell's statement talks about the sensuous experience gained from light, drawing attention to light emphasizes the perception of light. For example, daylight comes and goes and has its unique quantity and quality at different times of the day and the year. Similarly, electric light works with various materials, generates effects, and touches people. The experimental exercises are designed to introduce students to using light as a tool for creating the perception of space. Perception is defined as "a result of observation; a mental image; awareness of the elements of environment through physical sensation; physical sensation interpreted in the light of experience; quick, acute, and intuitive cognition; a capacity for comprehension." As Merleau Ponty "regards perception as a synesthetic process through the body that 'I' perceive the environment; the perceiving body is not separate from its surroundings," perception of light is to integrate light and body.

Based on the definition and Merleau Ponty's theory, a four-step project was designed to study how light is manipulated to create effects, specifically, the use of light, feel, and perception of light. The first step is carefully choosing a lighting artist's design and studying the artist's design concept (Fig. 1, 2); the second step is to re-build the selected lighting installation in a feasible size (Fig. 3, 4); the third step is experimental the physical model if it reflects the original concept or changes perception; the fourth step applies the ideas of the lighting installation to a hypothetical interior space as practical lighting design (Fig. 5, 6).

During the design process, lectures introduce students to the concepts of sensations and perceptions concerning light and the properties of light. Experimental exercises were designed to test various materials, choice of light, and ways of constructing to work with the visual system. The outcome of the exercises is significant in the second and third steps of reconstruction and experimental. Some students

had challenges selecting lighting installation at the beginning. Then, the challenges transformed into a solid understanding of light perception. Students gained unique perceptions from individual installations after carefully studying the artist's concept, especially after the re-built model was built. Students reflected that steps one to three helped them think more effectively about step four, lighting in "real" interior spaces.

The presentation of this work demonstrates a critical approach to lighting design that, on top of the quantitative perspective, qualitative lighting can enhance human-centered lighting design.

REFERENCES

Abulafia, Yaron. *The Art of Light on Stage*. Routledge Taylor & Francis Group, London and New York. 2016.

Clark, Robin. (Ed.) *Phenomenal, California Light, Space, Surface*. University of California Press, Berkeley, California. 2011.

Ponty, Merleau. *Phenomenology of Perception*, in French 1945. Translated from the French by Colin Smith, Routledge, London, New York. 1962.

Taylor, Clifton. *Color & Light*. Quite Specific Media, Los Angeles. 2019.



Figure 1: Bruce Neuman, Floating Room: Lit from Inside. 1972



Figure 2: Larry Bell, The Blue Gate. 2022



Figure 3: Student rebuilt of the Floating Room: Lit from Inside.



Figure 4: Student rebuilt of The Blue Gate



Figure 5: Student lighting design using the idea from the Floating Room: Lit from Inside



Figure 6: Student lighting design using the idea from The Blue Gate

Furnituration and Emergent Interior Design Types: A Practice-Based Research Seminar

Linda Zimmer, University of Oregon

ABSTRACT

Understanding and applying architectural and interior types is a bedrock of design practice. Ideally aspirant designers study and apply typology in the academic setting through a variety of lenses. As educators, we hope this foundation prepares them to recognize, respond to, and manipulate established and emergent types in their practice. To this end, project examines a theoretical construct (furnituration) by means of an established typological structure and database (intypes). Pairing these two gives students a means to recognize types that are persistent, identify unique/emerging types and to design with types in mind.

Furnituration, a term coined by Reynar Banham, describes the practice of fitting out architectural space with built-in and/or monolithic elements. Furnitured interiors are “created at the scale of architecture using the language of furniture design” (Cutieru). Furnitured interiors and elements (such as “social stairs”) have become ubiquitous in contemporary interiors. As such they are a fertile area for typological study.

The Intypes research and teaching project at Cornell sought to produce “a new knowledge base” by compiling a “typology of contemporary interior design practices derived from reiterative historical designs”, To do this, student researchers identified reoccurring design traits by collecting and analyzing images of published interiors. Archetypal forms identified as Intypes, were named, described using a design specific vocabulary, illustrated with descriptive images, and published as a digital database.

Using the “intypes” project as a model, students in a ten-week seminar combed on-line design publications for images of furnitured interiors and elements. Each student found five documented examples furnitured elements each week in even weeks (2,4,6,8), four from published sources and one built element from life. Four broad themes were used to shape/structure image searches. These were (week 2) Say Hello: introductory/reception elements (week 4) Inhabit: Elements tied to human scale use and/or enclosure (week 6) Connecting/Separating: elements that define circulation and (week 8) Conceal/Reveal: elements for display and/or storage. On Tuesday students assembled images on Miro boards comparing and cross referencing these to defined “intypes” as described in the on-line digital database. On Thursday new types, based on unique shared physicality and design intent were identified. Odd weeks (3,5,7,9) were spent developing design details as exemplars of a chosen type using a past or current project as a vehicle for exploration. Discussion and analysis was student led and

fluid. Themes and types were cross-referenced, and images followed evolving ideas from week to week. New whiteboard tools (Miro) allowed for quick comparison, flexible movement of images, simultaneous student use and even voting, offering increased support for this “crowd-sourced” research.

Miro board documentation indicates that students referenced images to no fewer than eight defined intypes and proposed no fewer than twelve new types. Furniturised examples were added to existing types including “incubate” and “bottoms up” while new types included “Ribbonized: A continuous curvilinear form or line that defines both space and visual language”. In addition, Students gained deeper understanding of the conceptual and architecturally integrated nature of furniturised elements over the term and were more expansive in their design thinking. However, in future iterations of the course, more targeted and defined sketch problems might reduce friction in design thinking. Students also appreciated the clear structure of the course, the percentage time spent in in-class discussion, and the “effort to learning” ratio. Furthermore, image search and activities imposed a theoretical framework to internet browsing that elevated it from style-seeking past-time to a practical research activity.

REFERENCES

Heathcote, E. (2018, July 11). The furniturisation of architecture: from St Jerome in his study to built-in cupboards and summer pavilions. *Architectural Review*.

<https://www.architecturalreview.com/essays/furniture/the-furniturisation-of-architecture-fro>

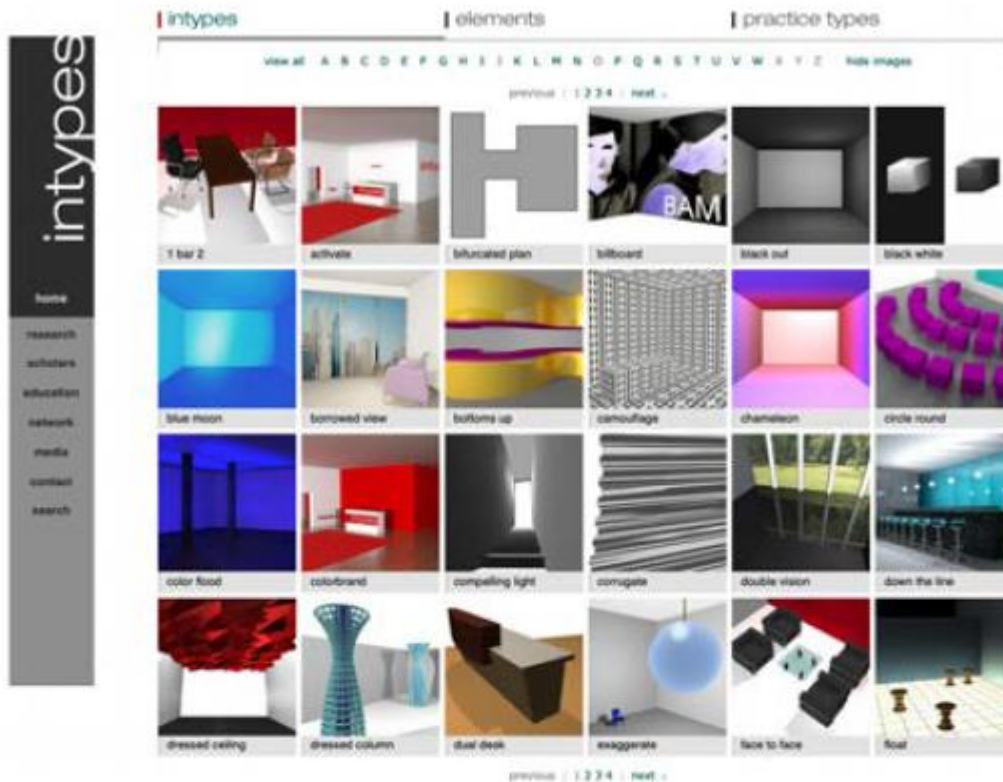
Cutieru, A. Blurring the Line Between Architecture and Furniture. (2020, September 18). *ArchDaily*.

<https://www.archdaily.com/947911/blurring-the-line-between-architecture-and-furniture>

Cornell University - Intypes. (n.d.). www.intypes.cornell.edu. Retrieved September 16, 2023, from

<https://www.intypes.cornell.edu/>

Intypes Website Images



| intypes
| elements
| practice types

intypes

- home
- research
- scholars
- education
- network
- media
- contact
- search

bottoms up

Bottoms Up (Top Down) is an architectural element comprised of a significant cornice above, and a corresponding counter below, that frame a spatial void for service function activities between them. Bottoms Up is used in retail as a cash wrap, in the workplace as a reception desk, in cafes as a coffee counter and in clubs as a bar.

similar but different

Split Column Split Column is a vertical display technique, often cylindrical in form. Bottoms Up is a spatial defining architectural feature in which service people occupy its inside space.

expanded research

practice types

Bottoms Up | Bar & Club

bibliographic citations

- 1) The Interior Archetypes Research and Teaching Project, Cornell University, www.intypes.cornell.edu (accessed month & date, year).
- 2) Wells, Carla. "Theory Studies: Archetypical Bar and Nightclub Practices in Contemporary Interior Design." M.A. Thesis, Cornell University, 2012, 244-86.



Incubate: Existing Intype

A shared spatial unit that is isolated from a larger environment. It serves as a transitory office or small meeting area where conversation occurs and ideas develop.

Activates - The use of incubate defines a smaller space for group activity within a larger more public space.

Effect- designed elements create a sense of enclosure by marking edges spatially rather than fully enclosing a volume. Funiturised elements such as booths and benches are used frequently.

Similar but different in-types:

- transactional space as borders are negotiable
- soft room because it is also a partial enclosure



Code Switch: Proposed Intype

A stair whereby the lower steps incorporate a functional platform or element or abruptly changes visually and/or structurally at the base.

Activates - Code switch stairs are enabled by building codes that require handrails at only certain elevations. Designers take advantage of the opportunity to transform stairs to serve multiple functions or incorporate other architectural elements

Effect - stairs can serve multiple functions or provide additional social areas.

Similar but different in-types - Showcase Stairs may incorporate seating and other functions but the type focuses on the visual effect.





Ribbonized: Proposed Intype

A continuous curvilinear form or line that defines space and visual language

Activates - ribbonized furniturized elements are used to unify a space and/or to provide direction or sequence. in some cases ribbonized elements move vertically or change from vertical to horizontal

Effect - ribbonized elements are often organic elements in contrast to orthogonal architecture ribbonized elements can unify while providing variety.

Similar but different in-types - 'Color Flood' because it focuses on filling a volume with highly saturated colored light whereas 'Color Pop' focuses on creating a highly saturated color volume to highlight an architectural element rather than an entire space.



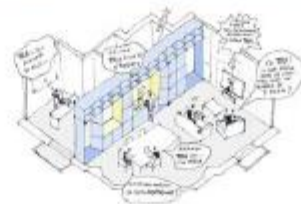
Color Block: Proposed Intype

Integral architectural element(s) providing a pop of color & contrast within a neutral space.

Activates - color-pop highlights and brings attention to functional elements and can unify a single space or aid in wayfinding.

Effect -The effect of color-pop adds contrasting layers to 'design elements and particularly interest to elements where the designer wants to create a visual block.

Similar but different in-types - 'Color Flood' because it focuses on filling a volume with highly saturated colored light whereas 'Color Pop' focuses on creating a highly saturated colored architectural element(s) rather than an entire space.



Student Design Details

RECEPTION DESK



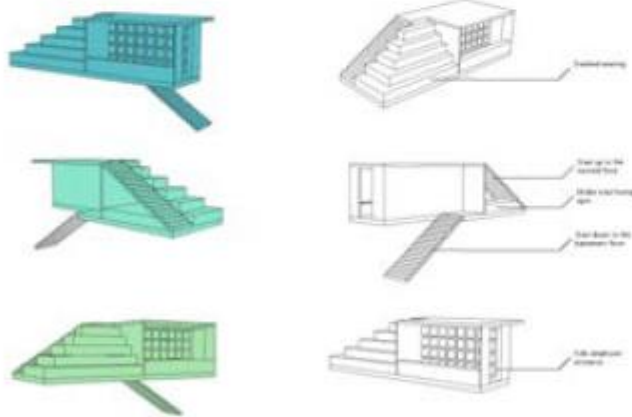
NAME: THE PUZZLE WALL
INTYPE: STOW
INHABIT

THE PUZZLE WALL ACTS AS A LEGO-LIKE PEICE OF FURNITURE ALLOWING FOR ADDITIONS OR SUBTRACTIONS TO CUSTOMIZE A SPACE AND STORE AWAY FURNITURE WHEN NOT IN USE.



stow

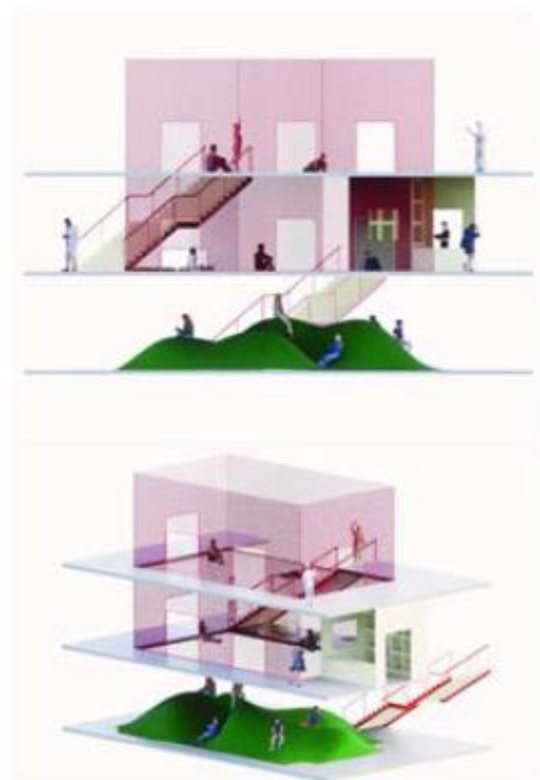
Stow refers to various storage systems associated with creating an interesting interior components in order to save space or to provide for multiple functions. These systems include tall, tall, push-out, swing, glide, or a combination of these. The systems require specialized hardware to address their span or shared functions, and a spatial clarity is required to present a component.



NAME: CUBE DESK
INTYPE: THE CUBBY EFFECT
SEPARATE BUT CONNECT / INHABIT

THE CUBBY EFFECT: IDENTICALLY SIZED VOLUMES ARRANGED TO FORM STRUCTURE AND STORAGE.

THIS RECEPTION DESK WAS DESIGNED TO WELCOME VISITORS AND STORE RENTABLE TOOLS.



Student Design Details

say hello / separate connect

TYPE NAME: Camouflage

DESCRIPTION: Referring to the application of a consistent pattern to the wall, floor, and ceiling planes as well as furnishings. Wrapping the exterior with a continuous pattern effectively blurs the transition between horizontal and vertical planes or between planes and furnishings.

APPLICATION: This type provides seamless materiality resulting in a cohesive look. In this iteration, the lobby desk is made from the same material as the adjacent stairs and railing. All parts of the desk and stair elements would be crafted with plywood resulting in a grounding central core of wood in the glass lightwell.

PRECEDENTS:



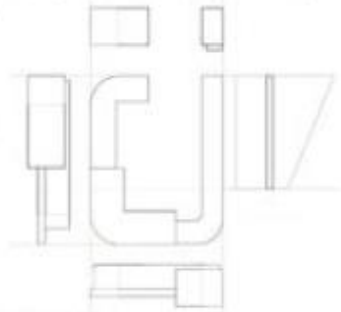
SIMILAR BUT DIFFERENT: Bottoms Up, Dual Desk, Matching Order

OBSERVATIONS: In this lobby, elements are integrated into the vertical circulation allowing for the general public to be met with someone at a front desk without getting near the more private stair. This allows for a grander stair without have to hide it from the public. The camouflage effect provides enough of a disguise to distract the masses while still being a warm core to the building. The large light fixture overhead reinforces the central mass. The desk is also a dual desk, allowing for accessible heights, proper clearances, and toe kicks for the comfort of all users. This will also minimize any snagging from rubbing too close to the plywood material.



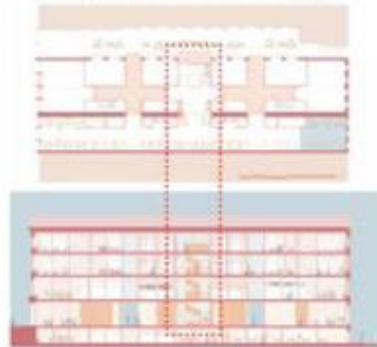
plan and elevations:

the rounded corners compliment overall form but also encourage a direct view to all four entrances to the space



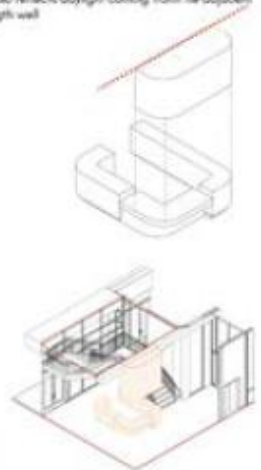
building context:

the lobby space of a food hub which offers public retail and dining on the ground level and education center on upper levels



axometric:

the anchoring mass above the desk made from recycled gallon jugs provides light electrically and also reflects daylight coming from the adjacent light well

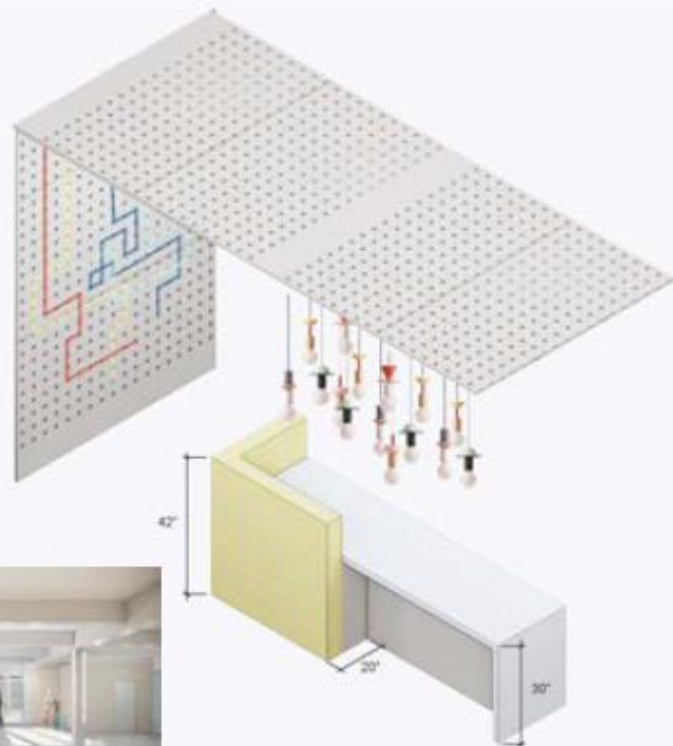
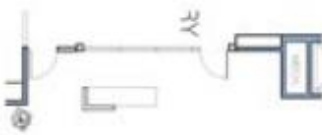


first draft: top / bottom recycled gallon fixture



TYPES: Dual Desk Wrap-Around

The desk has two distinct segments: one 42" high, the other 30" high. Peg-board wraps around the desk along one wall and the ceiling.



Illuminating Obsolescence: Addressing the Challenge of Obsolete Lighting Textbooks in Contemporary Education

Collette Prudhomme Cosminski, University of Louisiana Lafayette

ABSTRACT

The process of developing a comprehensive lighting design course necessitates a thorough evaluation of the available textbooks to ensure that they align with the curriculum's objectives. This literature review addresses the challenges posed by the obsolescence of lighting textbooks in the context of a rapidly evolving field. The course in question emphasizes an integrative approach to lighting design, encompassing various aspects, including lighting systems, design processes, human factors, sustainability, global perspectives, design principles, regulations, business practices, and professional values. Despite two years of course delivery, identifying a single textbook that effectively covers all these elements and maintains student engagement remains a challenge. This review explores the contributing factors to the obsolescence of lighting textbooks and proposes potential updates to enhance their relevance for contemporary students.

The field of lighting technology has witnessed significant advancements, notably with the introduction of energy-efficient lighting sources such as LED technology and the integration of smart lighting systems. Traditional lighting textbooks, published prior to the LED revolution, often contain outdated information regarding older technologies like incandescent and fluorescent lamps, which are now largely obsolete.

The imperative of environmental sustainability and energy efficiency has prompted the lighting industry to respond with innovations in lighting design and technology. Unfortunately, many textbooks treat sustainability as an afterthought, relegating it to the last chapter as in Livingston (2014) and Gordon (1995), or leaving the topic out altogether as in Jukanovic (2018). However, Winchip (2008) successfully integrates sustainable considerations throughout their textbook by incorporating LEED checklists at the end of each chapter.

The concept of human-centric lighting, also known as the person-in-environment system (Winchip 2008), has gained prominence in lighting design. Contemporary textbooks emphasize circadian lighting and its potential impact on human well-being, addressing a topic largely absent in older texts. The dynamic regulatory landscape profoundly impacts lighting design. Recent bans on incandescent and fluorescent lamps in the United States due to energy inefficiency underscore the evolving regulatory

environment (U.S. Department of Energy, Energy, and Security Act). Up-to-date textbooks provide guidance on compliance with energy efficiency regulations, ensuring students are well-informed. Lighting preferences are subjective and influenced by cultural and regional factors (Park & Farr, 2007). While no single textbook can encompass all cultural considerations, modern texts acknowledge the importance of cultural diversity and explore how lighting design can be adapted for different global audiences.

Lighting calculations increasingly rely on sophisticated software tools, which evolve rapidly. Contemporary textbooks should incorporate discussions on the latest lighting simulation software to equip students with practical insights into industry-standard tools.

In conclusion, the obsolescence of lighting textbooks arises from the dynamic nature of the field, including technological advances, sustainability imperatives, shifting regulations, cultural diversity, and evolving software capabilities. To meet the educational demands of today's students, educators should employ a multifaceted approach, combining updated textbooks, online resources, real-world case studies, and specific examples that reflect the latest developments in lighting design and technology. This ensures that lighting design education remains current and effective.

REFERENCES

Gordon, G. (1995). *Interior Lighting for Designers*. Wiley.

Jukanovic, A. (2018). *Architectural Lighting Design*. U.K. Crowood Press.

Livingston, J. (2014). *Designing With Light*. Wiley.

Park, N., & Farr, C. A. (2007). The Effects of Lighting on Consumers' Emotions and Behavioral Intentions in a Retail Environment: A Cross-Cultural Comparison. *Journal of Interior Design*, 33(1), 17–32.
<https://doi.org/10.1111/j.1939-1668.2007.tb00419.x>

Integrating Climate Analysis in Architectural History Survey Courses

Carrie H. Pavel, Middle Tennessee State University

ABSTRACT

With a warming climate placing greater emphasis on building performance and optimization in architecture and interior design curricula, architectural history courses, already in crisis due to limited exchange with the comparatively topical, progressive, and exploratory format of the design studio, are struggling to keep up. As more histories of climatic design increase our understanding of the intersection between architecture and climate (most recently Daniel Barber's *Modern Architecture and Climate: Design Before Air Conditioning* (2020)), the question of how to better integrate a richer understanding of climatic design with the survey-based format of history of architecture and interiors courses remains. The often intangible, ephemeral qualities that describe a building's complex choreography with its site – the movement of sunlight and wind, the dynamic and potentially severe effects of microclimate, the vestiges of use or neglect over time – tell important experiential narratives that elude the still-dominant text and image-based delivery modes defining architectural history pedagogy today.

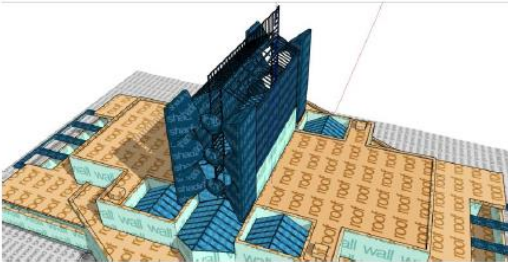
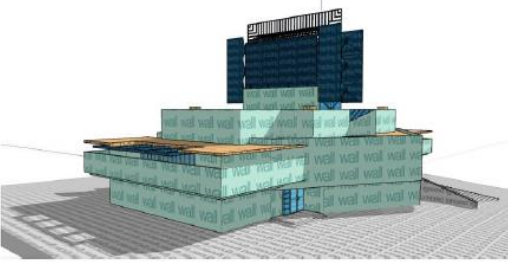
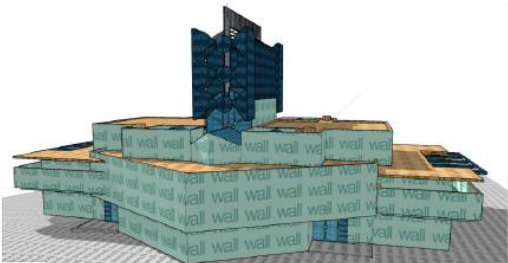
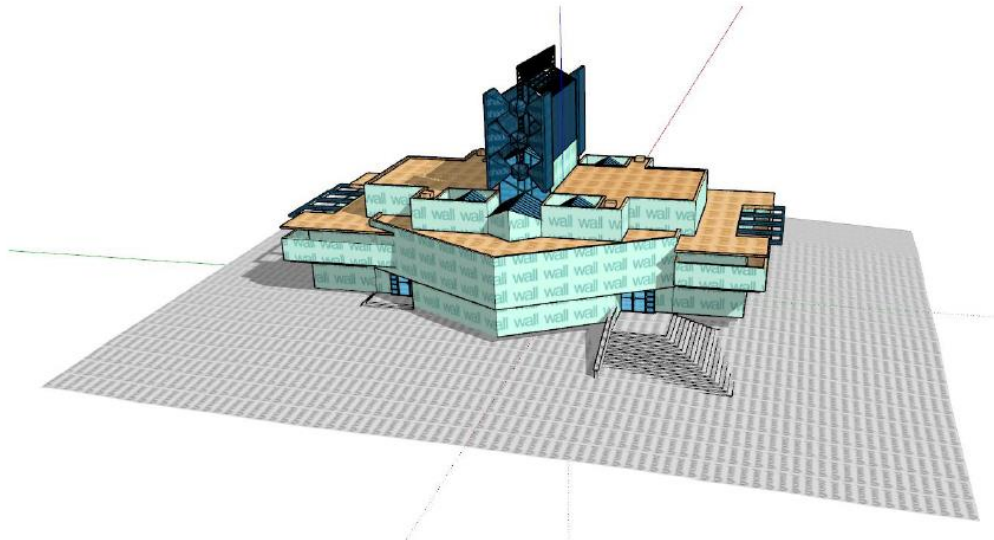
The proposed paper presents two undergraduate architectural history projects that pair familiar modeling and rendering software with easy-to-master simulation plugins* to provide students with a richer understanding of pre-air conditioned precedent buildings and interiors. Just as historian and philosopher R.G. Collingwood had advocated for a form of historical inquiry based on "re-enactment" to reveal empirical "truths," the modeling and simulation of architectural precedents allows students to "re-enact" a site over time, observing the microclimatic conditions weighing heavily on the earliest stages of the design process. Through this activated, operative approach to precedent analysis, architecture and interior design students are provided the tools to mine and confidently critique design decisions regarding orientation, massing, fenestration, and materiality that define the most significant buildings and interiors of the past.

*Programs used include Rhino, Enscape, SketchUp Pro, Sefaira, University of Oregon's Solor Radiation Monitoring Laboratory; the Global Monitoring Laboratory's NOAA Solar Calculator; and the Climate Consultant. All but Rhino are free for education.

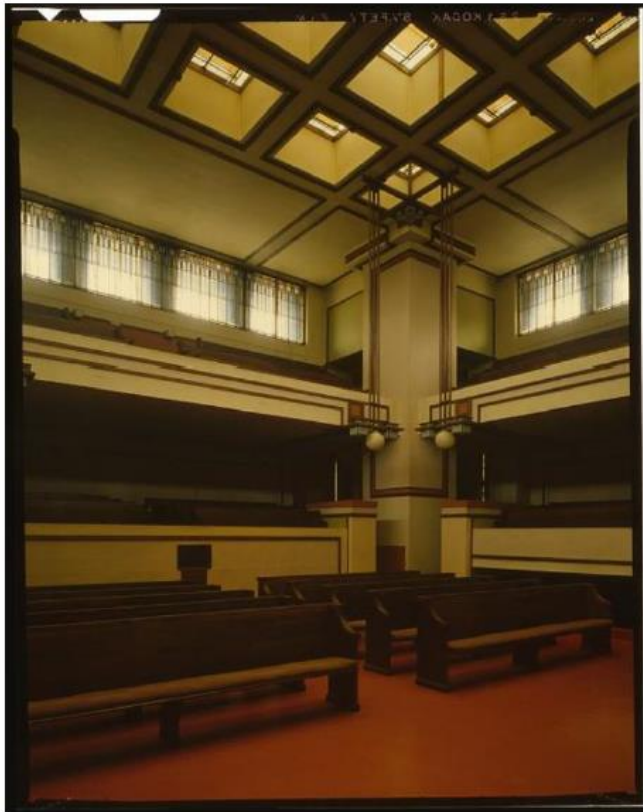
REFERENCES

Barber, Daniel. *Modern Architecture and Climate: Design Before Air Conditioning*. Princeton: Princeton University Press, 2020.

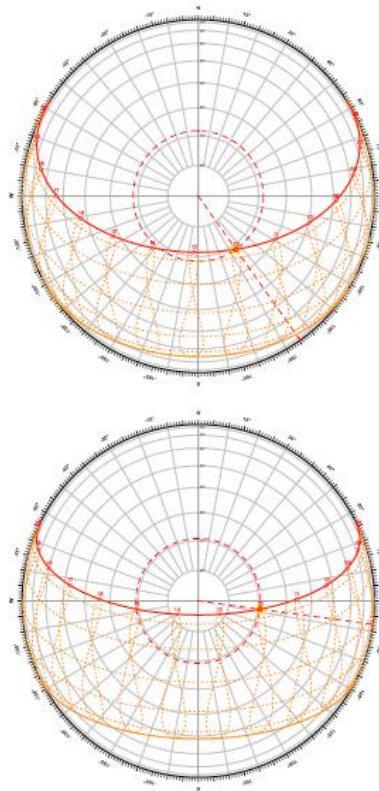
Collingwood, R.G. *The Idea of History*. Oxford: Oxford University Press, 199



Pfeiffer Chapel model tagged with Sefaira entity labels



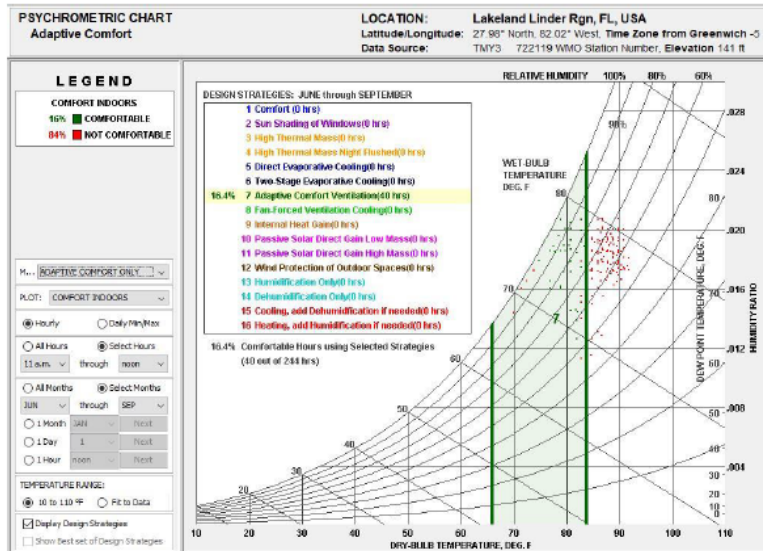
Interior View, Unity Temple, 1977
HABS



Sun Path Diagrams
Unity Temple (top)
Pfeiffer Chapel (bottom)

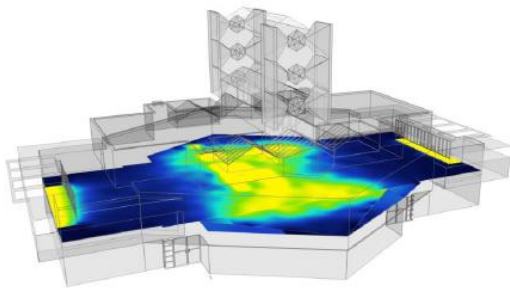


Interior View, Pfeiffer Chapel, 1979
HABS



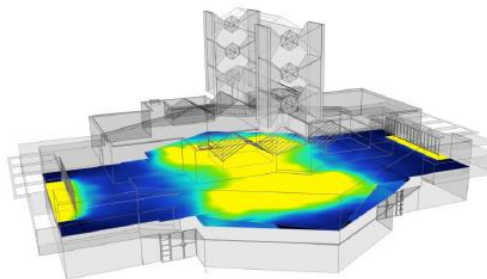
Hour	Comfort Indoors: "Comfortable"	Comfort Indoors: "Not comfortable"
8-9am	75%	25%
9-10am	43%	57%
10-11am	23%	77%
11-noon	16%	84%
noon-1pm	14%	86%
1-2pm	16%	84%
2-3pm	21%	79%
3-4pm	28%	72%
4-5pm	38%	62%

Adaptive Comfort Chart Averaging June – September



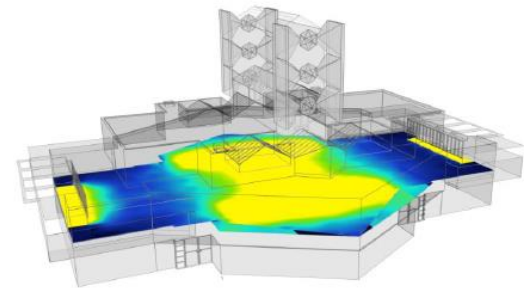
8 AM

Footcandle levels on June 21 at 8AM measured at 2.75 feet above the floor plane. Time does not take into account daylight savings time.



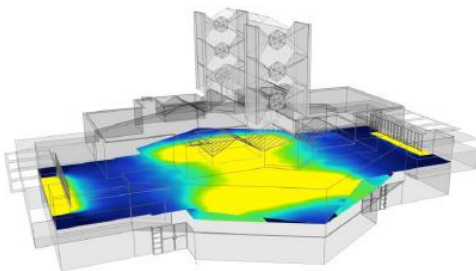
10 AM

Footcandle levels on June 21 at 10AM measured at 2.75 feet above the floor plane. Time does not take into account daylight savings time.



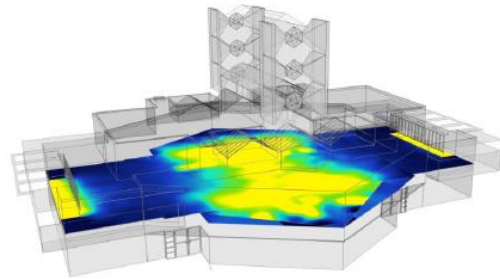
12 PM

Footcandle levels on June 21 at 12PM measured at 2.75 feet above the floor plane. Time does not take into account daylight savings time.



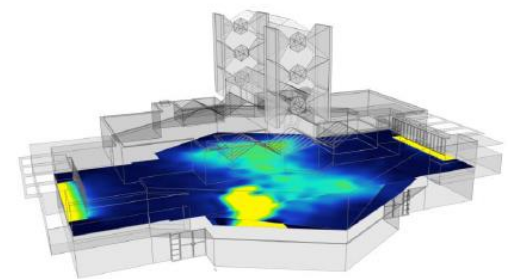
2 PM

Footcandle levels on June 21 at 2PM measured at 2.75 feet above the floor plane. Time does not take into account daylight savings time.



4 PM

Footcandle levels on June 21 at 4PM measured at 2.75 feet above the floor plane. Time does not take into account daylight savings time.



6 PM

Footcandle levels on June 21 at 6PM measured at 2.75 feet above the floor plane. Time does not take into account daylight savings time.



Sun Path Simulation with Overlit and Underlit Conditions, 2-hour increments on June 21

WIND WHEEL

LEGEND

TEMPERATURE (Deg. F)

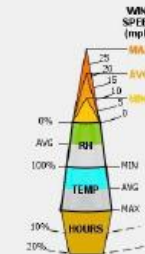
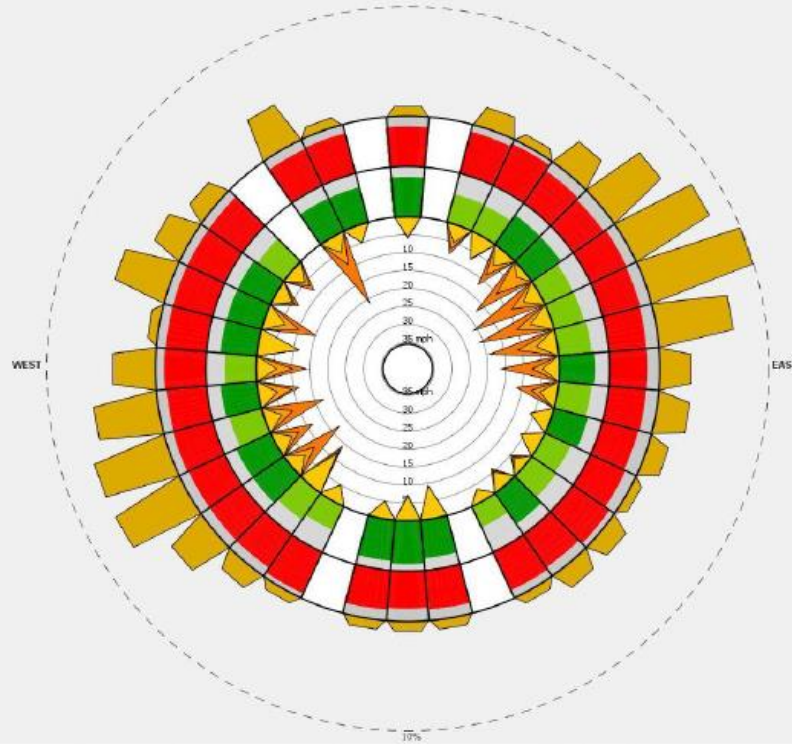
- < 32
- 32 - 68
- 68 - 75
- 75 - 100
- > 100

RELATIVE HUMIDITY (%)

- <30
- 30-70
- >70

All Hours Selected Hours
8 a.m. through 2 p.m.
 All Months Selected Months
JUN through SEP
 One Month JUN Next Month
 One Day 1 Next Day

Animate
 Monthly Start
 Daily Pause
 Hourly Stop



Start "Animation" to see monthly plots or select the "One Month" option and cycle through months by clicking "Next Month".

Back Next

Climate Consultant Wind Wheel Diagram, June

Interior Design Faculty and Students Participate in a Community Based, Interdisciplinary Design and Construction Integration Project

Denise McAllister, Southeast Missouri State University

Ashley Wilthong, Southeast Missouri State University

ABSTRACT

Faculty and students from the interior design program at a mid-sized, midwestern university are leading an interdisciplinary team in guiding community leaders through the design and construction of several homes located in an underserved area of the community. University programs from three of the five undergraduate colleges are participating in this unique project. Led by faculty from the CIDA certified Interior Design program from the department of Art+Design, the team is joined by participants from Construction Management from the department of Engineering and Technology, and Historic Preservation, from the History and Anthropology department.

The community-based project, known as The Porch Initiative (People Organized to Revitalize Community Healing), is using the Purpose-Built Community (PBC) model (Mission Statement, 2023) to fix problems facing a south side neighborhood while building a future of opportunity for all its residents. (Buck, 2022) Diversity is celebrated in this historic neighborhood where families of many different cultures are building lives together. Social and environmental stewardship is at the foundation of the initiative with the intent being to reuse existing homes with as little new construction as possible. Empowering families and individuals, who might not otherwise be able to purchase homes, to move into home ownership is central to the initiative's mission. From the ashes of a once vibrant neighborhood, new homeowners are given the opportunity to grow a new community. A community which, in recent years, has fallen into disrepair, destruction and is experiencing increasing crime. In the recent past, neighbors have rarely been seen sitting on the historic front porches, gardens have not been planted in the historically deep back yards, and children have not been seen playing outside. This is all changing with the innovation of this initiative. Currently, the area has a median home price of \$74,882 which is less expensive than 96.6% of all U.S. neighborhoods (Reports, 2023). Commute times are less than 58% of other residents in the U.S. with one-way commutes being less than 15 minutes, regardless of means of commute. The most common method of commuting is driving alone in private automobiles, followed by participating in car-pools. The neighborhood boasts a plethora of mature shade trees and fertile soil ripe for growing flowers, vegetables and native grasses.

The houses, typically built in the 1930's through the 1950's, are relatively small, usually 2 -3 bedrooms with one bath. Most have a walk out or walk-up cellar that can be used for laundry and other equipment but rarely as living space. While admittedly in disrepair, the homes retain much of their original structural integrity and inherent charm. Arched doorways, expansive casement and fixed glass windows, and yes, even porches still cling to these soon to be restored homes.

The design team is implementing a design-build project delivery method utilizing the Design Construction Integration model. Under this model, the designers and builders work together from the beginning of the project in order to insure unity and collaboration throughout the process. (Design Build Project Delivery , 2023). Students and faculty from interior design are providing design guidance which includes kitchen and bath layout, color and material selection and preparation of non-structural architectural construction documents, created in Revit and enhanced with Lumion.

Representatives from Construction Management and Historic Preservation are serving as consultants to the design team. Construction Management is participating in the cost estimating and scheduling while Historic Preservation is educating the entire construction and design team regarding the wealth of cultural history in the area being impacted.

REFERENCES

- Buck, T. (2022, July 1). Our Mission. Retrieved from The Porch Initiative: <https://capeporch.org/>
- Design Build Project Delivery . (2023, July 28). Retrieved from Design-Build Institute of America: <https://dbia.org/what-is-design-build/#:~:text=Design%2DBuild%20Project%20Delivery&text=The%20designer%20and%20contractor%20work,not%20excuses%20or%20blame%2Dshifting.>
- Mission Statement. (2023, July 1). Retrieved from The Porch Initiative: <https://purposebuiltcommunities.org/>
- Buck, T. (2022, July 1). Our Mission. Retrieved from The Porch Initiative: <https://capeporch.org/>
- Design Build Project Delivery . (2023, July 28). Retrieved from Design-Build Institute of America: <https://dbia.org/what-is-design-build/#:~:text=Design%2DBuild%20Project%20Delivery&text=The%20designer%20and%20contractor%20work,not%20excuses%20or%20blame%2Dshifting.>
- Mission Statement. (2023, July 1). Retrieved from The Porch Initiative: <https://purposebuiltcommunities.org/>
- Reports. (2023, July 15). Retrieved from Neighborhood Scout: <https://www.neighborhoodscout.com/mo/cape-girardeau/cape-girardeau-south>

Introducing Digital Design Tools to First-year Interior Architecture Students

Marjan Miri, University of Arkansas

Torrey Dominic Esra Tracy, University of Arkansas

Jake Tucci, University of Arkansas

ABSTRACT

Digital design is often perceived as a groundbreaking, integrative, interactive, reflective, and immersive design model—a mode of thinking that flows effortlessly (Al-Qawasmi, Jamal, 2005) pushing the demand for digital software to be taught progressively earlier. During the first year of interior design education, students typically explore foundational design principles and process through analog iteration, hand sketching, and physical model making. How do instructors integrate digital design technology into a first-year curriculum without ignoring the former and while utilizing the teaching team's diverse digital expertise? To tackle this issue, a series of simultaneously targeted workshops were developed, in which students engaged with various digital tools and technology while demonstrating methods to integrate them into their design process. This provides students with essential skills they need for their education and professional careers.

Moreover, these workshops aimed to enhance the studio culture by promoting discussions and teamwork among the students. This effort undoubtedly fostered a stronger sense of skills that students need. The observed increased student interaction and engagement helped them better understand learning objectives, technology skills, and methods of creativity involved in the interior design field. The development of the workshops took into consideration the whole first-year curriculum. During their first semester of design studio, students explored the principles and elements of design through a series of analog drawings, color exercises, and crafting three-dimensional forms. The second semester aimed to build upon those experiences by adding digital tools. After a brief warm-up project, the digital workshops began. Students were divided into three class sections and rotated into each workshop every two weeks. The goal was to help students learn enhanced analog and digital skills, but more importantly, the design process and how to integrate the analog and digital tools into their workflow to sculpt their ideas. Each workshop is focused on a project with a specific set of learning outcomes. The first workshop highlighted 2-dimensional digital media composition, including Photoshop, InDesign, and Illustrator. The second workshop concentrated on 3-dimensional digital design sculpting space using Rhino3D. The third workshop introduced students to working in a virtual reality team immersive

environment using Oculus headsets. Each workshop employed step-by-step demonstrations, group reviews, and one-on-one student-teacher interactions. Following the six-week series of multi-dimensional digital workshops, students applied their newly acquired abilities to a more complex project, their first pragmatic "interior design" project. The project involved designing the interior of an existing mid-century modern building as an artist retreat that includes a central communal building and six small residential units.

The first-year curriculum has been successfully run for three years. During the six-week workshop series, students generated compelling designs meeting or exceeding learning outcomes. The team of instructors observed a significant

increase in student success in digital literacy, the ability to use digital tools for design iteration rather than just a tool for representation, and preparedness for advanced software, such as Autodesk Revit, in their second year. The smaller workshop settings improved studio culture. Students built tighter relationships with each other and with each instructor, increasing their available resources for assistance. Items for improvement include the need to adapt workshops to changing faculty, the constantly changing landscape of technology, better reinforcing the high value of hand sketching alongside digital tools, and offering extended support to students that don't meet learning objectives.

REFERENCES

Al-Qawasmi, Jamal. (2005). Digital media in architectural design education: Reflections on the e-studio pedagogy. *Art, Design & Communication in Higher Education*. 4. 205- 222. 10.1386/adch.4.3.205/1

WORKSHOP 1

Cinema is from the French cinematographe which comes in part from the greek kinema, meaning movement So cinema is really just another word meaning moving picture. It also has come to mean more generally the process of film-making and also the building where films are shown. Film, or motion pictures, are a collection of images taken, or depicted to be taken in the case of animation, fractions of a second a part

Cinema can be wonderful entertainment. As a release from reality, it can temporarily place us in a new world, help us empathize with a new demographic, or amaze us with technology and wonder. The crafting of a film is a multi-disciplinary and time consuming endeavor with a construction that parallels a built project.

For this exercise, you will be marrying your new understanding of digital media (Photoshop, InDesign, Illustrator) and diagramming, with *film stills from a movie of your choice (hopefully one of your favorites) to craft unique color palettes and diagrams.

You are to select eight (*8) movie stills (same film (or TV show), or eight different)...any eight that possess a dynamic and rich color approach, to create an individual color palette and informational diagram for each.

***At least one of the film stills has to have some image relating to Las Vegas in it.**

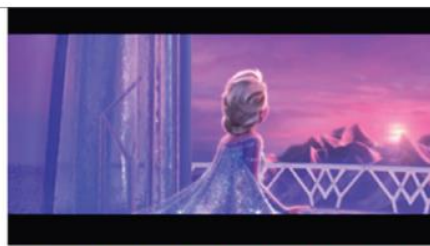
"Film stills can be screen shots from online streaming sources

Objectives:

1. To demonstrate the understanding of composition and color theory through the lens of film,
2. To develop breadth and depth of the design process through iterative exploration, ultimately leading to the refinement of well-crafted deliverables.



Edward Scissorhands



Frozen

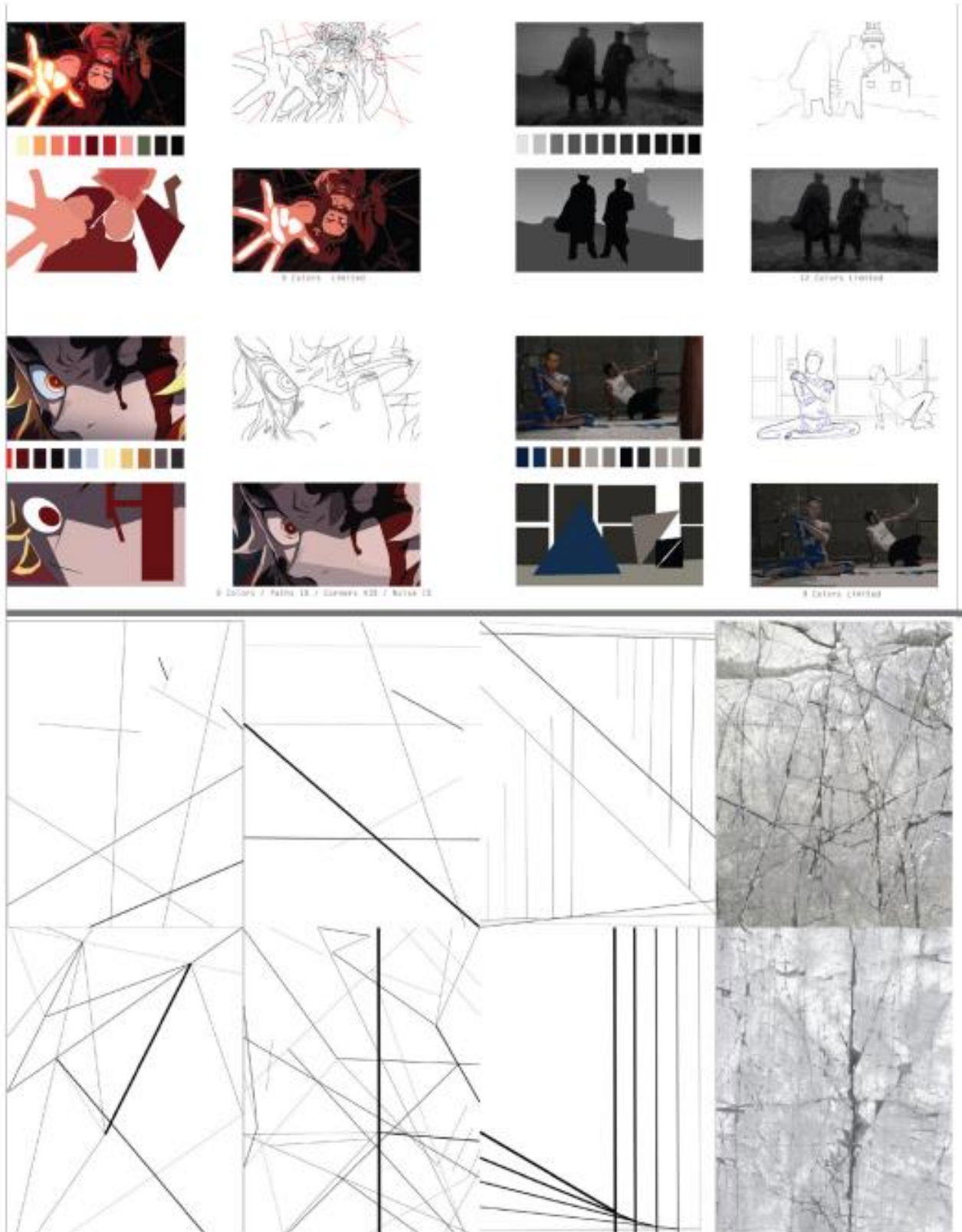


Forest Gump



Empire Strikes Back

Student Work Example



Student Work Example



WORKSHOP 1

Objectives:

3. To demonstrate the understanding of composition and color theory,
4. To develop breadth and depth of the design process through iterative exploration, ultimately leading to the refinement of well-crafted deliverables.
5. To strengthen craft as well as the understanding of digital media.

From the 1950's through to the 1980's, the 12" LP record and the 45 rpm record became the major formats for the distribution of popular music and spoken word. The LP format remains in use for occasional new releases, though other formats have largely supplanted it. The size of the typical cardboard LP sleeve cover is **12.375** in square.

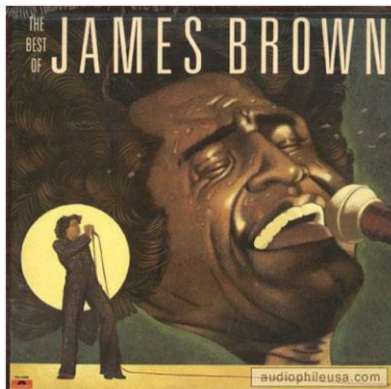
Album covers are one of the various ways in which first impressions affect an audience's perception of a given musician or band. Album covers' design cover may also add to how an audience forms an opinion of them and their music. There are various ways in which an album cover is visualized.

You have been commissioned to record a spoken word album, for distribution as a 12" LP record, describing some significant element of your choosing...who you are...who you have become...your story?

What impression will the covers give?

Final deliverables will consist of:

- (2) 12" LP "covers" with original art...files will be set-up and saved as an **exact size** of an LP sleeve cover
- (2) *The backs of the LP covers (same size as cover) to have song titles, description of record, etc.
 - * Both LP covers can have the same song titles/ information, etc.



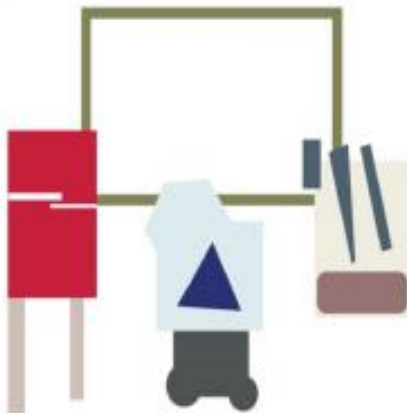
Final deliverable will consist of (8) eight 11" x 17" digital boards (landscape orientation), each depicting:

1. your original movie still (upper left side-labelled)
2. your 2d abstract diagram (bottom left labelled)
3. your Illustrator line drawing with exquisite detail (upper right-labelled)
4. your image trace iteration of your choosing (bottom right-labelled with the exact steps).

Example layout:



Ferris Bullers Day Off



Frame Still Diagram



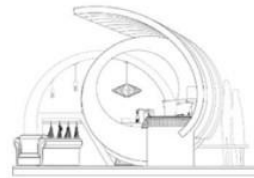
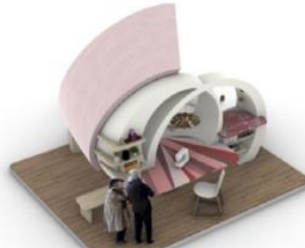
Sketched Art at 33 Grey Scale

WORKSHOP 2

“We dwell where we can orient ourselves within and identify ourselves with an environment.... Dwelling therefore implies something more than ‘shelter.’ It implies that the spaces where life occurs are places....A place is a space that has distinct character.” Christian Norberg-Schulz, *Genius Loci: Towards a Phenomenology of Architecture*



Purpose: The [REDACTED] project will introduce the element of designing for a human, building to the proportion and purpose of a client. You will conceive, design and build a digital model that engenders and concentrates the meaning of “engageable,” “responsive,” “energated,” habitable,” “space” and “wall”.



You are to develop a three-dimensional expression of a habitable wall using a basic "client profile". Your three-dimensional expression will be free standing and exhibited as part of our final presentations with scale drawings, rendered perspectives and process work.

Though "wall" is in the name of the project, students will sculpt, push, pull, subtract, and add to develop a freestanding structure for a specific artist. An object on the interior landscape that the artist can temporarily inhabit to create and present their work, while occasionally spending the night for those long-haul work sessions. Students are encouraged to avoid making room-like space, but a structure that intentionally and creatively supports the client's needs while creating moments of openness and enclosure through three-dimensional exploration.

The clients listed below are real designers of architecture, interiors, and furniture. For this project, we are asking you to suspend reality... what if these designers were small scale artists rather than well-known designers. The fictional artist types are aesthetically and/or conceptually adjacent to the real designer's work. They have the same aesthetic interests and favor the same styles but are fine artists. You will need to investigate the designer and their work while looking into the processes, methods, workspace needs for material storage, construction and/or assembly, tools, and anything else related to the type of art created.

Learning Objectives:

6. Develop an iterative design process using a combination of sketching and 3D digital software to sculpt form and space while creatively satisfying the programmatic needs of a project.
7. Gain an introductory understanding of decision making based off client restraints, workflow, style, and color preferences.
8. Have an introductory understanding of designing for human scale and proportions.
9. Apply introductory and secondary 3D digital design software skills; for example, Rhino or Sketchup to iterate design options, produce quality perspectives and two-dimensional orthographic drawings.
10. Apply postprocessing techniques using photoshop to enhance final presentation drawings and images.
11. Successfully complete a small-scale interior oriented project.

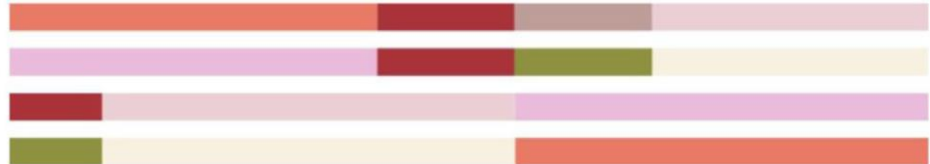


SUMMER BOUQUET

Pale hazy petals combine with exotic pinks and an herbal green to create a fresh summer palette that celebrates the positivity and happiness of colors from nature.



Color Harmonies



INTOXICATING

A vibrant yellow, sweetly scented lavender, fragrant pink and a cool green combine to create a dynamic contrast with a crisp aqua. A creamy white adds freshness.



Color Harmonies



POWER SURGE

A pair of empowering pinks enrich a palette of vibrant brights, infusing glamour to a story of vivid contrasts.



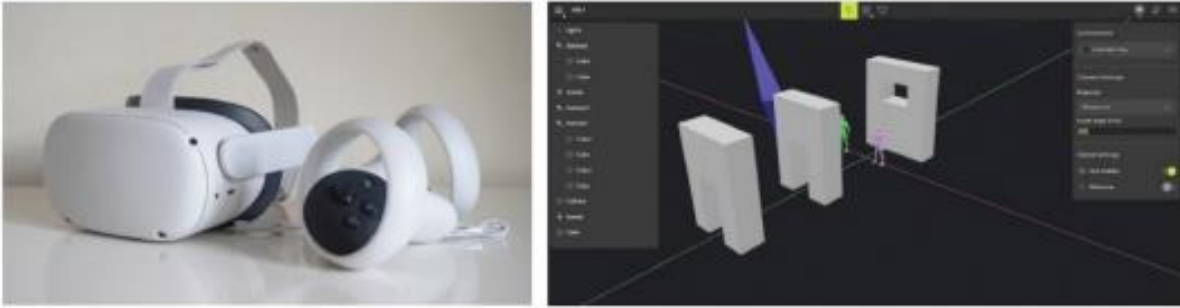
Color Harmonies



Student Work Example



WORKSHOP 3



VR WORKSHOP

During the following two weeks of our VR workshop, you will practice the design process and experience a collaborative work environment. How designers are starting a project, and what steps are they taking.

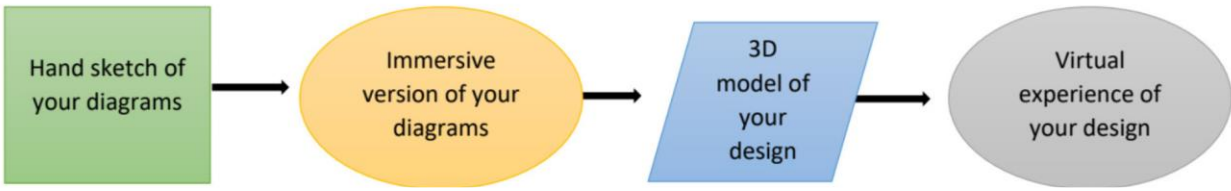
Project Objectives:

12. To learn how a project program informs adjacency and circulation diagram in the initial design phase
13. To learn how to produce hand drawing 2D diagrams and analyze them
14. To learn how to produce 3D dimensional diagrams in an immersive environment and analyze them
15. To learn how to collaborate on a project
16. To learn how to work with new technologies (virtual reality)

PROJECT DESCRIPTION

The project that we will work on is designing a two-bedroom house. This house includes six **programs** (The program is a list that itemizes the spaces that must take place in the building), including two bedrooms, a living room, a kitchen, foyer, corridors and a bathroom. For our purposes we are assuming that there is no limitation in terms of the shape of these rooms or their connections, but we will practice keeping the minimum required dimension for each program. The project concentrates on your creativity and understanding of the connection between spaces both in 2D drawings and immersive environments.

In addition to **hand drawing** skills for this project, you are learning to use **virtual reality**. The 3D platform that we are using is called **Pounx**. You are working in a group of three or four. The first part of the project is working on your proposed hand drawing diagrams. The second part represents your diagrams in an immersive environment, and the third part is modeling your rooms and their connections in the 3D platform. Finally, you will walk through your design in an immersive environment.



DIMENSION REQUIREMENTS

	Program	Dimension (L/W/H)
1	Livingroom	16X16X16
2	Kitchen	12X8X12
3	Bathroom	5X8X8
4	Bedroom I	8X12X10
5	Bedroom II	5X8X10
7	Corridor	You decide!

EXPECTATIONS

Designers start their project by drawing a bubble diagram. The bubble diagram is necessary because later phases of the design process are based on them. They will be a foundation for adjacency and circulation diagrams and how programs are changing to be real spaces. The primary purpose of a bubble diagram is to help you translate the program into a strategy or form. For your project, you will first work on three different iterations of your bubble, adjacency and circulation diagrams and then explore the three iterations of proposed adjacency and circulation diagrams in an immersive environment.

Keep in mind that you are designing these rooms and their connections for people to live in them. Use your design skills and knowledge to show your creativity in creating a desirable space. Platonic solid for last semester and our last project, subtractive space, can be your inspiration for your design.

For your **bubble** diagram, ask yourself how you will organize this space? The bubble diagram is a freehand diagrammatic drawing made by architects and interior designers to be used for space planning and organization at the preliminary phase of the design process.

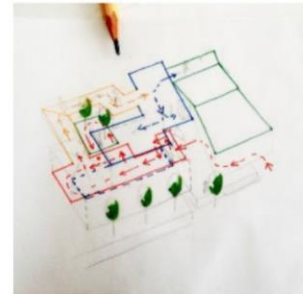
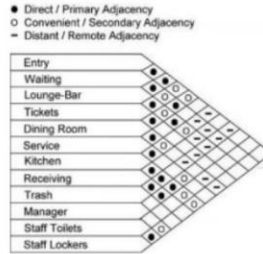
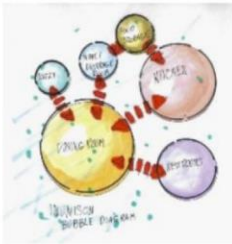
For your **adjacency** diagram, you need to understand the location of each room in relation to each other's and how they are connected. For example, which spaces are close to each other, and which ones are far away?

For your **circulation** diagram, show your path as a visitor/user in the space. How you will move from one space to another.

Deliverable:

- 1- Three hand sketches of different iterations of your bubble, adjacency, and circulation diagrams in three separate 11X17
- 2- Three 3D models of different iterations of your adjacency and circulation diagrams in pounx VR
- 3- 3D model of your combined rooms and their connections in pounx
- 4- Combined version of your final design with the rest of the class in pounx VR

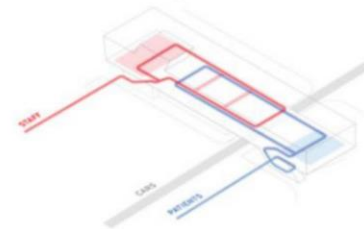
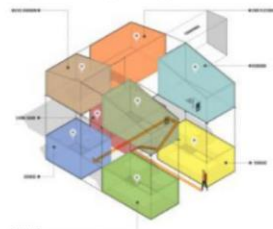
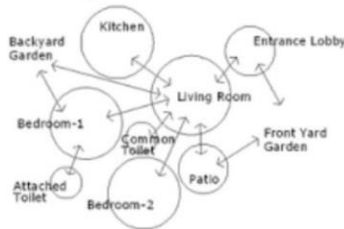
Example of Bubble diagram, Adjacency diagram and Circulation diagram:



Bubble diagram

Adjacency diagram

Circulation diagram

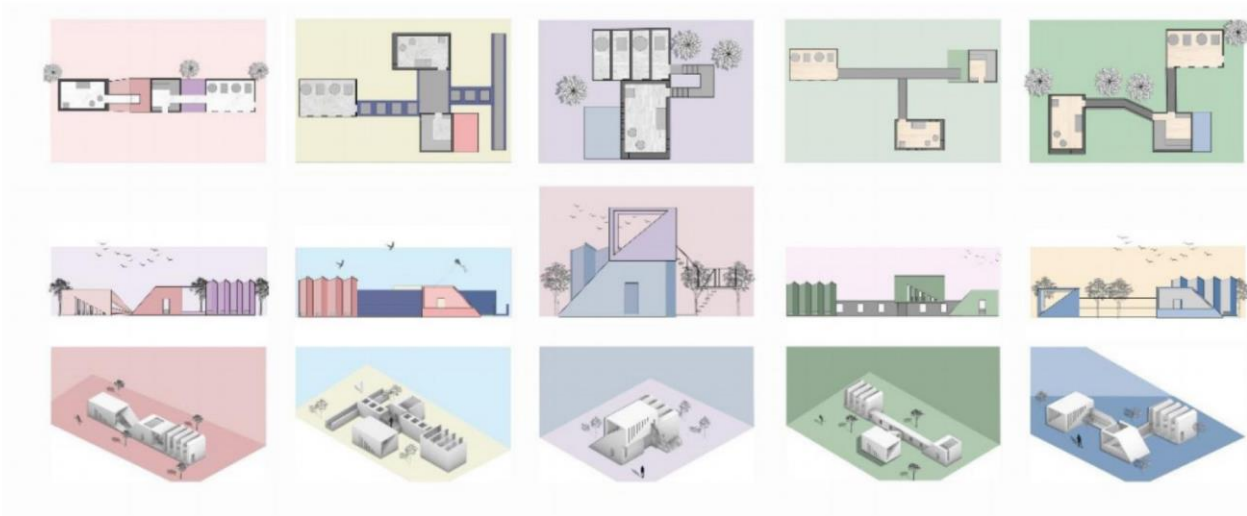


Bubble diagram

Adjacency diagram 3D

Circulation diagram 3D

Example of rooms design:



Student work example for designing three rooms and their connections

Student Work Example



Is it Worth It? Lessons Learned from Using the Solar Decathlon Competition to Teach Net-Zero Principles to Interior Design Students

Darrell Nickolson, Indiana University-Purdue University
Indianapolis

Emily McLaughlin, Indiana University-Purdue University
Indianapolis

ABSTRACT

The U.S. Office of Energy Efficiency and Renewable Energy acknowledges that 40% of total energy consumption in the U.S. today comes from our built structures (2023). This overwhelming crisis points to a decisive need for future practitioners to design more sustainable buildings and plays a significant role in reaching the government goal of a net-zero emissions economy by 2050. It is critical that interior designers be educated to design and construct high-efficiency, low-carbon buildings powered by renewables. Net-zero building design methods propose integrative approaches and numerical tools which provide optimal performance and cost-effective results to address this complex problem (U.S. Department of Energy, 2023). The U.S. Department of Energy's Solar Decathlon Competition, launched in 2002, is a collegiate competition that allows students to propose and practice creative solutions which include net-zero design strategies by suggesting building designs which improve quality of life through greater affordability, resilience, and energy efficiency (2023). We know that those who win typically blend architectural and engineering excellence with innovation using multi-disciplinary teams (Holt et. al., 2012; Martinez et. al, 2023; Torres-Antonini, 2013). But what happens when an interior design program wishes to engage in teaching net-zero design methods using a competition such as this without significant support or resources from ancillary disciplines? Are undergraduate interior design students capable of understanding and implementing net-zero initiatives as well as competing on a world stage against other building design students who may retain a deeper expertise regarding the involved philosophies?

Recently, a CIDA accredited Interior Design program in the Midwest accepted the challenge to participate in the U.S. Department of Energy's Solar Decathlon Competition. Regrettably, few other majors within the engineering and technology disciplines expressed interest in supporting the aspirations of the contest, and the campus does not retain an architecture program. Subsequently, a

handful of faculty leads, three undergraduate interior design studio courses, and one undergraduate electrical engineering course led the charge during the fall of 2022 and spring of 2023 semesters. Students entered the Multi-Family Building sector of the competition and were educated to understand good stewardship and environmental impacts of their decisions using informative materials provided by the U.S. Department of Energy.

The observed results of this exploratory exercise are significant. The school's submission finished just outside of the top ten (11th place), and faculty and students were subsequently invited to share their solution at the annual summit in Colorado in April of 2023. This establishes that interior design students entering this competition without substantial support from other disciplines can create feasible solutions. Critique from the judges suggest that valuable net-zero proficiencies were gained by the students, with strengths being thoughtful design process which used repurposed shipping containers and positively impacted the environment. The primary weakness pointed out was the project lacked cost-estimating data to prove its affordability.

The faculty concluded that while the net-zero design solution performed better than anticipated for the inaugural year of the competition, there is a strong need to include students and faculty from other disciplines in the project in order to create more competitive results. Also, engaging students from interior design as well as other majors earlier in the process was deemed necessary. In the end, it was decided that using interior design students to take the lead on a multi-disciplinary competition such as this is possible and worth the effort, however, more buy in and support from the overall institution would help the project gain sustenance and support from the community.

REFERENCES

Holt, E. A., Loss, B., & Shaurette, M. (2012, April). Students involvement in the solar decathlon competition: giving context to the classroom experience. In Proceedings of the 48th ASC Annual International Conference, Associated Schools of Construction,

Marinez, L. A., Rodríguez, L., Flores, C. M., Cisneros, C. A., Chávez, M. W., Lemus, I. A., & Ariza, R. I. (2023). On net zero energy building design methodology: a case study examining learning as measured by interdisciplinary knowledge acquisition. *Advances in Environmental and Engineering Research*, 4(1), 1-36.

The U.S. Department of Energy Solar Decathlon. (2023, August 15). <https://www.solardecathlon.gov/>

The U.S. Office of Energy Efficiency and Renewable Energy. (2023, August 16). Zero Energy Design Designation. <https://www.energy.gov/eere/buildings/zero-energy-design-designation>

XXXXXX

Multifamily Building | February 21, 2023

XXXXXXXXX | ZERO16

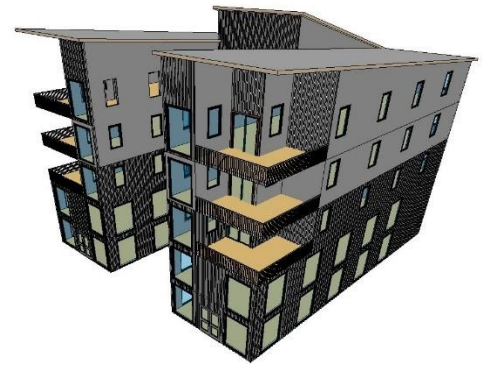
Project Summary

Why build advanced zero-energy buildings if the materials used to make the buildings have a very large carbon footprint? XXXXX seeks to design a building that has a lower carbon footprint during the early construction phases of a project by utilizing shipping containers as the main building shell. This design provides modularity as well as a sturdy framework.

The use of shipping containers stems from a philosophy of “reclamation,” as in taking material that already exists locally and repurposing it. This philosophy is intended to make the construction of the shipping container building cost-effective since the materials are sourced locally, and the cost of transportation will be lowered. The shipping containers are sourced from places where they’d otherwise sit and rust such as a junkyard and transported by train. The solar panels reclaim the sun’s energy, and the geothermal energy system reclaims the earth’s heat energy.

Design Strategy

Shipping container buildings have grown in popularity over the years as a cost-effective solution to housing and minimal living within the tiny home movement. XXXXX believes that this idea can be expanded upon by designing larger structures from the containers. The target market for this project is for transient 18- to 30-year-old Hoosiers. We designed the building with a lower floor lounge and café to make a comfortable living and dining space for the residents. There are solar panels for electricity generation, and geothermal generation for heating.



Project Data

- **Location:** XXXXXXXXXXXXXXXX.
- **Climate Zone:** #5 (IECC)
- **Lot Size:** 0.950 of acres
- **Building Size:** 24,240 ft²; 5 stories
- **Occupancy:** 593(41 ft²/person)
- **Construction Cost:** \$289 /ft²
- **Target Source EUI:** (81 kBtu/ft²/yr)
- **Average Utility Cost Water:** \$175 /month

Technical Specifications

R-Values

- Wall: 20 Floor: 2.5
- Roof: 25

HVAC

- Geothermal System
- VRF Variable Refrigerant Flow

On-Site PV

- Roof Mounted System: 334 MWh

Partners

Industry Partners: XXXXXXXXXXXXX
Design Partner: XXXXXXXXXXXXXXX

Project Highlights

ZERO16 utilizes a combination of recycling & creative architectural & interior design strategies to exceed the objectives of the Design Challenge. Below are highlighted elements building:

Architecture: Utilizing the existing resource of shipping containers as our architectural building shell starting point, The ZERO16 building is a modular design that creates varying living environments, office spaces, and public food and recreation spaces.

Engineering: Repurposing the shipping container means we can construct quite a bit of the building off-site with prefabrication, and in a modular manner assemble them together on site. We investigated the roof structure that will become the solar farm.

Market Analysis: The market we plan to serve is transient in nature as the site will be located near the urban XXXXX campus. With a considerable number of graduate students from places such as the School of Medicine, we see a formidable opportunity to create an environment where professional students can create community.

Durability and Resilience: The shipping container shell is designed to withstand the elements in its regular use, and by repurposing the item we will drastically decrease the economic impact of the project and its carbon footprint.

Embodied Environmental Impact: We will be utilizing fewer products to create a sustainable exterior building skin, and by utilizing shipping containers from the local region we will reduce the impacts on the XXXXXXXX. Some offsite assembly of the container interior will make for a more efficient design & construction process.

Integrated Performance: We will maximize the qualities of a zero-energy building design, while also taking advantage of the shipping container qualities of a rigid recycled building shell. The interior design & architecture will create accessible usage and building systems will provide a comfortable environment.

Occupant Experience: ZERO16 provides a fun and visually interesting environment to live and play in. With a unique mix of living spaces to choose from, and a variation of entertainment, food service, and corporate office space the building will provide interesting sights and sounds. Occupants and passersby will be able to observe the solar energy process at work in the observation area.

Comfort and Environmental Quality: We will maximize natural light by providing ample window spaces utilizing a Sage Glass window system.

Energy Performance: Our building design looks to exceed the annual target EUI for XXXXXXXX by maximizing daylighting, and a zero-energy approach. Utilizing Evidence Based Design the structure will be universally designed, with varying types of LED lighting, energy efficient appliances, equipment and fixtures.

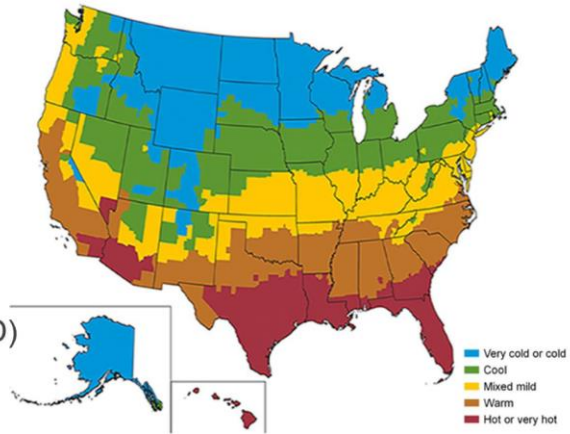
Local Climate Considerations

EUI Source Target Goal:

- Climate Zone 5A
- 81 kBtu/ft²*year

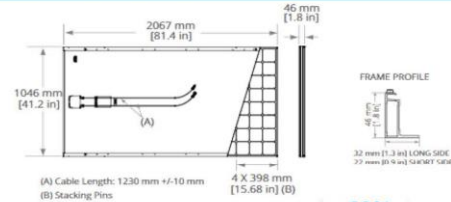
Heating:

- Less than 2000 Cold Degree Days (CDD)
- Over 5-7000 Hot Degree Days (HDD)



SunPower® X-Series Commercial Solar Panels | X21-470-COM

- **Maximum performance**
 - Top performance in real- world conditions such as high temperatures, clouds, and low light
- **Utility grade**
 - Optimized to maximize ROI (Return on Investment) using Maxeon® Solar Cells
- **Reliability**
 - Maxeon® Solar cells are the only cell built on a solid metal foundation. Making it virtually impervious to the corrosion and cracking that degrade conventional cells.
- **High Efficiency**
 - 4% more energy per watt than conventional cells with a 0.75%/yr slower degradation rate



Net Zero Feasibility Tool

Easy to input parameters to test ideas and output real time data using automated energy calculations based on specific spaces and power loads

ROOM ENERGY CALCULATION TOOL

Input	
Room	Gym Space
Sq/ft	<input type="text" value="1000"/>
Monthly kW/H	<input type="text" value="100"/>
Monthly kBTU's	<input type="text" value="100"/>

Solar Estimation Tool Instruction Manual

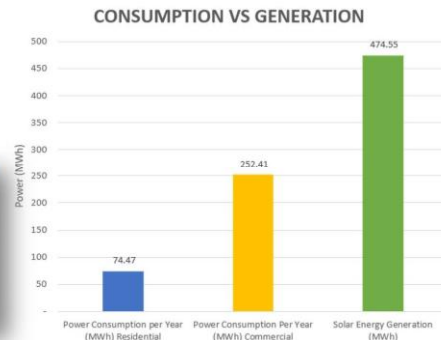
Step 1 Select the "Tool" Tab at the bottom of the Excel Spreadsheet

Step 2 Under the "Room" column, select the room type you wish to input from the drop down menu.

Step 3 Input the square footage of the space you just input, and press "Enter" Watch the Estimated power consumption of that room autocalculate in Monthly and Yearly values in kWh, MWh, and BTUs

Step 4 Watch the Estimated power consumption of that room autocalculate in Monthly and Yearly values in kWh, MWh, and BTUs

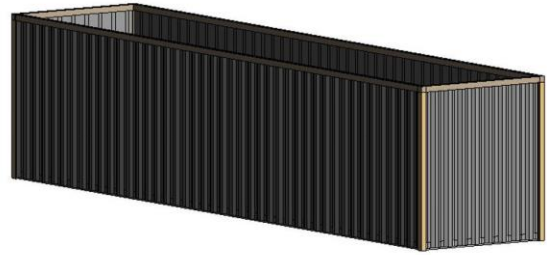
For any questions, message Whit Grote at wgrote@iu.edu or on Microsoft Teams



The Shipping Container

It all starts with one block.

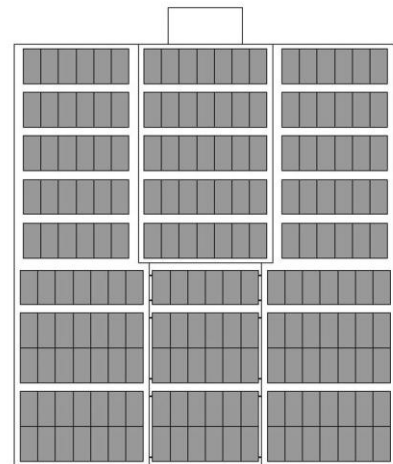
- 40ft by 8ft by 9.5ft
- 320 sq ft
- Rugged steel construction
- Workhorse of the global shipping industry.



Solar PV Generation Model

- System Size: 272 Panels
- Available square footage: 5236 sq ft
- Total array square footage: 4500 sq ft
- Estimated annual array output: 474.5 MWh

([PVWatts](#) Calculations for site)



Gym Space Tool Demo



ROOM ENERGY CALCULATION TOOL	
Input	
Room	Gym Space
Sq/ft	1766
Output	
Monthly kW/H	7982
Monthly kBTU's	27,115.16

Labor Based Grading in an Interior Design Foundation Studio

Jessica Bonness, Marymount University

Salvatore Pirrone, Marymount University

ABSTRACT

Educators are primarily tasked with teaching and evaluating students. To do so fairly in a subjective discipline like Interior Design is challenging and can create conflict between students and instructors. This presentation will discuss the use of labor-based grading (LBG) in Interior Design by sharing how it was implemented in a foundation-level studio, and will explore its viability and perceptions of fairness from students and instructors. It will reveal how closely students' labor-based grading self-assessments aligned with the way instructors graded using a traditional rubric-based grading method. This presentation also reflects on lessons-learned and shares plans for expanded implementation in the future.

Labor-based grading is a “type of alternative grading style where grades are based on the amount of labor that is agreed upon between students of the course and the course’s instructor” (Barnard, 2022, para. 1). It aims to eliminate subjectivity and increase equity by focusing on grading student process and behavior instead of assessing the quality of a final product; Asao Inoue, the predominant scholar in LBG, asserts “the assumption is that with the right amount of time and labor, any student will learn as much as they can” through the process of laboring in the course (Inoue, 2019, p. 45). Proponents assert that LBG has a positive correlation with student learning outcomes because it encourages behaviors that lead to long-term success and aids disadvantaged students (Inoue 2019). LBG originates from and is typically applied in settings where students are writing. We were unable to find research that uses LBG in a design studio, however we thought it would be relevant to investigate it in the design studio since both disciplines require creativity and iteration.

In an Interior Design foundation studio, a labor-based grading contract was created for the seven-week final project; students in the course are typically assigned letter grades with comments based on a traditional rubric. The experimental LBG contract was created by the instructors and based on Inoue’s sample contract, modified to apply to the project’s process and deliverables; the contract broke the project requirements into largely quantitative metrics and eliminated many qualitative assessments. At the onset of the project students were informed of the basic tenants and aims of LBG, shown the studio contract, given opportunities to discuss and modify the contract, and asked to complete a questionnaire

about their perceptions of LBG in general and in the context of the studio. Students and instructors used the contract as a guide throughout the seven weeks. At the end of the project, students were asked to self-assess their performance based on the LBG contract. As a matter of record, students were given the grade they earned from the instructor via the traditional grading method (not their self-assessed labor-based grade); this was made clear to students at the start of the project.

Initially, students were primarily concerned with issues of fairness and lack of qualitative feedback associated with LBG. Instructors were concerned with LBG negatively impacting student effort and consequently, quality of the work product. We found that both concerns were largely unfounded within this course-based experiment. Results showed that 56% of the time student self-assessment of labor and the traditional grade were the consistent. Disagreement occurred 33% of the time: more often, instructors assessed higher grades using the traditional method of grading than students assessed using the labor-based model. 11% of students abstained from self-assessment.

This presentation will thoroughly explain a labor-based grading experiment in a first-year foundation studio, present the outcomes in more detail, and discuss perceptions and concerns that students and instructors had. Additionally, lessons learned and ideas for improvements in future applications will be shared.

REFERENCES

Labor-Based Grading | Barnard College. (n.d.). <https://barnard.edu/labor-based-grading>

Carillo, E. C. (2021). *The Hidden Inequities in Labor-Based Contract Grading*. University Press of Colorado.

Inoue, A. B. (2019). *Labor-Based Grading Contracts: Building Equity and Inclusion in the Compassionate Writing Classroom*. The Wac Clearinghouse.

APPENDICES:

LABOR BASED GRADING IN AN INTERIOR DESIGN FOUNDATION STUDIO

APPENDIX A: Labor-Based Grading Rubric (for the studio)

Traditional Grading

Rubric APPENDIX B: Questionnaire and

Results APPENDIX C: Comparison of

Grading Outcomes APPENDIX D:

Project Brief

APPENDIX A: Labor-Based Grading Rubric for the Studio and Traditional Grading Rubric

LABOR BASED GRADING RUBRIC (for the studio)

Distributed for reference on paper, in class, at start of project.

Completed on paper post-project as self-assessment, during final critique session, immediately after presentation.

Grade	Unex Absences	Late Work	Parti Diagram	Concept	Site	Client Narrative	Space Planning	Floor Plans	FF&E	Perspectives + Renderings	Model	Presentation
A	0	0	iterative and successful	written, collage, successful	identified through 4 or more documents	written, visual, clear, relates to project	4 or more iterations	accurate line weight, labels, and rendered and/or keyed, successful	6+, labeled and pictured	3+ different views	complete, accurate scaled, illustrative (only 1 of 3 spaces required)	present and on time, within time limit, clear, follows template or creates meaningful flow
B	1	1	iterative or successful	at least 2 of the A category	3 or fewer documents	minor issues	3 iterations	at least 3 of the A category	5 or fewer, or labeling/picture issues	2 different views	attempted with some success	at least 3 of the A category
C	2	2	somewhat iterative or successful	at least 1 of the A category	2 or fewer documents	major issues	2 iterations	at least 2 of the A category	3 or fewer, w/ labeling/picture issues	1 view	attempted	at least 2 of the A category
Not Acceptable	2+	2+	not attempted	not attempted	1 or 0 documents	not present	no iteration	at least 1 of the A category	1 or not attempted	not attempted	not attempted	1 or 0 of the A category

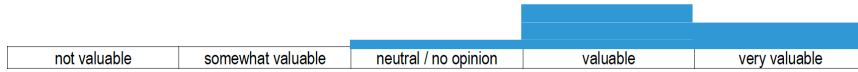
TRADITIONAL GRADING RUBRIC (based on traditional 100 point scale)

Category	Points	Comments
Completion: finished components according to project brief, accurate	40 points possible	<i>Specific to student; typically 1- 2 paragraphs.</i>
Endeavor: effort, originality, creativity as evidenced by iteration and concept	40 points possible	<i>Specific to student; typically 1- 2 paragraphs.</i>
Craft: attention to detail and neatness	20 points possible	<i>Specific to student; typically 1 paragraphs.</i>

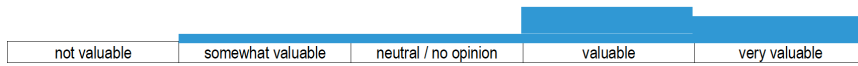
APPENDIX B: Questionnaire and Results

Distributed and completed on paper, in class, at start of project.

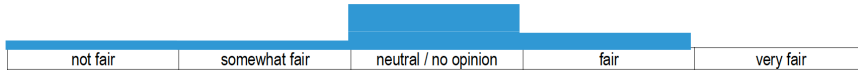
How valuable do you feel a labor based grading contract is for setting expectations about project requirements?



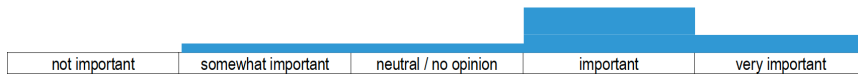
How valuable do you feel a labor based grading contract is for holding you accountable to the requirements?



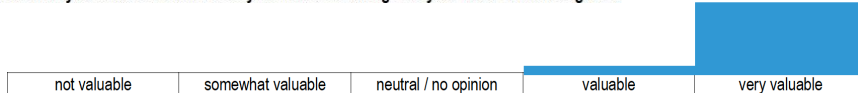
How fair do you think a labor based grading contract is for grading a project like *Refuge*?



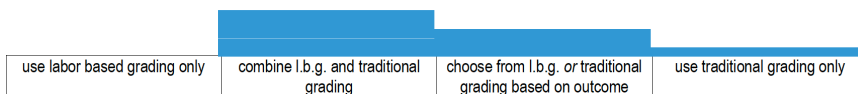
How important do you think it is to grade projects based on content/success (traditional method)?



How much do you value comments from your instructor along with your letter or number grade?



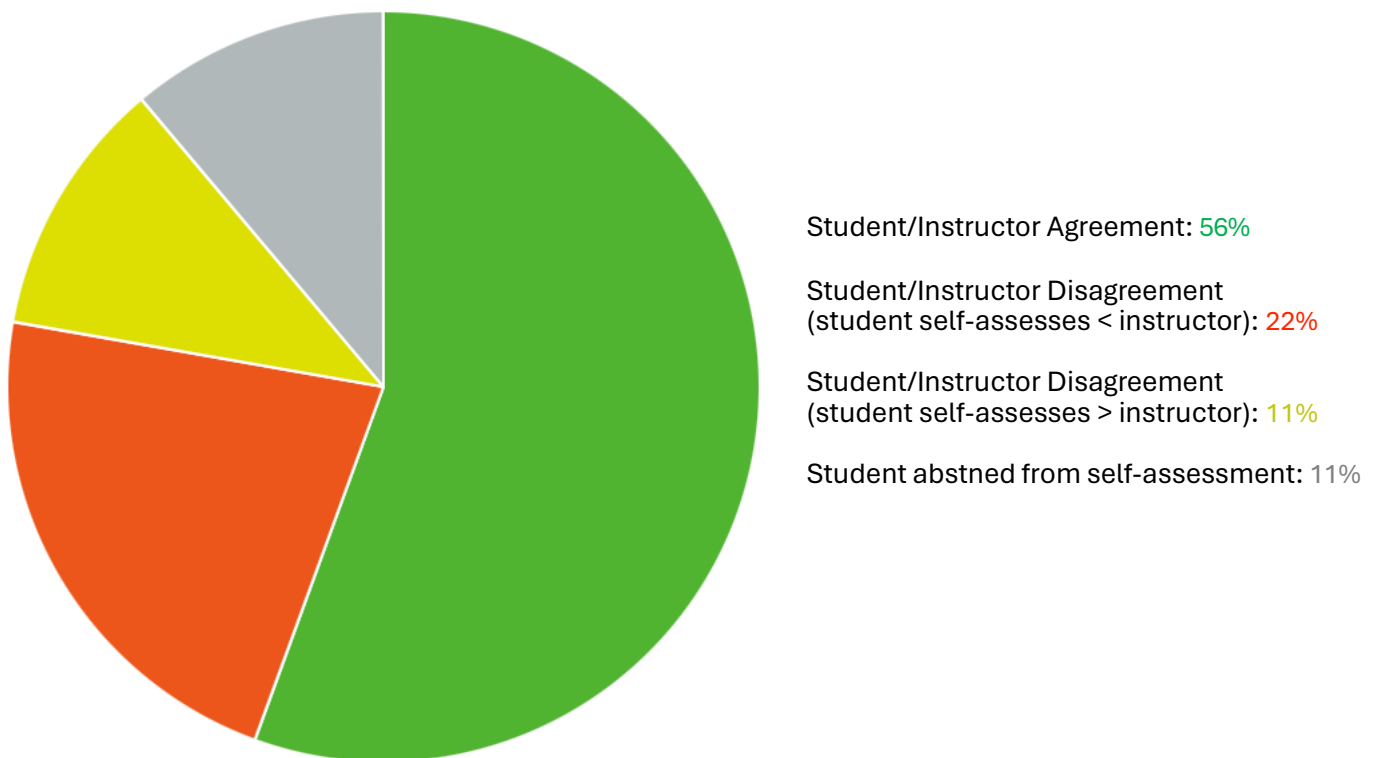
How would you prefer to grade *Refuge*?



APPENDIX C: Comparison of Grading Outcomes

Comparison of Grading Outcomes

“Student” = labor-based grading self-assessment “Instructor” =
traditional grading method



Appendix D: Project Brief

REFUGE: A Space for Shelter, Reflection

Overall Approaches to Refuge can be concerned with:

17. Reflection: contemplation, relaxation, recovery (mostly psychological)
18. Shelter: from rain, from noise, from stress (can be physical or psychological) An "A"

project will address both approaches simultaneously.

Site: The connective corridor between [redacted], including the connector bridge over [redacted] and ending at the [redacted] courtyard where your volume is located.

There is a scaled site model in [redacted] that you can have access to at all times. Do NOT remove the model from [redacted].

For Site Documentation, choose 4-5 elements from the following options:

19. photograph(s)
20. map(s)
21. sketch(es)/drawing(s)
22. phenomenological drawing(s) such as sound, light, time, wind, etc...
23. solar study
24. landmark or transit study
25. demographic data

Space/Program:

- Footprint: size of your choice (height limit of 20')
- intervention on multiple planes (ground plane, overhead plane, mezzanine etc...)
- has to include public (prospect) and private (refuge) spaces
- contains at least 1 portal to the outside world (window, etc...)

Deliverables (see rubric for typical "A" requirements):

- C) site documentation
- D) client narrative (specific or "type" of client(s))
- E) written concept statement and concept imagery (mood board)
- F) parti diagram
- G) floor plan, including iterative space planning
- H) renderings (perspectives, analog and/or digital manipulation)
- I) FF&E board
- J) model

We will provide a digital board template for 2 30'' x 60'' posters in InDesign/Illustrator, which we strongly recommend you use or model your presentation after.

Grading - 100 points possible, based on:

Completion (finished/accurate according to requirements included in brief, 40 points possible)

Endeavor (effort/creativity, 40 points)

Craft (attention to detail, neatness, 20 points)

We are also exploring Labor-Based Grading in this course, but not using it to formally grade your work. You might find it helpful as a rubric that guides your work. We will discuss this in class at multiple points throughout the semester.

Presentation:

26. [date redacted]

27. [location redacted]

28. Each student has 20 minutes to present and discuss (10-12 to present; 8- 10 to discuss with critics)

29. 2, 30''x60'' posters; a table will be provided to display your model within the context of the large communal site model

Learning to See: Engaging the Senses in Site Analysis

Rene King, Columbia College Chicago

ABSTRACT

"An environment is perceived through physical sensations, encompassing air, light, sound, smell, and touch." - Bruce Mau

In his MC24 text, Mau suggests that most design primarily caters to the sense of sight. We've been conditioned to think of our minds as separate from our bodies, when in reality, they are intertwined with our senses, impacting our overall quality of life. What happens when we take a moment to appreciate the impact of our environment upon all of our senses? How would this impact the way that we design interior spaces to fully engage?

The interior is a component of a broader ecosystem that originates at the porous boundary between indoors and outdoors. It links us to a range of possibilities throughout the design process when we take the time to slow down, absorb our surroundings, and construct a narrative about the significance and opportunities presented by a particular time and place. These observations, which begin in the research phase, have the potential to enhance the well-being of occupants and the community while also identifying opportunities to minimize environmental impacts.

Fostering a genuine appreciation for a location in design studios can be challenging. Students often rush through the analysis phase, treating it as a mere checklist to quickly progress to schematic design. In this haste, numerous opportunities are missed, resulting in projects that lack sensitivity to context.

This presentation focuses on a series of exercises conducted in an intro level, third semester, interior design studio to encourage students to pause, explore, and deeply connect with the context in which they are designing and the opportunities that arise when we fully immerse ourselves in a place.

I adopted the methodology outlined by Lupi and Posavec in "Dear Data," where the authors observed, counted, and created hand-drawn visualizations of their experiences, accompanied by detailed legends for interpretation. The objective is to use data and perception to slow down, cultivate empathy, and establish deeper connections with ourselves, our environments, and our experiences.

The four-phase project includes observation, analysis, abstraction, and self-reflection as tools for development. It begins with each student selecting a specific "site," in this case, a walk of their choice that takes approximately 8 minutes to complete. After showcasing examples from "Dear Data," students are tasked with undertaking the walk and generating a series of diagrams that capture key moments of their experience, complete with detailed legends. In the second phase, they revisit the

walk, this time engaging senses other than vision to document emotional experiences. The third walk occurs after a discussion about the elements and principles of design and requires students to capture as many of these as possible through photos or sketches along the path. Finally, all of these experiences are utilized to design a poster, part-map part-collage, documenting the connection between place, emotion, senses, and the organizing elements. Along each phase students are given a series of prompts to reflect on each experience and how it changes their understanding of place.

The outcomes used a range of observational methods and students were quite surprised what they were tuned into when engaging with the senses, many could not remember taking a walk without headphones and commented on how different the experience was when they were able to hear the environment. The process of creating the diagrams was seen as challenging during the first phase but later embraced as a tool for expression and storytelling. The final test will be a comparison between past student projects that did not employ this methodology and current projects underway that use these methods as part of site analysis.

REFERENCES

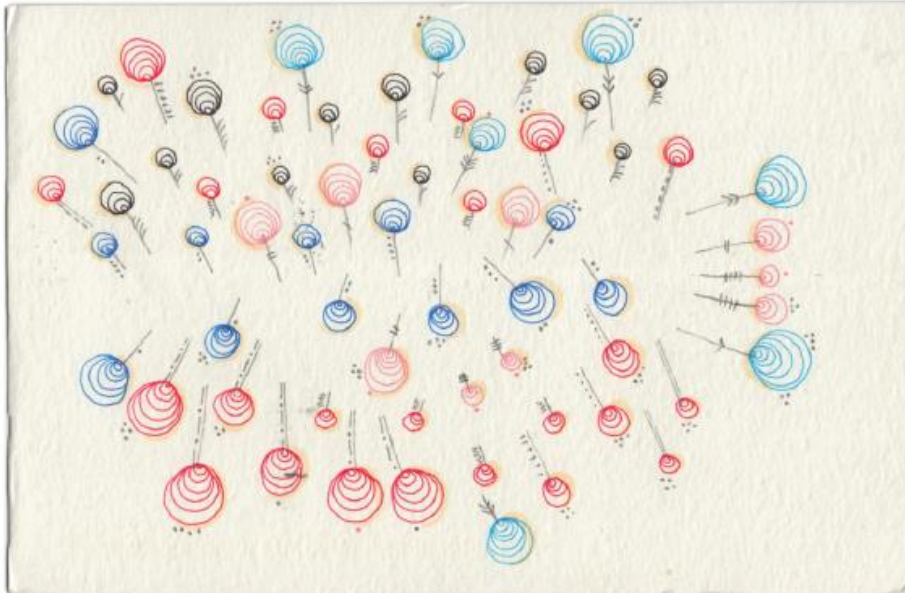
Mau, Bruce, and Jon Ward. *Mau MC24: Bruce Mau's 24 Principles for Designing Massive Change in Your Life and Work*. Phaidon Press Limited, 2020.

Lupi, and Posavec. *Dear Data*. Princeton Architectural Press, 2016.

Part One: Diagramming a Walk

"Some people walk with both eyes focused on their goal: the highest mountain peak in the range, the fifty-mile marker, the finish line. They stay motivated by anticipating the end of their journey. Since I tend to be easily distracted, I travel somewhat differently - one step at a time, with many pauses in between. Occasionally the pauses become full stops that can last anywhere from two minutes to ten hours. More often they're less definite... Trapped by our concepts and languages and the utter predictability of our five senses, we often forget to wonder what we're missing as we hurry along toward goals we may even have chosen. I became a tracker by default, not design, when my tendency to be distracted by life's smallest signs grew into an unrelenting passion to trace those obscure, often puzzling patterns somewhere, anywhere - to their source or end or simply to some midpoint in between."

Hannah Nyala, *Point Last Seen*

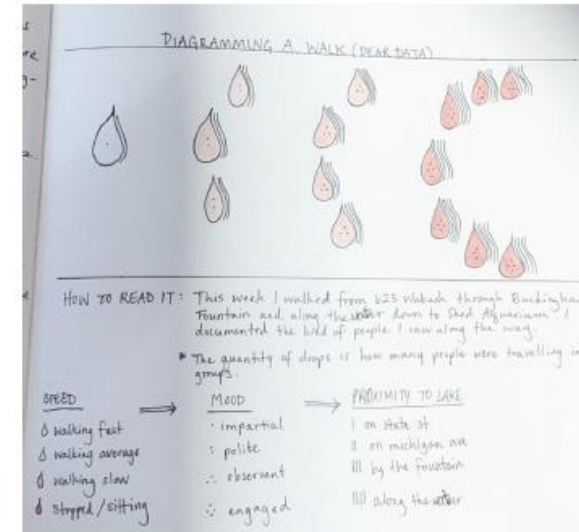


Assignment

Tuning in to the built environment allows us to assess how spaces facilitate human interactions and foster connections. It enables us to grasp the subtleties of a place, offering us a fresh perspective and inspiring us to envision alternative ways of engaging with that space.

In this multi-part assignment, you will choose a route through the city that holds personal significance to you. This route will be traversed multiple times, and you'll be tasked with documenting and illustrating your experiences along the way. Think about the places that resonate with you. Is it the serene Lakefront, the vibrant Millennium Park, or perhaps the culturally rich Pilsen neighborhood? Select a location that deeply resonates with you and that you wish to explore more profoundly.

For our upcoming class, you will create diagrams of your experiences during these walks. There are no strict rules; instead, you'll develop your unique system and provide a key to help others understand the notable aspects of your journey. Please complete this exercise in your sketchbooks and bring it to class for small group discussions.

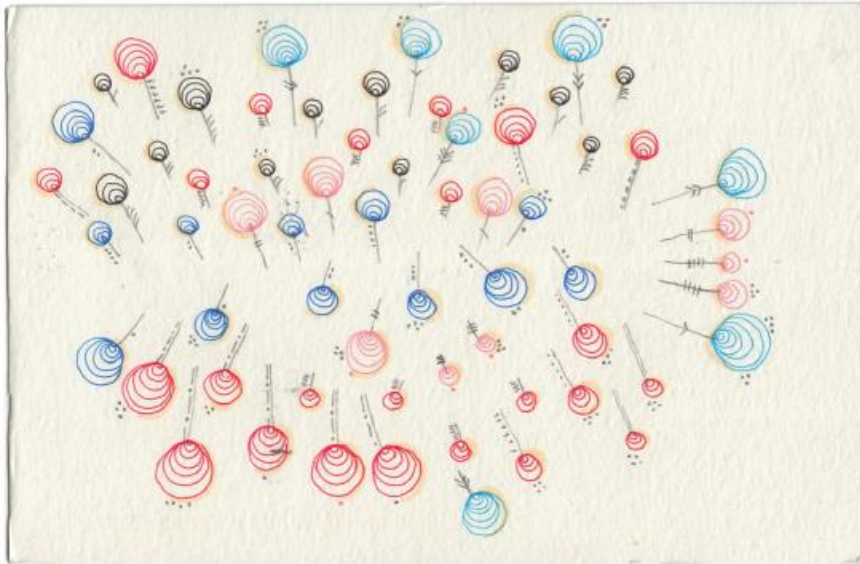


Assignment Prompt & Student Outcomes: Walk One

Part Two: Focus on the Senses

"Some people walk with both eyes focused on their goal: the highest mountain peak in the range, the fifty-mile marker, the finish line. They stay motivated by anticipating the end of their journey. Since I tend to be easily distracted, I travel somewhat differently - one step at a time, with many pauses in between. Occasionally the pauses become full stops that can last anywhere from two minutes to ten hours. More often they're less definite....Trapped by our concepts and languages and the utter predictability of our five senses, we often forget to wonder what we're missing as we hurry along toward goals we may even have chosen. I became a tracker by default, not design, when my tendency to be distracted by life's smallest signs grew into an unrelenting passion to trace those obscure, often puzzling patterns somewhere, anywhere-to their source or end or simply to some midpoint in between."

Hannah Nyala, Point Last Seen



Assignment

Tuning in to the built environment allows us to assess how spaces facilitate human interactions and foster connections. It enables us to grasp the subtleties of a place, offering us a fresh perspective and inspiring us to envision alternative ways of engaging with that space.

For next week, take the same walk, same path and this time focus on the five senses and when they are activated along your path and create a diagram to describe key moments.

Bring to class in your sketchbooks and upload an image to Canvas with answers to the following questions:

How many senses did you engage with and how did this change your experience?

Which senses did you not fully engage with? Why?

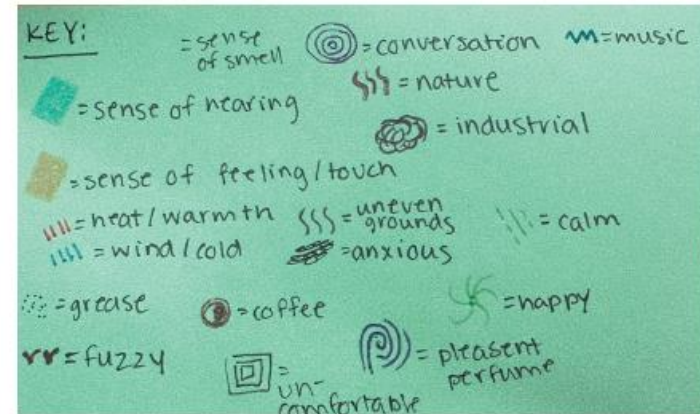
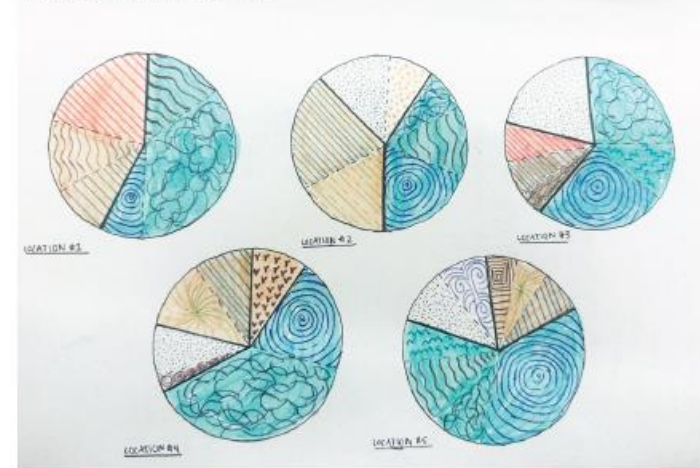
How did this change your approach to diagramming?

"This process changed my experience, instead of observing every little thing on my walk, I picked five locations where I could stay still, close my eyes and just write."

"I think taste was the hardest sense to engage with, I also had to close my eyes so that my other senses could engage."

"This process changed my approach to diagramming...I had to consider each location as one experience."

DIAGRAMMING A WALK PT. 2



Assignment Prompt & Student Outcomes: Walk Two

Part Three: Capturing the Elements + Principles



Asymmetrical Balance: Nature finding her way, moss and small plants growing through a small crack in the wooden boardwalk.

Analogous Color Scheme: Shades of Green come alive against the neutral background of wood and metal fasteners.

Assignment

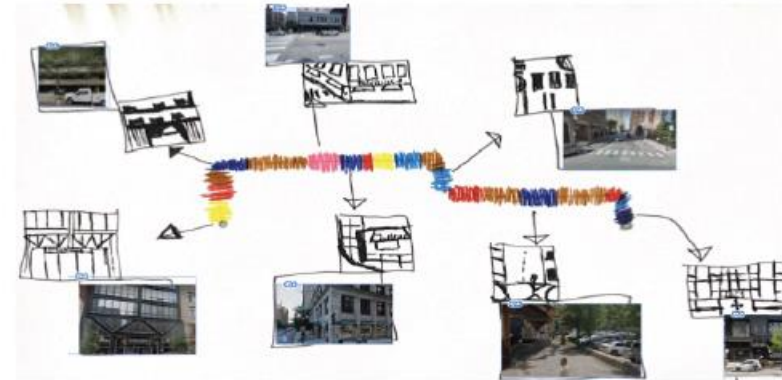
By tuning in to the built environment, we gain insight into how spaces facilitate human interactions and foster connections. This process allows us to discern the subtleties of a place, providing a fresh perspective and inspiring us to envision alternative ways of engaging with that space.

For next week, your task is to take the same walk along the same path and focus on capturing the elements and principles discussed in class. Experiment with various methods to convey what you experience—through photographs, sketches, diagrams, etc. Include a description for each element or principle you observe. For example, if you're documenting color, specify whether it's part of an analogous color scheme, cool or warm tones, and so on (see example above).

Compile all the information in your sketchbooks and bring them to our next class. Additionally, upload an image to Canvas along with responses to the following questions:

1. How did this assignment change your view of your surroundings?
2. What mediums and methods did you experiment with to capture the elements and principles?
3. Which elements or principles were the most challenging to capture?

This exercise will not only enhance your observation skills but also deepen your understanding of the elements and principles of design in the context of the built environment.



ELEMENTS
 LINES, VERTICAL,
 HORIZONTAL,
 DIAGONAL
 PLANE
FORM
 VOLUME
 TEXTURE
 PRINCIPLES
 BALANCE
 REPETITION +
 RHYTHM

ELEMENTS
 LINES, VERTICAL,
 HORIZONTAL
 PLANE
FORM
 TEXTURE
 PRINCIPLES
 REPETITION +
 RHYTHM
 MONOCHROMATIC
 COOL PALETTE

EARNING TO SEE: PART THREE
 BEFORE THESE WERE JUST ANNOYING TRAIN TRACKS TO ME. NOW I SEE SO MANY
 ELEMENTS OF DESIGN THAT I NEVER SAW BEFORE
 I PRINTED OUT PICTURES AND USED COLOR MARKERS TO POINT OUT THE PRINCIPLES
 AND ELEMENTS. I ALSO DREW BUT THINK THE PICTURES PRINTED SHOW BETTER.
 MOVEMENT, EMPHASIS + DOMINANCE, AND UNITY + HARMONY.

Assignment Prompt & Student Outcomes: Walk Three

Learning to See: Final Presentations



Collage Example

Assignment

By tuning in to the built environment, we gain insight into how spaces facilitate human interactions and foster connections. This process allows us to discern the subtleties of a place, providing a fresh perspective and inspiring us to envision alternative ways of engaging with that space.

This presentation provides an opportunity for you to showcase your unique experiences tuning into the environment, your senses, and finally capturing the elements and principles along your chosen route.

There are three parts to the final submission:

1. Map of your route with legend or text to provide context
2. Collage with Elements + Principles (see examples from class) this can be digital using Adobe software, or mixed media; sketches, photos, etc. printed and arranged on a firm backing material. Minimum size is 12" x 24"
3. Narrative Text and captions to describe your experience and the elements + principles tying them to your senses and emotions.

Submission

Final presentation is to be printed (or created by hand) and uploaded as a PDF or JPEG file to canvas along with responses to the following questions*

1. How did this exercise reframe the way that you view the environment?
2. What was the most rewarding aspect of diagramming and abstracting your experiences?
3. What was the most challenging?

Final outcomes will be collected during the first week of October and shared as part of this presentation. This process will also be repeated as part of the formal site analysis for the semester project and compared to past semesters to see if this deepens the students understanding of site and the opportunities present.

LEARNING MATERIALITY THROUGH MOBILE AUGMENTED REALITY BASED SPATIAL EXPLORATION

Kutay Guler, Kansas State University

ABSTRACT

Course competencies in design education extend beyond building a theoretical knowledge base and necessitate experiencing a real-world context and experimenting within, investigating possible implementations of ideas in different design scenarios. Interactive virtual environments are one way to enable students to explore how theoretical knowledge applies to practical design problems. It is possible to utilize desktop/laptop computers to set up such experiences, even though flat screens lack both novelty and the ability to communicate a sense of space (Paes et al., 2017). On the other end of the spectrum, immersive VR technologies are promising, though not every student has immediate access to these tools. Furthermore, these systems require the user to go through convoluted setup processes and wear a relatively clunky device; in addition to various user wellbeing issues such as headaches, eye strain, and motion sickness (Kalantari & Neo, 2020). Mobile devices present a unique opportunity, as they are widely available to students, and the rapidly advancing mobile augmented reality (AR) development kits such as ARCore and ARKit provide a reliable platform for running AR applications (Gervautz & Schmalstieg, 2012).

This study aims to investigate the following research question: “how can a mobile app featuring AR-based egocentric spatial exploration be utilized to provide an accessible and convenient platform for teaching and learning interior materiality?” Accordingly, a mobile AR app has been developed with Unreal Engine to be used as an interactive learning tool to enhance the experiential aspect of the materiality curriculum. The app is unconventional in the sense that it leverages AR algorithms, modules, and processes, however, instead of simply superimposing digital objects on real image feed, it directly renders a virtual interior space on the device’s screen. The app translates the mobile device’s movements, based on sensor data and camera tracking input, into movement in virtual space, hence functioning as an egocentric spatial exploration tool.

To investigate user experience and design learning benefits of the mobile AR app, interior design students (n=30+) will be interviewed in accordance with a semi-structured framework, following a session experimenting with material specifications for a virtual open plan living space. Interview transcriptions will be analyzed in accordance with the iterative thematic analysis method (Braun & Clarke, 2006). It is expected that insights on the integration of the mobile AR app into the design

learning process will be formed. The findings will be used to outline a user-friendly, accessible, and efficient framework to integrate mobile AR technology into learning materiality, but also design learning in a broader sense. The findings will be particularly relevant for design courses where there is a need to augment theoretical knowledge with real-world experience.

REFERENCES

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3(2), 77-101. Gervautz, M. & Schmalstieg, D. (2012). Anywhere interfaces using handheld augmented reality. *Computer*, 45(7), 26-31.

Kalantari, S., & Neo, J. R. J. (2020). Virtual environments for design research: Lessons learned from use of fully immersive virtual reality in interior design research. *Journal of Interior Design*, 45(3), 27-42.

Paes, D., Arantes, E., & Irizarry, J. (2017). Immersive environment for improving the understanding of architectural 3D models: Comparing user spatial perception between immersive and traditional virtual reality systems. *Automation in Construction*, 84, 292-303.

Putting it in perspective: Eight reflexive case studies on perspective-taking engagements in commercial design studios

Amy Huber, Florida State University

Arely Cavazos, DAG Architects & Florida State University

ABSTRACT

The significance of perspective-taking, and its close companion, empathy, to the field of interior design cannot be overstated (Paron, 2020). A range of pedagogical scholars assert the benefits of students' perspective-taking, which merges social, emotional, and intellectual cognition (Celume & Zenasni, 2022). Such skills have been shown to dissuade cognitive bias, enhance creative and critical thinking, promote socio-emotional competencies, and in turn, foster transformative learning (Southworth, 2022). Yet, teaching empathetic reasoning and related constructs can be daunting for design educators, especially since the life experiences of their students may vary vastly from a projects' user groups (Swaranjali et al., 2021). To shed light on pedagogical approaches that can be integrated within design studio projects, this presentation's authors apply Becker and Renger's (2017) suggested structure of case study narratives to summarize eight reflective case studies spanning six years of upper-division studio course development, wherein students have been exposed to a rich tapestry of perspectives, anchored in overarching themes: 1) the motivations of project decision-makers, 2) user needs and goals, and 3) the implications of their design choices (See Figure 1).

- Decision-Maker Drivers

Students delve into the motivations driving project decision-makers, through hands-on collaborations with commercial project developers and quasi-hypothetical clients, who offer real-world insights and sometimes competing priorities.

- User Needs & Goals

User needs and goals become apparent through strategic project kick-offs, site visits, guest speaker sessions, formative reviews, student-moderated interviews and surveys, as well as direct input from end-users at various stages of the design process.

- Design Implications

Through strategic engagements, students can also be exposed to the implications of their decisions by receiving formative and summative feedback from sector experts, design professionals, their allies, and the students' peers. Moreover, design practitioners can play a pivotal role in updating project briefs for relevancy, providing building backgrounds, leading tours, and offering invaluable feedback. The presenters will also discuss the creation of a design mentor network, which was created at a time when COVID-imposed restrictions made field learning implausible. Now in its fourth year, the mentor program continues to build the students' professional acumen by fostering their communication competencies, offering access to industry-relevant insights, and prompting them to negotiate multiple perspectives.

Implications

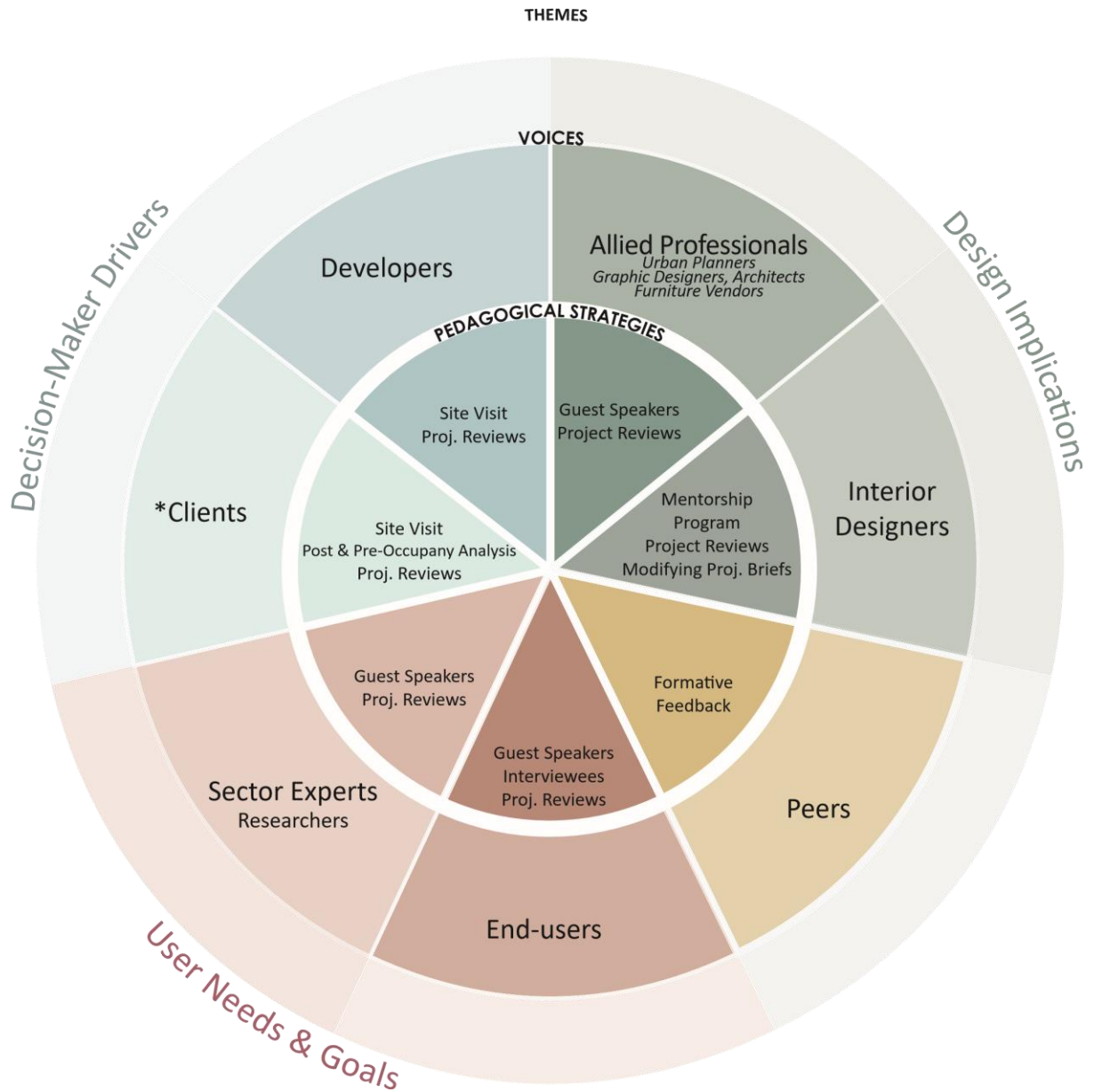
Each case study was analyzed according to its background and context, motivation and scope, subjectivity, evaluative strategy, and lessons learned (Becker & Renger, 2017). The analyses interrogated the benefits and costs of student engagement for various stakeholders (i.e., students, educators, and external parties). Themes include the optimization of student learning and spatial awareness, the enhancement of student motivation and engagement, as well as addressing additional sources of student stress, and managing instructor workload challenges. The findings underscored the effectiveness of these approaches in nurturing students' perspective-taking skills, enriching their understanding of real-world challenges, and improving their design solutions. Additionally, strategies for building, managing, and celebrating relationships, negotiating feedback, and managing expectations will be discussed, with an emphasis on the adaptability of these strategies across different studio courses and their applicability in addressing unexpected challenges, such as remove learning pivots and the passing of an external stakeholder. The presentation provides valuable insights for educators in commercial interior design who aim to enhance students' learning experiences and prepare them for real-world design challenges.

REFERENCES

- Becker, K. L., & Renger, R. (2017). Suggested guidelines for writing reflective case narratives: Structure and indicators. *American Journal of Evaluation*, 38(1), 138–150. <https://doi.org/10.1177/1098214016664025>
- Celume, M.-P., & Zenasni, F. (2022). How perspective-taking underlies creative thinking and the socio-emotional competency in trainings of drama pedagogy. *Estudos de Psicologia (Campinas)*, 39, e200015. <https://doi.org/10.1590/1982-0275202239e200015>
- Paron, A. (2020). Design for all needs design empathy. *Journal of Interior Design*, 45(4), 3–9. <https://doi.org/10.1111/joid.12182>
- Southworth, J. (2022). Bridging critical thinking and transformative learning: The role of perspective-taking. *Theory and Research in Education*, 20(1), 44–63. <https://doi.org/10.1177/14778785221090853>

Figure 1.

Perspective-taking themes, voices, and pedagogical strategies



*Quasi-Hypothetical clients are moving to a new site, but will hire a design professional

Figure 2.

Images of perspective-taking engagements with physicians (images A & D), commercial developers (image B), design professionals & base building architects (image E), and presentation location preparations (images C & F).



Table 1

Perspective-Taking Engagement Interventions for Senior-Level Healthcare Studio

	Clients	Developers	Allied Professionals	Interior Designers	Peers	End-Users	Sector Experts	Presentation Format
2018 Major Project: Family Practice Ambulatory Clinic Minor Project: Repurposing Big Box Stores for Wellness Purposes								
	(Private Physician) Behind-the-scenes tour & feedback on student work	-	(Furniture vendor)	Jurors	In-person peer reviews	Student-moderated interviews with providers and recent patients	(Nursing faculty) offering formative reviews	On-site Poster session with healthcare providers and staff
2019 Major Project: Integrated Health Ambulatory Clinic and Research Center Rollout Minor Project: Repurposing Big Box Stores for Wellness Purposes								
	(Medical Director) Behind-the-scenes tour, assistance on crafting program, feedback on student work	-	Furniture vendor	Jurors	In-person peer reviews	Student-moderated interviews with providers and recent patients	(Nursing faculty) offering formative reviews	Poster session with healthcare providers and staff
2020 (Remote instruction) Major Project: Urban Primary Care Clinic Minor Project: Repurposing Big Box Stores for Wellness Purposes								
	-	-	(Architects & Med. Planners) Design Mentorship program offering a 10-week period of formative feedback	Design Mentorship Program offering a 10-week period of formative feedback	Digital peer reviews	Student-moderated interviews with providers and recent patients	-	Digital
2021 Major Project: Ambulatory Behavioral Health Clinic for Children Minor Project: Repurposing blighted buildings for wellness purposes or IDEC Veterans Home Project								
			(Architects & Med. Planners) Design Mentorship program offering a 10-week period of formative feedback	Design Mentorship Program offering a 10-week period of formative feedback	In-person peer reviews	Student-moderated interviews with providers and recent patients Psychologists guest speaker	(City Urban Planning officials) offering kick-off session and project reviews	Outdoor poster session with city officials
2022 Major Project: Ambulatory Mental Wellness Clinic for Young Adults Minor Project: Unhoused Resources Pop-Ups or IDEC Refuge shelter								
	-	-	(Architects & Medical Planners) Design Mentorship program offering a 10-week period of formative feedback	Design Mentorship Program offering a 10-week period of formative feedback	In-person peer reviews	Student-moderated interviews with providers and recent patients	Researcher guest speakers	Poster session and digital presentations with mentors
2023 Major Project: Ambulatory Care Clinic Minor Project Options 1: Senior Living in 2082, Healthcare Clinic of the Future, or IDEC Student Wellness Project								
	-	Senior Living Developer Juror	(Architects & Medical Planners) Design Mentorship program offering a 10-week period of formative feedback	Design Mentorship Program offering a 10-week period of formative feedback Guest speakers, Jurors Providing Project Backgrounds	In-person peer reviews	Student-moderated interviews with providers and recent patients	Jurors	Poster session and digital presentations with mentors

Table 2

Perspective-Taking Engagement Interventions for Junior-Level Workplace and Retail Studio

	Clients	Developers	Allied Professionals	Interior Designers	Peers	End-Users	Sector Experts	Presentation Format
2022								
Major Project: Worthy Workplace: Innovative Travel Organization HQs								
Minor Project: Local retail, site 1 (student-driven program)								
	-	Site tour, feedback on work	(Furniture Vendors Base building architects) Feedback on work	Jurors Adapting project brief to post-COVID conditions	In-person peer reviews	Surveys of target demographic		On-site poster session and hybrid presentations
2023								
Major Project: Worthy Workplace: Multicultural Advertising Workplace Regional Headquarters								
Minor Project Options 1: Local retail site 2 (student-driven program)								
	-	Site tour, feedback on work	(Furniture Vendors Base building Architects) Firm tour & feedback on work, providing project backgrounds	Providing case study tour, Jurors	In-person peer reviews	Surveys of target demographic		On-site poster session and hybrid presentations

Scholarship of Teaching and Learning | Presentation

Raising Multicultural Awareness Through a Collaborative Design Studio Project

Luis Mejia-Puig, University of Florida

Edgar Martinez, Universidad Autonoma de Occidente

Carlos Araujo, Universidad Icesi

Roberto Rengel, University of Florida

ABSTRACT

In today's interconnected world, multicultural awareness is key. Understanding and embracing cultural differences has become paramount for success, especially as technological advancements obliterate physical and disciplinary boundaries. This study explored how students from two different countries and academic backgrounds enhanced their multicultural awareness by participating in a design studio.

The design studio, a cornerstone of design education, embodies a constructivist approach, where students learn by actively engaging with and solving complex, open-ended problems. This pedagogical method necessitates experimentation, discourse, teamwork, and critical analysis (Tucker, 2017). Within design studio practice, three fundamental interactions emerge: learner-teacher, learner-content, and learner-learner. Interaction itself is a pivotal element in the learning process. Simpson and Galbo (1986) define interaction as the reciprocal exchange of behaviors between individuals and groups through myriad relationships, including verbal and nonverbal, conscious and non-conscious, and enduring and fleeting. These characteristics make the design studio an ideal setting for fostering multidisciplinary collaboration and intercultural exchange.

Culture, comprising an individual's beliefs, values, behaviors, and communication norms, profoundly influences how one perceives the world and interacts with it and with others (Awang-Shuib et al., 2017). Given the inherently collaborative nature of design practice, designers must effectively communicate, interact, and collaborate with peers and stakeholders. Often, these interactions involve individuals from diverse cultural backgrounds. Moreover, skills facilitating exchanges between individuals from different communities and cultural contexts are highly regarded when forming effective work teams (Finley, 2021).

This project involved a convenient sample of fifty-one (n=51) undergraduate students specializing in three distinct design-related disciplines—Interior Design, Product Design, and Interactive Media Design. These students represented three universities, two in Colombia and one in the United States. The three institutions collaborated on a design brief presented as a virtual exchange (VE) project, adhering to the guidelines of the Collaborative Online International Learning (COIL) initiative. The project required students from various institutions to collaborate and exchange insights about their respective cultures, cities, and disciplines. In this collaborative endeavor, students assumed the dual roles of both designers and clients. For instance, students from the United States designed considering a Colombian location, and vice versa. The central task was to conceptualize an "experiential restaurant" that transcended physical boundaries, creating a holistic dining experience. This approach allowed each discipline to contribute specialized knowledge: interior designers focused on spatial solutions, product designers on furniture and environmental elements, and interactive media designers on user experience and interfaces.

To assess the impact of this project, a validated and reliable instrument, regularly used by one of the partnering institutions to evaluate all VE initiatives, was administered both before and after the project. This instrument gauges students' attitudes and beliefs regarding multicultural awareness and encompasses 26 items rated on a 5-point Likert scale. The results revealed an overall increase in scores across most items, except for a decrease in the item 'I prefer to socialize with people of my culture' and the item 'I like working in groups with students from other countries,' which remained unchanged.

Overall, this project stands as a valuable contribution to the design education community. It exemplifies interdisciplinary studio practice and provides context for preparing our students to thrive in an increasingly globalized world.

REFERENCES

Awang-Shuib, A.-R., Sahari, S.-H., & Ali, A. (2017). Multicultural awareness and urban communities: Validating a multicultural awareness scale. *Journal of Asian Behavioural Studies*, 2(5), 45–55.

Finley, A. (2021). How College Contributes" to" Workforce Success: Employer Views on What Matters Most. Association of American Colleges and Universities.

Simpson, R. J., & Galbo, J. J. (1986). Interaction and learning: Theorizing on the art of teaching. *Interchange*.

Tucker, R. (2017). Teaching teamwork in design: A framework for understanding effectiveness in student teams. In *Collaboration and Student Engagement in Design Education* (pp. 1–27). IGI Global.

Design Brief

NOTE: *This design brief was distributed as a starting point for all three institutions. The information was adjusted to each institution according to who the clients were. For this appendix, the overall information was compiled in a single file.*

AN INTERACTIVE RESTAURANT: Where interaction goes beyond spatial boundaries. BACKGROUND

For students in the United States

Cali is the largest city in the Southwest region of Colombia. With a population of over three million people, it offers visitors a mosaic of multicultural background. The influence of the black population of the pacific coast blended with the mountainous terrain and the vastness of the Cauca River's valley gives Cali an unprecedented scenario for new business to thrive.

Moreover, Cali is known as the Salsa music capital in Colombia. The influence of this genre has reached out to the whole city providing colorfulness and a sensation of rumba throughout. Businesses such as Delirio, which blends Salsa dancing and circus spectacles captivates visitors in immersive experiences.

For students in the Colombia

Gainesville is the largest city in North Central Florida, with a population in its metropolitan area of more than 340,000 in 2023. Moreover, Gainesville is home to the University of Florida, the fourth-largest public university campus by enrollment in the United States as of the 2021–2022 academic year and ranked 5th amongst the best public universities of the United States. This has set the foundation for a thriving city in diversity and multiculturalism.

Currently, the University of Florida has a student population of over 50,000 students which constitute a 33% of the city of Gainesville and a 15% of the complete metropolitan area. For this reason, new restaurants have settled in Gainesville bringing new offerings focused to entertain this young generations of tech savvy individuals.

MISSION

You've been hired to help with the design and development of a new and novel dining space. Consequently, the owner wants a state-of-the-art restaurant in terms of interactive user experiences.

For students in the United States

The location of this restaurant will be in a prime spot in a traditional neighborhood in Cali between "Carrera 2" and "Calle 2 Oeste".

For students in Colombia

The location of this restaurant will be in a prime spot in downtown Gainesville in the corner of 21st SE St and 2nd Av besides the Hippodrome Theater.

Keep in mind.

A critical aspect of this new restaurant is the need for stakeholders and investors to recover their investment in a short timeframe. Hence, this restaurant will not be a gourmet/exclusive setup, but instead will need to accommodate as many guests as possible but provide an engaging/immersive experience. You may choose to focus your restaurant in “fast-casual” or “full-service.” See attached documents for extra information.

Some specifics to consider:

- *The entrance.* Your restaurant must make guests feel welcomed and enticed to enter your restaurant.
- *The guest waiting area.* You must provide a welcoming space where clients are welcomed and register. For a full-service restaurant, this space should have a waiting space for clients to be seated. For fast-casual must be a space where guests can line-up to be served.
- *The pickup station.* Guests can order online and come for pickup. You must accommodate a space for pickup delivery and guest service.
- *The front house.* This is where you guests will be seated to consume their food. In the fast-casual scenario, here is where they will order their food. For full-service they will be attended by the wait staff team.
- *The back-of-the-house.* You will have to account for a kitchen and working spaces for food processing. This place must be towards the back of the space for supplying and logistic purposes. You do not need to design the kitchen as that will be done by the kitchen consultant hired by the owner.
- *The back office.* This space is where the manager is. This space could be part of the back-of-the house.

Overall, you must consider the following.

- The kitchen footprint
- Tables and chairs
- The entrance
- The waiting area
- The bar area
- The restrooms (keep in mind ADA)
- Your staff area or backroom
- Outdoor seating
- Your restaurant POS system and payment systems

In the following pages, you will find three examples of students' works, each from each institution and discipline.

AN INTERACTIVE RESTAURANT: WHERE INTERACTION GOES BEYOND SPATIAL BOUNDARIES.

Diseño del espacio interior

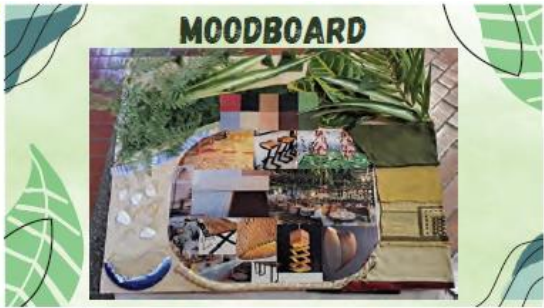
Paula Burbano - 2201225
Isabella Sierra - 2201092



- Gainesville es la ciudad más grande del centro norte de Florida, con una población en su área metropolitana de más de 340.000 en 2020.
- La Universidad de Florida es la universidad más grande del estado de Florida (a una de las principales fuentes de empleo en la ciudad y atrae a estudiantes de todo el mundo).
- Dragonfly Inn & Suite Co. especializado en suculas y cactus autóctonos contemporáneos. El restaurante se centra por su estética moderna y elegante, así como por su selección variada de sushi, sashimi, rollos, aperitivos y otros platos asiáticos.



Personas entre los 18 años y 23 años, estudiantes universitarios que por lo general disfruta de comer en compañía, con amigos y familiares (suavemente entre los 30 años y 55 años)



LobbyMate

Bettering your dining experience

A system designed to reduce the waiting time for people when entering a restaurant



- LCD Screen
- Aluminium
- LED Panels

Each unit handles a majority of the restaurant administration everyday, so that staff can focus their time on assisting their most demanding, interactive VIP guests.



Storyboard



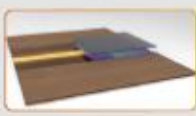
On Scene

How does it work?

You call the LobbyMate if you have a reservation or not and it will light up and direct you to either your table or the lobby to wait for your table.

Uses a real-time computer working parallel to the restaurant's system to help organize and accompany the clients.

The LCD panels are programmed to adjust to the environment and guide the client.



A sense of control is paramount to successfully face difficult waiting lists.



Interactivity

The integrated app connects to the client's phone via Bluetooth. There they can look at the menu, place their order and type their allergies. When they wait, they can browse the 3D model of the restaurant and look at where the bathrooms or wallpaper are.



Juan Manuel Guerrero
Catalina Baturo
Martin Townsend

Reevaluating the Role of Handcraft and Digital Software in Interior Design Education: Exploring the Significance of Traditional Craftsmanship in the Digital Age

Hojung Kim, University of Tennessee

ABSTRACT

CONTEXT: The 3rd-year Interdisciplinary Design Studio delved into the significance of handcraft and analog methods within the realm of interior design education. The primary objective was to reassess the importance of manual craftsmanship in comparison to digital software or their combination. Drawing inspiration from Richard Sennett's work in "The Craftsman," the study underscored the reciprocal relationship between tangible practices and cognitive faculties. As Sennett aptly posits, "Computer-assisted design might serve as an emblem of a significant challenge faced by modern society: how to think like craftsmen in making good use of technology." Therefore, this study aimed to answer the question: To what extent does traditional craft remain relevant in contemporary interior design education in the digital age?

ISSUE: The provincial masterplan outlined in "A Study on the Artisan Craft Development Plan for Rural Industrialization in the Socialist Republic of Vietnam" (ALMEC, 2004) highlights the alarming decline in traditional craftsmanship and manual skills, primarily driven by the rapid advancement of digitalization and mass production in the economical forces on the manufacturing landscape. This comprehensive approach embraces the fields of interior design, craft studies, and socio-cultural analysis, facilitating a thorough exploration of the subject matter. By integrating these disciplines, the interdisciplinary design studio aimed to illuminate the multifaceted challenges arising from the erosion of traditional craft practices and the growing dominance of digital production methods in contemporary interior design.

METHOD: The methodology employed in the studio drew inspiration from Victor Papanek's statement (1985), which emphasizes the necessity for cultures to genuinely intermingle to mutually enrich and benefit each other. During the initial research phase, students scrutinized specialized craftsmanship, traditional techniques, and the broader social, economic, and political implications, while also comparing mass production with automation in the manufacturing process. Subsequently, a hybrid methodology was implemented in the second phase, blending traditional techniques such as weaving, casting, and wood carving with modern rapid prototyping methods, including formative vacuum forming, subtractive CNC, and additive-ABS 3D printing. Students applied this hybrid approach to

construct a 1/2" = 1'0" scale detail section model, adopting an isometric perspective. Drawing from their study of traditional handmade techniques in Southeast Asia and juxtaposing them with contemporary automated methods, students harnessed this knowledge during the Design Development phase. Here, craft techniques were utilized to define architectural elements such as stairs, ramps, doors, windows, walls, ceilings, and floors. The typologies of literal, abstract, and representative details, as discussed in Edward R. Ford's "The Architectural Detail," served as a framework for students to explore and incorporate craft techniques into their designs. The Design Development package was expanded into Construction Documentation, encompassing the integration of furniture, appliances, lighting, and mechanical units into their designs.

OUTCOME: Diversifying their approach empowered students to identify and address issues concerning material transitions in detailed wall section elements that might have been overlooked in digital models. The physical models engaged students in a cyclical process involving sketching in software platforms like Rhino and Revit, followed by hands-on experimentation to assess material integration and durability. This process allowed for comparisons with their digital counterparts, emphasizing the gravity and mass inherent in material installations. Digital models facilitated rapid iterations, enabling swift design exploration within tight timeframes—an aspect that proved challenging to replicate in analog models.

REFERENCES

Ford, Edward R. *The Architectural Detail*. Princeton Architectural Press, 2011.

Sennett, Richard. "Prologue." *The Craftsman*. Yale University Press, 2009, pp. 8–11.

Avé, Wanda. "Small-Scale Utilization of Rattan by a Semai Community in West Malaysia." *Economic Botany*, vol. 42, no. 1, 1988, pp. 105–119. JSTOR, <http://www.jstor.org/stable/4255051>.

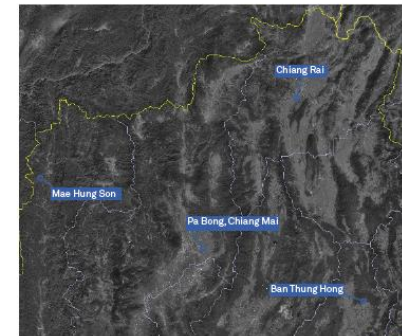
The Study on Artisan Craft Development Plan for Rural Industrialization in the Socialist Republic of Vietnam: Final Report. Master Plan Study, 2004.

Indigo Dyeing Process



The Indigo Dyeing process requires an amount of skill and practice in order for the resulting color to turn out the deep, rich blue color that is best for dyeing. The steps are as followed:

1. Grow and harvest the indigo plant.
2. Gather the plants into bundles to prepare them to soak.
3. The bundles are added to a bin with water. Heavy stones are added on top in order to compress the color out of the leaves. They are left to soak for 24 hours.
4. The next day, the water has turned blue to show the result of the fermentation process. Afterwards, the water mixture is removed for use in the next steps and the bundles of leaves are used as fertilizer.
5. 2% Builder's Lime $Ca(OH)_2$ is then added to the water.
6. This mixture of lime and water is then beaten for at least 20 minutes until the mixture has become frothy.
7. The frothy mixture is then poured into a container with a cloth and straining mesh on top. The indigo paste will sink to the bottom of the container and the remaining water can then be thrown out.
8. The result is a paste that can be stored in bins for up to two years.









region 01



region 02

Pros and Cons of Indigo Hand Dyeing

<p>+ Comes from a plant</p>  <p>+ Uses less water</p>  <p>+ The fashion industry uses \$2 billion cubic metres of water annually which is equal to 27 million Olympic swimming pools</p>	<p>+ Dye lasts longer and fades more vibrantly</p>  <p>+ 72 toxic chemicals are identified within the textile industry as a threat to our ecosystems</p>	<p>+ Takes a long time for indigo plants to grow</p>  <p>+ 60-80% of dyes are AZO dyes which are known to be carcinogenic</p>	<p>+ Uses more dye</p>  <p>+ Longer amount of time to soak/dye fabrics</p> 
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Traditional Technique



Fig B.3 A woman in the Pa Bong Village hand weaves a basket



Fig B.4 Bamboo forests are found all over Thailand, making it a perfect material to use for products

The traditional way of creating a woven basket is hand weaving it using traditional materials such as bamboo or rattan. The patterns used are passed down from generations in order to create unique and culturally significant product.

Technical Implications



Many basket weaving producers still use traditional techniques and methods. However some do use machines that will split the bamboo into strips in order to increase productivity especially if they are elderly (in a lot of cases they are).

Mass Production Methods

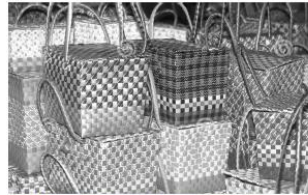
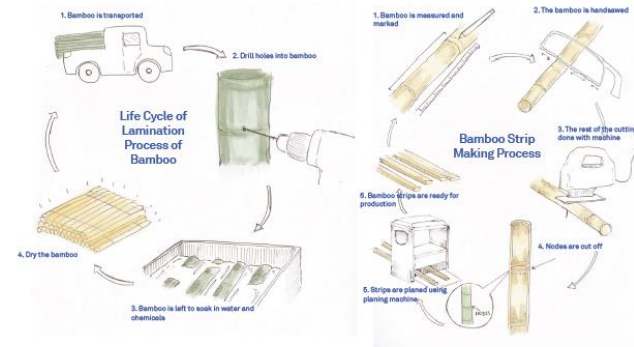


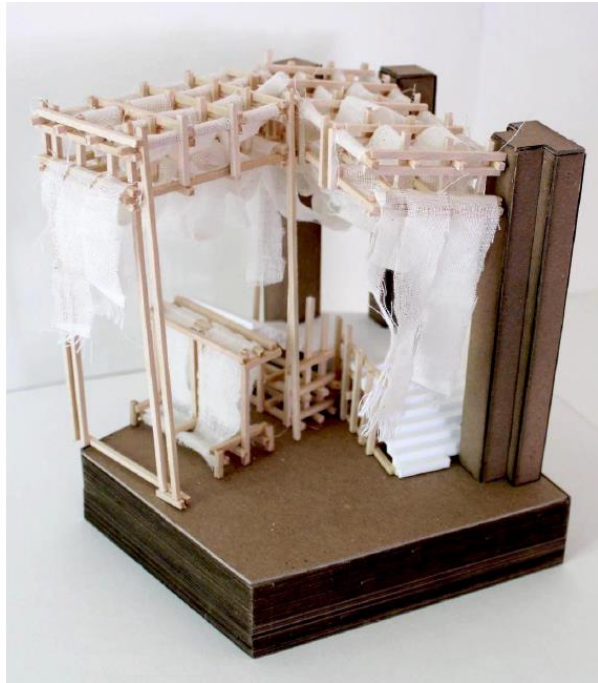
Fig B.5 Plastic woven baskets for sale in Thailand

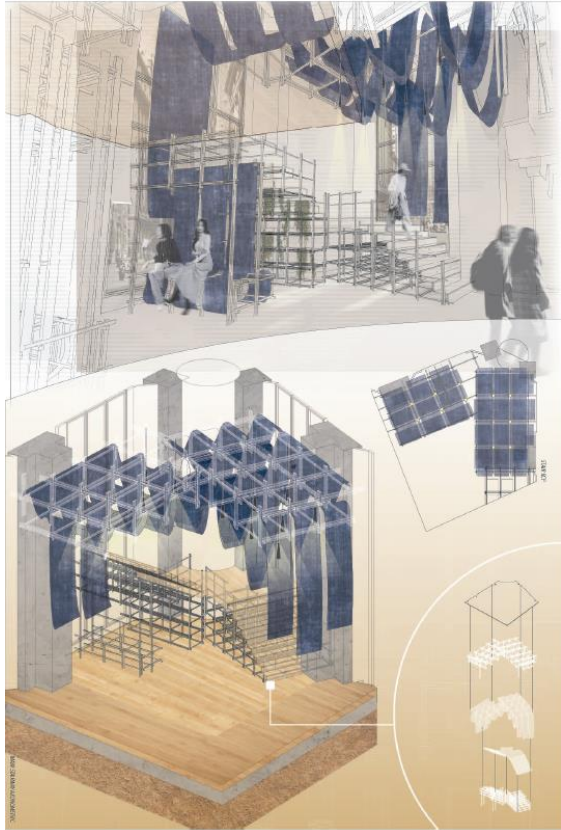


Fig B.6 A woman is hand weaving baskets from plastic instead of bamboo

The development of technology has impacted the implications of bamboo basketry within Thailand's economy. With newer materials such as plastic and nylon which are used for utensils, many regions have made this their "cultural identity" because of its convenience in terms of buying, cleaning, and is cheaper.









The 'Context' Studio: Nurturing Design Excellence through Contextual Learning

Nathaniel Wagenaar, Mount Royal University

Natalie Badenduck, Mount Royal University

Alan Antioquia, Mount Royal University

ABSTRACT

Introduction + Relevance:

Interior Design is influenced by many contextual factors that impact design processes. Addressing the multifaceted nature of design problems is essential in Interior Design pedagogy that draws its strength from the ability to synthesize a myriad of contexts (Zagora, 2011). With an awareness of contexts ranging from historical to cultural, learning is transformative, shaping and cultivating students' abilities to create comprehensive design solutions (Hadjiyanni, 2013). Guided by the theme of 'Context', a third-year studio was developed to employ a range of pedagogical tools and empower students with the knowledge and skills required to navigate the intricacies of context.

Instructional Methods:

The studio begins with in-situ learning within an urban environment and lays the foundation for contextual awareness. Students undertake a site analysis project to explore historic, architectural, environmental contexts, review related policies, and document amenities and inhabitation patterns of a given site. As this project is being developed, students benefit from guest speakers, including historians, indigenous knowledge keepers, and social program advocates, who share their insights about contextually significant factors.

Following site analysis, the focus shifts to the building scale where students undertake an analysis of a heritage building. This phase involves writing reflections on the previous presentations, a code review, and design exercises. Students are tasked with integrating a café, retail space, community theatre, social housing and a social program to benefit the community. Each student selects socially-oriented building uses aligned with their individual impressions of needs within a given community. This challenges students to consider the context of the surrounding area and relationships between multiple building programs.

As the course progresses to the interior scale, students are tasked with designing the café that was introduced in the previous assignment. A real-world entrepreneur serves as the client, who requires a new contextually sensitive location in the proposed heritage building. This requires students to consider the needs of their client and design to the contextually relevant information from their initial investigations. Students then translate their café design into a set of construction drawings, where focus is placed on the historical designation of the building and how this contextual aspect informs construction methodologies.

Learning Outcomes:

The 'Context' studio culminates in meaningful and clearly articulated teaching and learning outcomes:

Contextual Understanding

- The in-situ learning and site research develops the ability to comprehend contextual factors, thereby equipping students with the knowledge and awareness to create contextually appropriate designs

Research Skills

- While investigating the multiple contexts of a site, students hone their research skills and learn to navigate various sources, gather relevant data, and synthesize information

Community Engagement

- Through real-world community engagement and interaction, students build a sense of social responsibility and ethical design practice

Client-Centered Design

- Engagement with a real client provides students with firsthand experience in client-centered design

Significance:

By championing context-driven learning, this 'Context' studio contributes to interior design pedagogy by integrating real-world experiences, contextual awareness, and socially responsible design. Through in-situ learning, the course helps to cultivate research skills and illustrate the importance of learning through doing. By integrating genuine client interactions, it ensures that student designs have tangible consequences. The course fosters ethical and socially responsible designers through engagement with community groups and experts, aligning with evolving expectations of the design industry.

REFERENCES

Beecher, M. A. (1999). Alternative Models of the Past: History/Theory/Criticism Courses. *Journal of Interior Design*, 25(1), 37–44. <https://doi.org/10.1111/j.1939-1668.1999.tb00334.x>

Cunningham, E. (2014). Navigating the Past: What Does history offer the Discipline of Interior Design? *Journal of Interior Design*, 39(3), 5–11. <https://doi.org/10.1111/joid.12031>

Hadjiyanni, T. (2013). Rethinking Culture in Interior Design Pedagogy: The Potential beyond CIDA Standard 2g. *Journal of Interior Design*, 38(3), 5–12. <https://doi.org/10.1111/joid.12013>

Zagora, N. (2011). Contextual Approach in Contemporary Interior Architecture (Focus on Interiors of Remodeled Buildings). Sarajevo Conference, 4th, The Importance of Place. Sarajevo. https://www.researchgate.net/publication/283054152_CONTEXTUAL_APPROACH_IN_CONTEMPORARY_INTERIOR_ARCHITECTURE_FOCUS_ON_INTERIORS_OF_REMODELED_BUILDINGS#fullTextFileContent

assignment examples

A2 Site Analysis

Due Sept. 18, 2022 @ 1pm Weighting 50%



"At every instant, there is more than the eye can see, more than the ear can hear, a setting or a view waiting to be explored. Nothing is experienced by itself, but always in relation to its surroundings, the sequence of events leading up to it, the memory of past experiences." — Kevin Lynch

Project Aims

Any given site can be read as the product of contextual forces. Some of these forces are broad and difficult to see, like cultural, historical, economic, and legal. Some are specific and visible, like local climate, urban structure, architectural style, and social use. A site analysis helps designers better understand a context by breaking it down into pieces. With a good site analysis in hand, designers at all scales can better understand the context of their work and create designs that are responsive, appropriate, and site-specific. Site analysis is critical to the work of interior designers, as they produce editions of public and private realms, create environmentally-responsible designs, and participate in the aesthetic and cultural production of the city.

This project will give you the opportunity to study the context of an existing site, working in groups to ensure there is enough depth in your examinations. Through various research methods, your team will investigate conditions that inform the design and programming of interior spaces. Supported by content covered in Design + Precedent, Systems, and Tools, you will practice gathering, analyzing and synthesizing contextual information.

A listing of (partially assigned) groups can be found on ODL.

Learning Outcomes

- Develop awareness of context
- Produce, present + document research
- Develop the ability to collect + analyze contextual research and synthesize findings.

Deliverables

This assignment is not only about the documentation of information but the analysis and synthesis of data. To show evidence of analysis and synthesis, your research should include diagrams and/or written summaries of research findings.

A2 Site Analysis

10%

Site Analysis Report

Maximum size: 8.5" x 11" pages (portrait format) that capture your given contextual research and analysis (include APA in-text citations and reference list) Submit a digital copy to the A2_Site Analysis on ODL, as a PDF document with the following naming convention: A2_Site Analysis_The Name of Your Assigned Area. Include the names of all group members, but no ID numbers please!

Each group will receive one of the assigned areas to research:

1. [Redacted]
2. [Redacted]
3. [Redacted]
4. [Redacted]
5. [Redacted]
6. [Redacted]
7. [Redacted]

In an effort to reach a greater understanding of the "context" of your area, please examine each of the following components:

1. Historic (location, site, neighborhood, previous uses, constraints...)
2. People (nationalities, demographics, ethnography, observation of how people use public spaces)
3. Transportation (types, circulation patterns, impact on site, traffic patterns - volume, active uses (like walking and cycling), noise generation, access to the site, parking...)
4. Amenities (gathering areas + amenities (location, types), hubs of activity...)
5. Policies (Municipal development plan, Area redevelopment plan, Calgary Transportation Plan, bylaws, supplementary neighbourhood guidelines...)
6. Security (analysis of the existing site, crime statistics, CCTV, lighting...)
7. Architectural (constructed community identity, scale, materiality, views, adjacent structures - heights...)
8. Natural (climate, sun studies, views, geographic features...)

Evaluation

Refer to the rubric on ODL.

A4 Cafe Design

Intern Review Oct 20 and 21 Due Nov. 04, 2022 @ 4pm Weighting 25%



"The form given to places of sociability, after all, is closely related to social codes and assumptions of specific local cultures" - Drake and Bolwell

Project Aims

In this phase of the project, you will design the cafe component from your A3 assignment, beginning with an exercise in brand research.

Your client for this cafe is [Redacted] Coffee Roasters. Founded at [Redacted] in [Redacted] is looking to expand and open another location in the [Redacted] using this location as a starting point to test out their new model of contextually responsive cafe design. Your interior design proposal should align with the company's values and ethos while maintaining a connection with the [Redacted] community.

For the first part of this assignment you will build off the work from your A2 and A3 projects to research and propose a contextually sensitive cafe design for [Redacted] Coffee Roasters. In the second part of the assignment you will work toward a Design Development level of resolution for your cafe, completing a floor plan, a reflected ceiling plan, an interior section, interior perspectives, and selecting furniture and materials.

Learning Outcomes

- Apply awareness of physical, historic + cultural context through various spatial typologies
- Apply knowledge of specialized regulations (Food Retail and Food services Code)
- Build awareness of brand expressions and experiences within interiors
- Develop iterative processes + dialogic communication skills
- Produce, present + document solutions to contextual design problems
- Apply digital rendering and drawing skills

Evaluation

Refer to project rubric posted on ODL.

Deliverables

Please submit the following deliverables in a digital 11x17 PDF document (landscape orientation). Include a cover page with your project title and student name. Please name your file: Last Name_First Initial_A4 2022.pdf and submit to the Studio 5 Submissions folder as a single PDF document.

Digital Cafe Submission

1. Rebrand and Concept

- A single page spread of images that are communicative of the qualities of [Redacted] Coffee Roasters along with a brief description of your understanding of the brand and their requirements.
- A second page with images that would inform the design of your interiors. Images should not all be of interior spaces and some should be informed by the context studies that were previously undertaken. Accompany the previous images with a brief summary of how the contextual information has informed your design choices. Mindfully select and curate your images to ensure a clear, cohesive communication of your vision for the look and feel of the brand.
- For the third page of your rebrand and concept study, draw from your previous explorations and work, and create a concept statement for your cafe design. You may connect this to [Redacted] Coffee Roasters, your contextual research, and other sources as required to create a descriptive, compelling, and succinct concept statement that will help guide your design process. Your concept statement should be accompanied by a perk, a diagram, sketch, model, or photograph that captures the essence of your concept.

2. Cafe Floor Plan (Scale 1:100)

Completed digitally and graphically presented (rendered, annotated, poche, etc.). Extent of plan area spaces listed in the design programme. Plans should indicate design elements, furniture, flooring and material transitions.

3. Reflected Ceiling Plan (Scale 1:100)

Completed digitally (not required to be rendered). Extent of custom ceiling/lighting design in for the cafe space(s) only, indicate a 600x600 or 600x1200 ceiling grid in the kitchen. Consider the impact of ceiling planes and sectional development in the articulation of interior volumes. Indicate ceiling height changes, lighting locations, and material transitions. Include 15m² interconnected floor space (if applicable).

4. Interior Elevations (2-4) (Scale 1:50)

Completed digitally and graphically presented (rendered, annotated, poche, etc.), the elevations must be CAD generated, not captured from SketchUp. Select the best, and as many as required, to illustrate your design intent. If you have developed a double volume space, one of your elevations may be through this area to show design intent.

5. Interior Perspectives (2) NTS

Completed digitally. Choose a view(s) that most effectively express your design intentions.

6. Furniture + Materials Composition

Cafe seating, millwork, and cafe furniture. Seating upholstery, flooring finishes, wall surfaces, furniture, paint colors. Images of furniture, fixtures, and material samples and/or concept imagery. May be expanded on to two pages.

AMENITIES & TRANSPORTATION



HOW TO GET TO THE [REDACTED]

- WALK
- BIKE
- CAR
- PUBLIC TRANSPORT



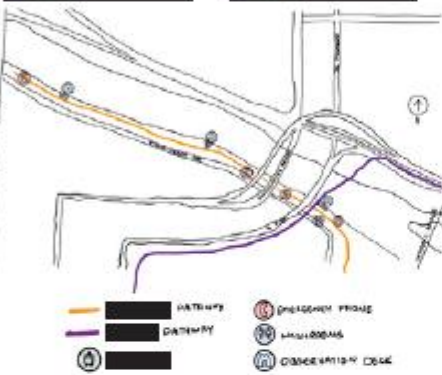
THE BRIDGES



BRIDGE
JANUARY 2013 - JANUARY 2018
CONNECTS [REDACTED]



BRIDGE
SEPTEMBER 2012 - OCTOBER 2014
CONNECTS [REDACTED]



2



1



2

THE [REDACTED] IN ITSELF WOULD BE CONSIDERED AN AMENITY SINCE IT IS WIDELY USED AS A MEANS OF TRANSPORTATION. ALONG THE PATHWAY MULTIPLE OTHER AMENITIES ARE PROVIDED TO ALLOW ITS USERS TO HAVE A GREAT EXPERIENCE, SUCH AS BIKE RACKS, ELECTRIC BIKES AND SCOOTERS, BENCHES, AND PUBLIC ART ARE THE MAIN AMENITIES THAT ARE TO BE SEEN THROUGHOUT THE PATHWAY.



3



4

TREES ARE PLACED CLOSE TO BENCHES TO PROVIDE SHADED AREAS FOR USERS ON HOT DAYS. MULTIPLE LOOKOUT POINTS ARE PROVIDED TO BE BUILT CLOSE TO THE RIVER TO ALLOW PEOPLE TO STOP, TAKE A BREAK AND ENJOY A GOOD VIEW.

SECURITY & POLICIES

THE REVITALIZATION PLAN

THE [REDACTED] DISTRICT WAS PART OF THE CITY OF [REDACTED] REVITALIZATION PLAN DUE TO IT BEING CLASSIFIED AS AN UNDERDEVELOPED INNER CITY AREA (CITY OF [REDACTED] IT AIMED TO:

- INCREASE RESIDENTIAL DENSITY
- DIVERSIFY POPULATION
- REDUCE ROAD CONGESTIONS BY CREATING A NETWORK OF ALTERNATE TRANSPORTATION CHOICES (PATHWAYS, CYCLE ROUTES, LINKING LRTS)
- CREATE DISTINCT NEIGHBORHOODS THAT ARE VIBRANT, SAFE AND ACCESSIBLE TO ALL [REDACTED]

3

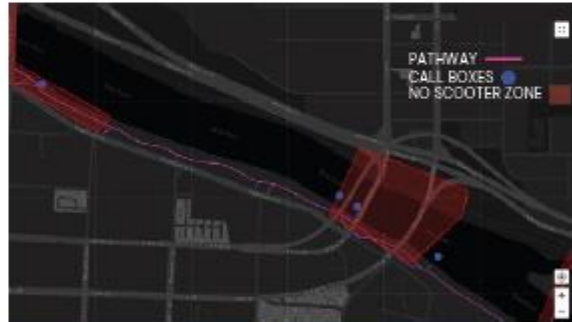
SAFETY FEATURES ON THE [REDACTED]



STREET LIGHTS



"HELP" CALL BOXES



THE [REDACTED] IS A 24/7 COMMUNITY (EVESON, 2022), WHICH MEANS THERE NEEDS TO BE SECURITY MEASURES IN PLACE IN ORDER TO MAINTAIN SAFETY AMONG THE RESIDENTS.

BECAUSE THE CLOSEST POLICE PRECINCT IS LOCATED IN [REDACTED] THE [REDACTED] HAS TAKEN IT UPON THEMSELVES TO IMPLEMENT SECURITY MEASURES ALONG THE [REDACTED] (EVESON, 2022).

[REDACTED] WORKS ALONGSIDE [REDACTED] AN ORGANIZATION THAT HELPS VULNERABLE PEOPLE, TO COMBAT VIOLENCE AND VANDALISM ALONG THE [REDACTED] (EVESON, 2022).

AROUND PARTICULARLY DARK AREAS ALONG THE WALK (UNDER BRIDGES) THE [REDACTED] HAS INSTALLED LOTS OF STREET LIGHTS AND "HELP" CALL BOXES NEAR BY (EVESON).



speakers + site visits + presentations



student work examples



Lighting Legend

- | | |
|-------------------------|-----------------------------------|
| ○ type 1 pot light | — type 6 led strip light |
| ⊙ type 2 pendant | • type 7 3" pot light |
| └ type 3 wall sconce | ◻ type 8 2x2 troffer |
| ○ type 4 custom pendant | • type 9 millwork pot light |
| △ type 5 spot light | — type 10 4ft linear wall mounted |

The Journey From Fear to Hope

Cheri Jacobs, Arizona State University

Jose Bernardi, Arizona State University

ABSTRACT

Homelessness cuts across every segment of American society. At the core of people experiencing homelessness is the legitimate human aspiration of belonging to a home. "A home is not an object, a building, but a diffuse and complex condition that integrates memories and images, desires and fears, the past and the present. A home is also a set of rituals, personal rhythms and routines of everyday life. Home cannot be produced all at once; it has its time dimension and continuum and is a gradual product of the family's and individual's adaptation to the world." (Pallasmaa, 2015). This presentation will discuss a junior year interior design studio course examining a broad range of topics around homelessness, exploring the role of interior design to make a significant healing experience by providing alternative solutions for individuals in this arduous journey from fear to hope. The course goals were to develop supportive housing solutions adaptable to different human conditions. The course, organized in three phases, was carried out in teams culminating in a final project and class synthesis.

Phase 1 Discovery

The first phase defined the problem. The intent was to create an understanding of our studio topic and set a solid foundation for the design to evolve from. Students collected data on needs associated with homelessness in our city through scheduled field trips, guest speakers, assigned readings and independent research. The data collected informed the program and created the design narrative. The first task in the discovery phase was to understand why and who experience homelessness and identify a user type (Pable et al., 2021). User types explored included: Refugees, Individuals experiencing physical and sexual abuse, Seniors, Veterans, LGBTQ+, and Indigenous Communities. At the end of this phase, students identified the unique needs of their user type through research and collages synthesizing reflections related to homelessness.

Phase 2 Design as an Extension of the Body

In the second phase, each group designed a micro dwelling structure out of shipping containers for their identified user type. Students focused on human scale and relationships between the body and interior components. They explored the daily routine of individuals experiencing homelessness while defining

emotional and physical needs to define a “home”. Teams collaborated with third year industrial design students to further explore the poetics of joints and connections and human interaction with objects. In this phase we organized workshops with visiting design professionals to explore environments for those experiencing homelessness. Teams identified: physical and emotional needs to provide relief and safety, different postures/needs of individuals, universal design approach, adaptability of spaces through modularity and scalability, healing spaces and trauma informed design. At the end of this phase, teams created large scale models of their structures out of recycled cardboard, floors plans, rcps, elevations, sections, renderings, and environmental rationales.

Phase 3 Community

The final project combined permanent supportive facilities and transitional housing composed of structures created in phase two to create a community. All spaces were ADA accessible. At the end of the semester, students exhibited the entirety of their work throughout the course, including relevant discovery information, design of the living structures and large-scale models, and the design of the community illustrated through site plans, floor plans, rcps, renderings, and construction documents illustrating design proposals.

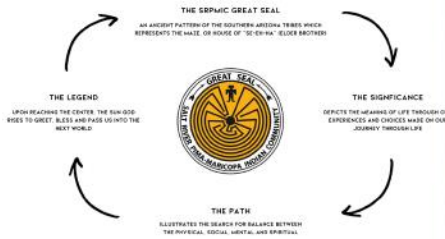
Outcomes

Students were expected to be competent and effective in their ability to research a subject, graphically communicate their concepts and findings as well as formulate a well-organized, succinct oral presentation that summarizes their conclusions while exploring the project boundaries independently and with their assigned teams.

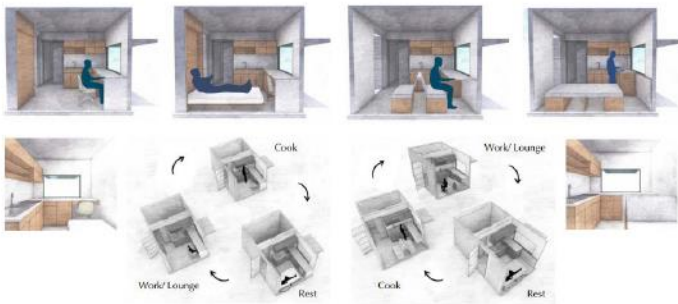
REFERENCES

- Pallasmaa, J. (1995). In *Identity, Intimacy and Domicile - notes on the phenomenology of home*. N. D. Benjamin (Ed.), *The Home; Words, Interpretations, Meanings and Environments* (pp. 131-147).
- Pable, J., McLane, Y., Trujillo, L. (2021). *Homelessness and the Built Environment: Designing for Unhoused Persons*. Taylor and Francis.

Discovery



Living Pods



Community



3 NODES

- COMMUNAL SERVICES
- WELLNESS
- LIVING PODS

PROGRAM CONTENTS

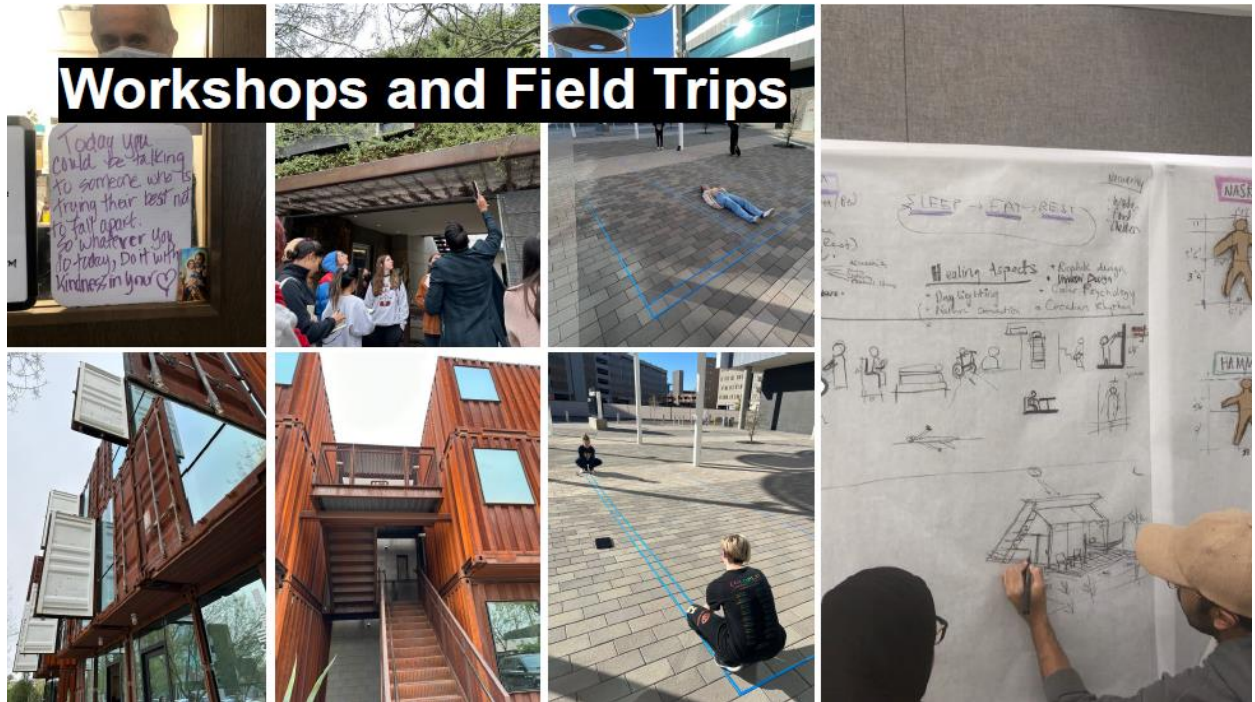
TOTAL LIVING UNITS: 6
 TWO SINGLE UNITS, TWO 2-3 PERSON UNITS, TWO FAMILY UNITS
 OCCUPANCY RANGE: 18-22 RESIDENTS

KEY PROGRAMS

- | | |
|--------------------------|---------------------------|
| A. PARKING & BUS LOOP | H. FAMILY LIVING POD |
| B. ENTRANCE | I. HERBAL & EDIBLE GARDEN |
| C. COMMUNAL KITCHEN | J. LAUNDRY |
| D. CASE WORK SERVICE | K. STORAGE |
| E. SERENITY POD | L. MAKER STUDIO |
| F. 2-3 PERSON LIVING POD | |



Workshops and Field Trips



Synthesis



The language of design: Literal and figurative perspective explorations by non-design students

Jim Dawkins, Florida State University

ABSTRACT

Studying abroad is an incredibly valuable, relevant, and meaningful experience for students as they move along personal and academic paths of growth and development. For the student this means examining, explaining, and expressing their appreciation of the rich body of rural and urban landscapes that exist outside of their American borders. Having the ability to expand one's developing world view by studying one's environment relative to an international setting can foster transformative moments that positively impact a student's perception of their world. Additionally, utilizing perspective frameworks as evaluative guides allows students to engage in the unique joy of studying, discussing, and articulating spaces and places set in a unique context of history, culture, landscape, architecture, and design. It is here that design – as tool and language – is uniquely positioned to support students' creative thinking and creative expression by literally and figuratively drawing (and drawing on) the human experience.

The author teaches two classes to broad curriculum (non-design) students in an international study abroad program affiliated with the author's university during summer breaks. In the first course, a class devoted to freehand observational sketches of urban environments, students are encouraged to discover an awareness of and an appreciation for the strong design input, inventiveness, and sense of style exhibited in the design, architecture, and planning of the spaces and places that define Florence, Italy, and its rural and urban neighbors by recording its visual richness through sketching and annotative observations. Students delve into the "applied mathematics" of perspective construction for measuring and constructing an environment based on and responding to human scale and proportion by examining notions of perspective as 're-discovered' by Brunelleschi in Florence and expounded upon by Alberti and Pietro (Lepenes, 2018). The author believes that the historical explanation and use of literal perspective will allow students to facilitate a graphic record of their journey more accurately and will significantly impact their recollection of moments and memories.

The second course examines the human experience using design language developed by Christopher Alexander (Alexander, 1977) and Kevin Lynch (Lynch, 1964) as well as the basic elements and principles of design (Fullmer, 2012) as figurative perspective frameworks for describing one's environment. Students in this course explore the nature of design, creativity, and problem solving using a variety of means and methods including focused study, open and active (in-the-seat and on-foot) discussion, and graphic documentation. Students discuss, analyze, describe, and visit historic buildings, squares, public spaces, and out-of-the-way places where the role of design has made and continues to make an impact

in everyday life. Students identify and clearly articulate design-related problems, explore the impact of everyday actions and human nature on design, and evaluate designs that are human-centered and meet user needs. Additionally, by using critical thinking skills and creative means of expressing visual information, students will contrast the role of design in different cultures, interpret intellectual or artistic works within a cultural context, and use a cultural, artistic, or philosophical approach to analyze some aspect of human experience.

Using student sketching notes and discussion assignments as a gauge, student observations and reflections at the end of each course indicated they were able to effectively describe their environment graphically and in written form. This presentation proposal intends to reinforce the value that frameworks of design can add to the educational journeys of non-design students as they examine, explain, and express their human experience.

REFERENCES

Alexander, C. (1977). *A pattern language: towns, buildings, construction*. Oxford university press.

Fullmer, D. (2012). *Studio Companion Series Design Basics*. United Kingdom: Bloomsbury Academic.

Lepenies, P. (2018). The Anthropocene: The Invention of Linear Perspective as a Decisive Moment in the Emergence of a Geological Age of Mankind. *European Review*, 26(4), 583-599.

Lynch, K. (1964). *The image of the city*. MIT press.

SKETCHING OBSERVATIONS

WEEK 2, DAY 3



One thing I need to work on when sketching is how big to make everything. I tend to start to draw something and then realize that I'm running out of space which happened in my Ponte Vecchio sketch. I wasn't able to draw the whole thing but I'm still pleased with how it turned out. Some of the buildings look 2D which I think I could fix in the future by adding more lines and shadows.

While I was attempting to draw the Ponte Vecchio, a lady was crying to her boyfriend about something. I'm not sure because I do not speak Italian, I tried to use Google translate because I'm nosy but unfortunately it did not pick up her voice. I hope she is doing better but she did leave an umbrella behind. This was awesome for me as I have been needing one and it started to rain while I was finishing up my sketches. I decided to draw the umbrella to honor her.



I'm not sure why but I love the part of the PV that is open, it is like a mini plaza. One time at night I was crossing the PV and a man was playing music and dancing around with a bottle of wine around the statue in the center. Sketching this part made me think of him.



I thought these docked boats looked cool but I knew they would be a challenge to sketch. The angle of the photo makes them look short and fat. When I drew them they ended up looking like a higher up perspective rather straight on.



Assignment 3 Class Journaling: Design and the Third Place

Published

Design and the Third Place

Each class sessions will involve some form of in-class and/or on-site activity with preparatory and follow-up tasks. Each session will focus on various theories and concepts related to design. At the end of the session, each student will make an extended entry into his or her journal elaborating on what was learned, seen, and experienced. Students will need to reference additional printed or online information to aid in their entries. All entries are to use language from each of the three references for this class: *Elements and Principles of Design*, *Image of the City*, and *A Pattern Language*. Journal entries must use at least two aspects of each language and can be accompanied by photos, symbols, sketches or whatever helps illustrate the written component. Each student should also complete at least one sketch (loosely defined) in the journal as part of the entry. Grades will be based on the student's ability to tie in the key concepts of the day with what was seen and experienced. Sketches will be graded based on effort (rather than artistic quality/skill) since many students will not be art or design majors. *Assignments are NOT authorized to be done as a group unless directed by the Instructor.*

Sample:

Points 100
Submitting a file upload
File Types pdf

Due	For	Available from	Until
Jun 7 at 8:30am	Everyone	-	-

Criteria	Ratings				Pts
Structure: - Organization - Flow of thought - Transitions - Format	25 pts Excellent - Work is logically organized - Easily followed - Abrupt, smooth, and logical transitions - Professional format	21 pts Excellent-Satisfactory - Work has a clear organizational structure with some digressions, ambiguities, or imbalances - Easily followed - Basic transitions - Structured format	19 pts Satisfactory - There is some level of organization through digressions, ambiguities, imbalances are too many - Difficult to follow - Ineffective transitions - Humbling format	0 pts Poor/Missing - There is no apparent organization to the work - Difficult to follow - No or poor transitions - No format	25 pts
Grammar/mechanics - sentence structure - punctuation/mechanics	15 pts Excellent - Manipulates complex sentences for effect/impact - No punctuation or mechanical errors	12.6 pts Excellent-Satisfactory - Uses complex sentences - Few punctuation or mechanical errors	11.4 pts Satisfactory - Uses compound sentences - Too many punctuation and/or mechanical errors	0 pts Poor/Missing - Uses simple sentences	15 pts
Language - Vocabulary: use of vocabulary - Tone	25 pts Excellent - Vocabulary is sophisticated and correct as are sentences which vary in structure and length - Uses and manipulates subject specific vocabulary for effect - Writer's tone is clear, consistent and appropriate for intended audience	21.47 pts Excellent-Satisfactory - Vocabulary is varied, specific and appropriate - Frequently uses subject specific vocabulary correctly - Writer's tone emerges and is generally appropriate to audience	18.33 pts Satisfactory - Vocabulary is used properly though sentences may be simple - Infrequently uses subject specific vocabulary correctly - Writer's tone exhibits some level of audience sensitivity	0 pts Poor/Missing - Vocabulary is unsophisticated, not used properly in very simple sentences - Uses subject specific vocabulary too sparingly or inappropriately	25 pts
Content/Information - Addressed topic guidelines - Critical and original thought - Use of examples	25 pts Excellent - Topic guidelines are comprehensively addressed and exhibited throughout the work - Abundance of evidence of critical, careful thought and analysis and/or insight - Evidence and examples are used and specific, well chosen, relevant	20 pts Excellent-Satisfactory - Topic guidelines are satisfactorily addressed and generally evident throughout the paper - Evidence of critical, careful thought and analysis and/or insight - There are good, relevant supporting examples and evidence	20 pts Satisfactory - Topic guidelines are addressed though they may be vague or too broad - Some evidence of critical, careful thought and analysis and/or insight - There are some examples and evidence, though general	0 pts Poor/Missing - Topic guidelines are addressed or expressed incompletely or not at all - Little or no evidence of critical, careful thought and analysis and/or insight - There are too few, no examples and evidence or they are mostly irrelevant	25 pts
Total Points: 100					

06/06/2023

Journal entry: Day 2
Design and the Third Place

Today was our third day of class. We went to one of Professor [REDACTED] favorite cafe, Cafe Ricchi. I liked the atmosphere of this cafe because it was quaint and quiet. The other cafe that I personally love to visit is La Milkeria. I usually get drawn to cafes like that, so I know I can focus when working on homework while sipping a coffee. This class period, we focused on third-place areas found in Florence. The third place can be seen in the surroundings of public places, where people spend significant time that isn't in their own homes or work.



Elements and Principles of Design

First, I wanted to explore the elements of space and volume. Fullmer states, "Space is the area defined by elements being around one another, whether on top or below such as ceiling or floor, or in front or behind such as a wall or series of columns. It is the three-dimensional volume enclosed within planes and forms." With this being said, I feel there is a lot of space in the cafe that might not be obvious at first, but if you look for it, it can be there. For example, the first picture I took. Although while standing in the room and thinking it was small, the picture illustrates how much space there was in the room. The space surrounding the single man in the cafe creates depth within the two-dimensional picture. In the picture, there is a background

which is the wall of pictures; a middle ground which is where the man is sitting; and a foreground which is the closest view of the table, alongside the apparent amount of negative space in the cafe, which adds to the volume of the space as well.

References: Elements and Principles of Design Fullmer PowerPoint presentation and elements and principles of design (E&PofD) handout sheet.

Image of the city

In addition, regarding the image of the city, when walking around the neighborhood of Cafe Ricchi, paths and edges are the two images I experience most often. Sometimes not always obvious; there are paths within third-place areas. Sometimes, these aren't obvious because third-place areas can form in close-cornered spaces, like a coffee shop. However, the entrance to the shop and then picking a place to sit is a path within itself. Many times in third places, people experience a sense of similarity, or "home" in their third place, by choosing to go on the same path every time they visit. This creates repetition, which routes a routine in the person's path to their third place. As for edges, these came to me once I started sketching La Milkeria. According to Fulmer, edges are the boundaries between two kinds of areas. Due to the amount of curved, sharp, or jagged edges, I had to take time to sketch what made the image come to life. The edges of a coffee cup, croissants, and even the workers all differ but is what creates dimension and a story to someone's third place.

References: 1960 Kevin Lynch The Image of The City book pdf, Path, 49 and Edges, 62.

Pattern Language

Lastly, when walking into both cafes, the two images of city that stood out most to me were small public places and warm colors. Returning to the first picture's composition, it checks both of these boxes. Both are small public spaces filled with rich ruby, tan, orange, and yellow tones. The element of the cafe's indoor seating having a private room for their guests to sit in, instead of having their seating being in the part of the cafe where the brewing of the coffee, and ordering of the consumer, makes it more appealing and more applicable to be a third place. It allows for comfort so the person can sit in a small single room and feel at peace. To follow with that, even La Milkeria (the second picture), which mainly included blue and white paint and decor, also had yellow lighting, which completely makes a cafe that could be seen as too "commercial" or "cold" turn warm and welcoming. I feel that that's why I noticed the warm tones in that cafe because it changed the dynamic between me and the cafe over time as I allowed myself to be more comfortable in it.

References: A Pattern Language PDF, Pattern 61- small public places, and Pattern 250- warm colors.

The Politics of Seating: Furniture Design as a Spatial Artifact for Teaching Students Inclusion and Equity within Interiors

Felicia Francine Dean, University of Tennessee, Knoxville

ABSTRACT

Seating as an object exists in our everyday environments. However, its symbolic role as a tool of exclusion or inclusion within interiors is pivotal. Is there an approach to teaching about inclusion and equity using furniture design and fabrication as an artifact for investigation? How have historical spatial organizations divided Americans physically and socially? What does this tell us about how the interior design of space can negatively impact human experiences, perceptions, and human behavior?

In this course, students explored the embodied power of furniture seating in shaping space and place for African- Americans during segregation and the Civil Rights Era. As a result, students learned how social justice, equity, inclusion, and territory connect to seating as an object and its role within the interior. Students completed stool design investigations and fabrication that responded to inequities of seating during segregation and the Civil Rights historical periods in Tennessee and the southern United States.

Research foregrounded the stool furniture designs of students. Collaboratively, they identified historical precedents during segregation and the Civil Rights Era and acknowledged contemporary topics of equality and seating. The research focused on the spaces of transportation, churches, public dining, the workplace, theaters, and public schools. Students analyzed case studies and historical construction documents. The research learning outcomes encompassed understanding the context of seating to social justice, developing skills to work collaboratively on research, understanding human experience, perceptions, and human behavior, and professionally communicating the research, ideas, and analysis of sensitive historical and present-day topics of social justice, inclusion, equity, and diversity.

Readings comprised historical Supreme Court case decisions and the chapter "The Politics of the Lunch Counter: To Live and Dine in Dixie". In the book, Cooley points to the impact of the impediment of only takeout offered for African- Americans during their work lunchtime, which segregated them from eating with Caucasian customers and pushed them to "...the alleys and curbs...". She notes that this action toward African-Americans would persist by stressing the stereotype of them as lazy. As a result of the uninclusive environments, African-Americans are moved beyond the interior to the exterior, subjugating them to an outside interiority with negative perceptions and labels.

Students applied the various research to the conceptual development of their stool furniture design, leading to their growth as designers and fabricators. They used the elements and principles of design to develop their form investigations. Also, they assessed the implications of the color of hardwood species, finishes, and materiality to their concept and design. The project concluded with students understanding and applying diversity, equity, and inclusion topics from the research into their design process and final design.

The combined study of furniture design, fabrication, and research of inequity and exclusionary design practices during segregation and Civil Rights Era immersed interior design/architecture students in two primary educational and professional topics that they had previously little engagement in: segregation and the Civil Rights Era and furniture design and fabrication. Almost all the students start the course barely knowing how to use a drill, and they leave feeling confident in their skills and understanding of designing and making with hardwood materials (see Appendix for completed projects). Most of all, they leave with a rich understanding of how objects within interior space shape the lives and experiences of people and their responsibilities as future designers to design equitable and inclusive environments.

REFERENCES

Angela Jill Cooley. "The Politics of the Lunch Counter." *To Live and Dine in Dixie*. University of Georgia Press, 2015. 105–.Print



artifact_unknown
18 x 13.5 x 13.5 inches
Hardwood Curly Cherry and Waterglass

Image 1: *artifact unknown*, final stool design by student

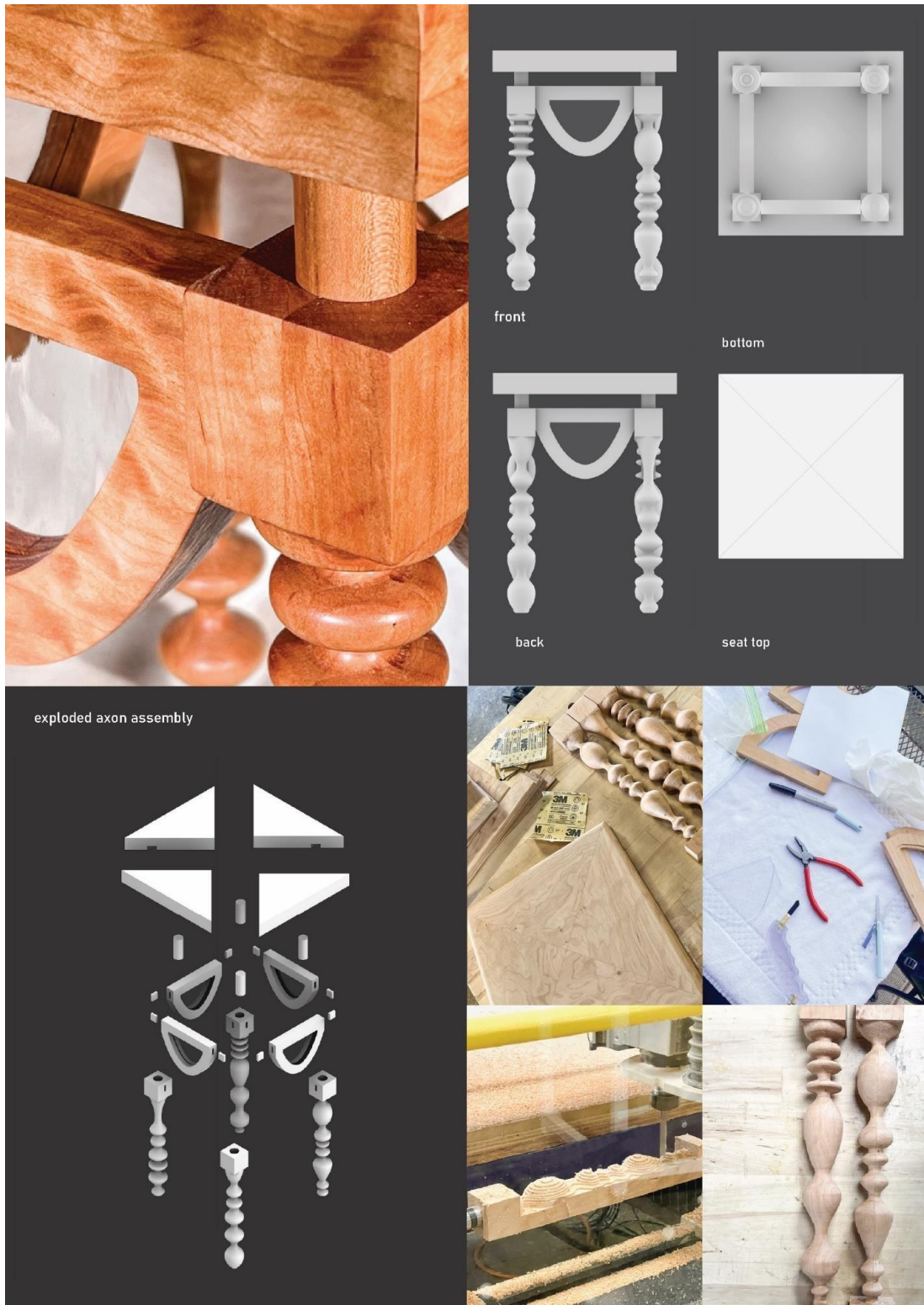


Image 2: detail photo, representation drawings, exploded axon, and process images of artifact unknown stool design (from left to right, descending order)



Selah [seh-luh] to pause and admire
24 X 16 X 16 inches
Wormy Maple and Steel

Image 3: *Selah* [she-luh], final stool design by student

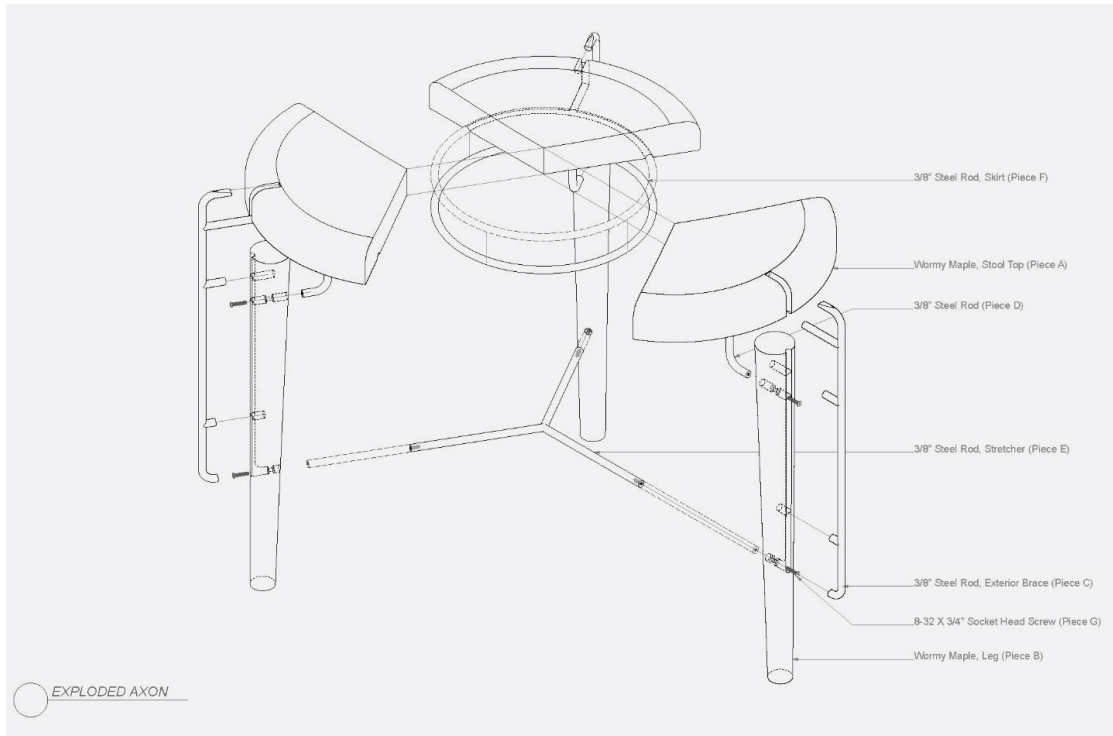


Image 4: exploded axon, physical model, sketches, CNC milling of seat deck, welding of structural system, and detail image of joinery for *Selah* [she-luh] stool design (from left to right, descending order)

The Stories We Tell, the Spaces We Make: The Case of a Former Cartridge Factory

Anca Matyiku, University of Cincinnati

ABSTRACT

This paper presents an approach to an undergraduate interior design studio that actively draws on the multiple histories that intertwine at the studio site, the shell of a former cartridge factory. Entangled together in this location are the history of the railway, the everyday lives of the former factory workers, the life and ecology of the river that is adjacent to and sustained the factory, as well as momentous global events including World War I and World War II.

The intent of the project was for students to engage wicked problems in a complex world (Hanstedt, 2018) and confront the fact that the things we build and the spaces we make are implicated and often complicit to a matrix of forces with economic, political, and social implications. As such, students explored the potential for objects, buildings, landscapes, and broader systems to tell stories, as well as their capacity to include or exclude the voices and histories of particular constituencies, whether human, environmental, or otherwise.

The studio sequence began with a series of generative exercises and culminated with the design of a teaching museum and community space. Students were first prompted to act as “an empathetic detective” and trace out a story or a history about the site that intrigued them, while noticing its wider implications and reverberations. The aim was that together the studio worked with a constellation of stories and histories that reached beyond a univocal, canonical version of history, to bring forth the heterogeneity of stories that entangle and collide at this specific location. Students translated this research into a “thick mapping” – a highly interpretive exercise in which students were challenged to capture not just objects in space but also the multiple temporalities that were important to their stories (such as those tied to seasons and geography, the mechanical operations of the factory, and/or those at the scale of geology.) From their story students also built a collection of 12-16 objects and developed a representation technique that would contribute to telling the story they had researched. The second assignment asked students to focus on the intimate scale of the armatures that held their objects and to design an immersive space. In both students considered how objects, materials, and their placement, affect the emotional experience of a space and how they prompt human interactions. In working through these primer exercises each student developed their own version of an exhibition or museum and the way in which it would foster learning and a sense of community.

The outcomes of the student projects were as varied as the stories they researched. While the project was typologically delineated – a museum that sustains some form of learning or knowledge exchange – the specifics of the programme were highly particular to each student. They included educational museums that presented the ecological impact of the former factory and the process by which it is being remediated; the specific moment in US history when Jazz captured the longing for the young soldiers sent overseas during World War II; the role that multiple explosions that took place affected the workers and spurred on innovation; and the lives of other species that performed crucial functions in the operations of the factory.

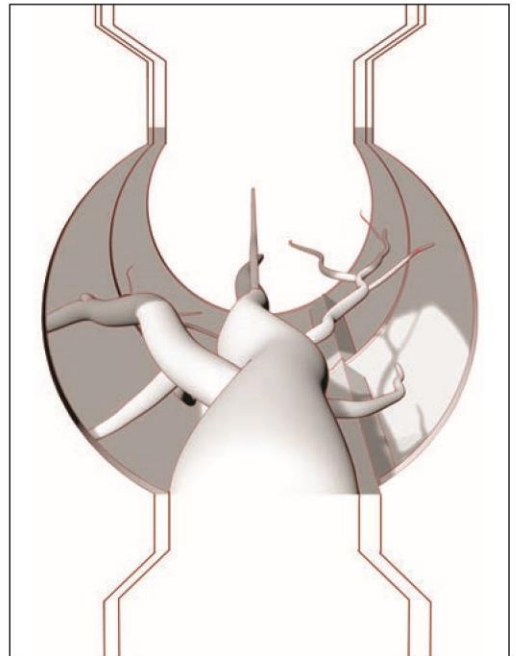
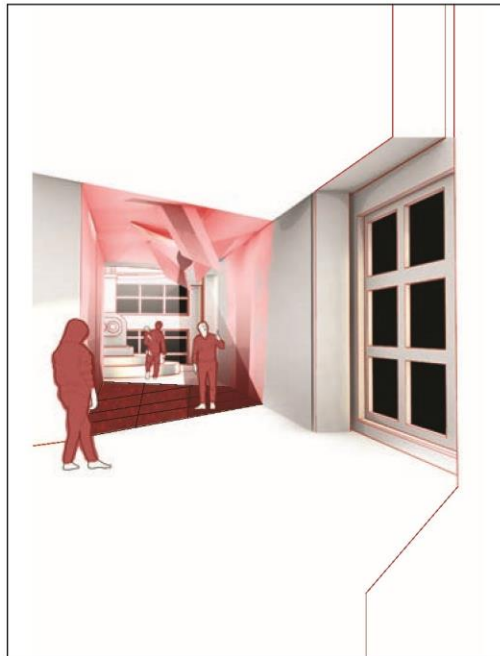
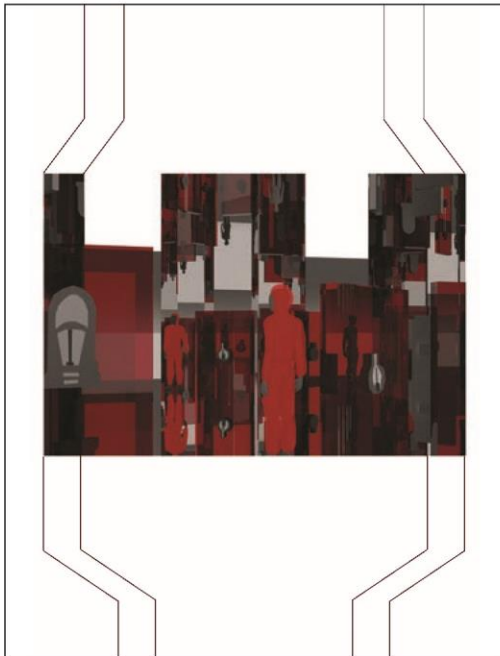
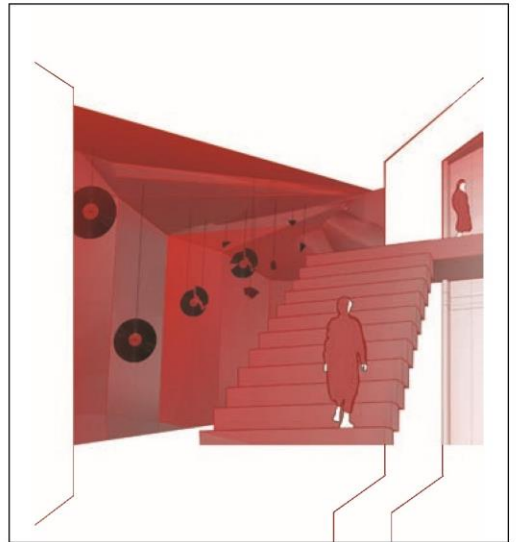
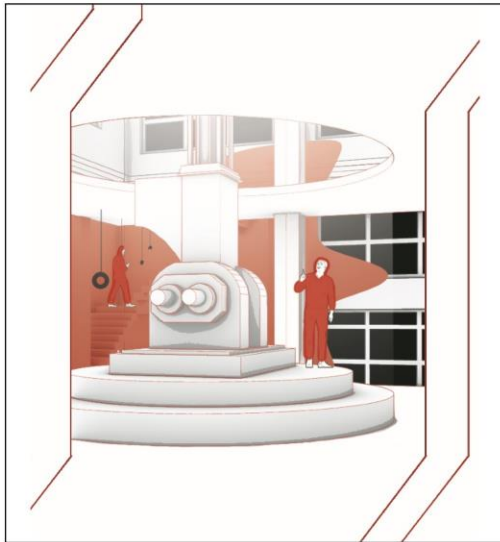
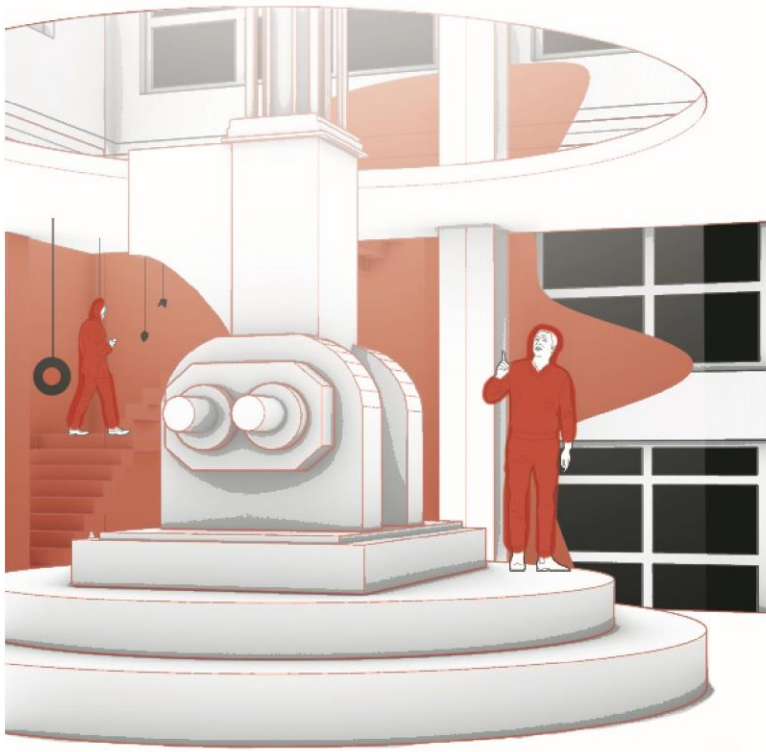
The insights gained from this approach to design studio was that in working with specific stories students uncovered untidy entanglements that carried ambiguity and contradiction (ie. the factory ensured prosperity of a company town but caused severe contamination of the adjacent river ecology). Students wrestled with these tensions especially when it came to articulating an overarching conceptual approach to the design. I argue that that while this made the project more difficult it also solicited the students critical engagement with the forces and systems of value that come to bear on design and empowered them to take a stance as future designers.

REFERENCES

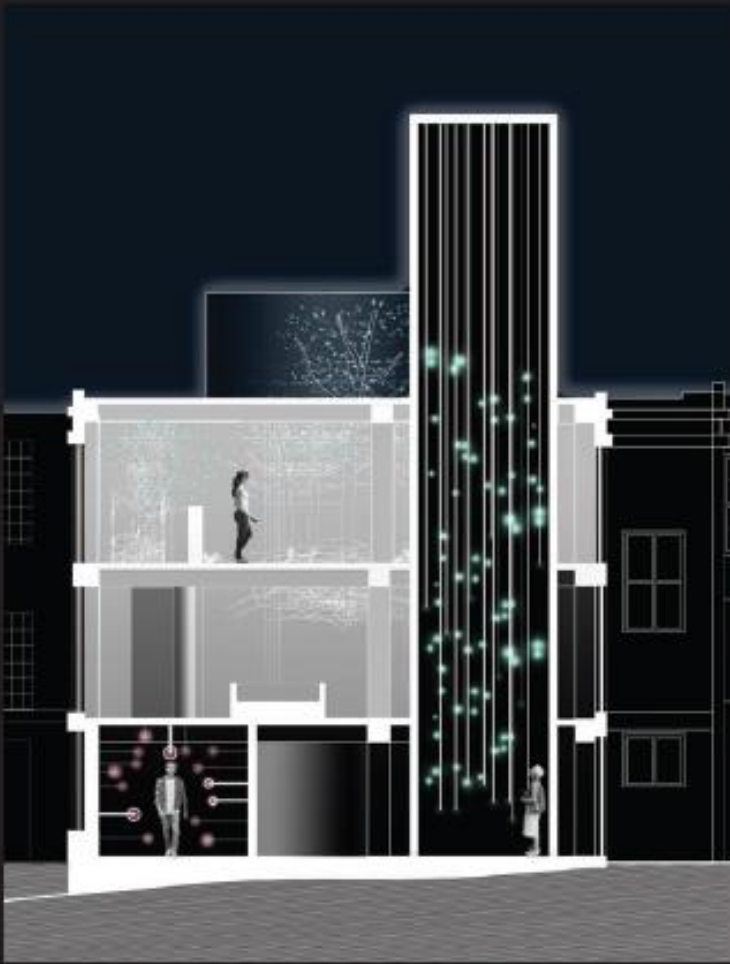
Hanstedt, Paul. *Creating Wicked Students : Designing Courses for a Complex World*. New York: Routledge, Taylor & Francis Group, 2018.











Toward a Resilient Future: adaptive reuse as climate action

Rana Abudayyeh, The University of Tennessee, Knoxville

ABSTRACT

Pressing realities of climate change require a prompt and robust response to how we approach a new era of architectural interventions, positioning interior thinking and design modalities at the center of environmentally responsible practice. Professional practice and, by extension, pedagogy will have to address cumulative climate complexities, remediating the irresponsible approaches of the past era while addressing the ever-changing programmatic needs and narratives of contemporary life. Situated at the intersection of these realities, this presentation showcases work from a capstone interior architecture studio that engaged these complex, multifaceted parameters and pushed climate action to the forefront of interior architecture pedagogy, exposing students at an integral phase in their careers to realities and responsibilities of future practice.

The oil industry is one of the most environmentally invasive enterprises, with expansive networks to extract, transport, refine, and dispense oil all around the globe. As the era of dependence on fossil fuels weans, replaced by renewable energy sources and virtual connectivity, many of the extensive infrastructures and systems integral to supporting our oil-dependent lifestyle are becoming obsolete. The studio examined the decommissioned settings of an oil-dependent era and sought to define new strategies for adapting abandoned structures of an antiquated fossil fuel economy. The sites we addressed were Oil Platform Holly (Santa Barbara), Williamsburg's Bayside Oil Depot (Williamsburg, Brooklyn), ExxonMobil Building Formerly: Humble Oil Building (Houston), and The Packard Well Site (Los Angeles). Working towards resilient design narratives, the studio reimagined these colossal petroculture artifacts by employing interior architecture's inherent adaptive reuse capacity. The sites were fertile grounds for intervention, enabling the studio to generate imaginative narratives for an oil-independent future. The studio was conducted in three phases outlined below.

1. organic artifacts>>synthetic counterparts

Exchanges between natural systems and environmental stimuli are living, active, and adaptive; they are integral to the subsistence of a robust ecosystem. Organic processes provide a vast repository of knowledge on resilience. Deriving design strategies based on natural precedents was the primary focus of this phase. These natural precedents were distilled into conceptual and formal tactics applied to the project's design.

2. Extreme localities: cities after oil

Examining and understanding the decommissioned settings of an oil-dependent era is the main focus of this phase. The energy forms fundamentally shape the attributes and capabilities of society. Accordingly, a genuine and comprehensive shift in energy today demands, in addition to the adoption of renewable, ecologically sustainable energy sources, new political structures, built environments, social dynamics, educational systems, discursive modes, values, practices, habits, beliefs, and effects.

3. Rigged: visions of a post-petroleum world

This phase involved developing design strategies for the adaptive reuse of the previously mentioned locations. Students devised innovative design approaches via programmatic research, technical development, and material and tectonic invention. Additionally, the studio relied heavily on advanced digital tooling and fabrication. These operational parameters and generative processes informed sophisticated formal strategies and innovative material and tectonic development.

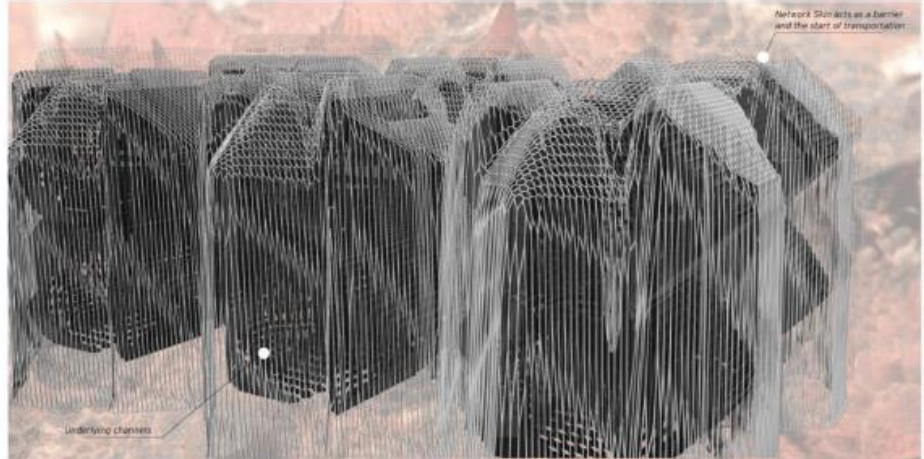
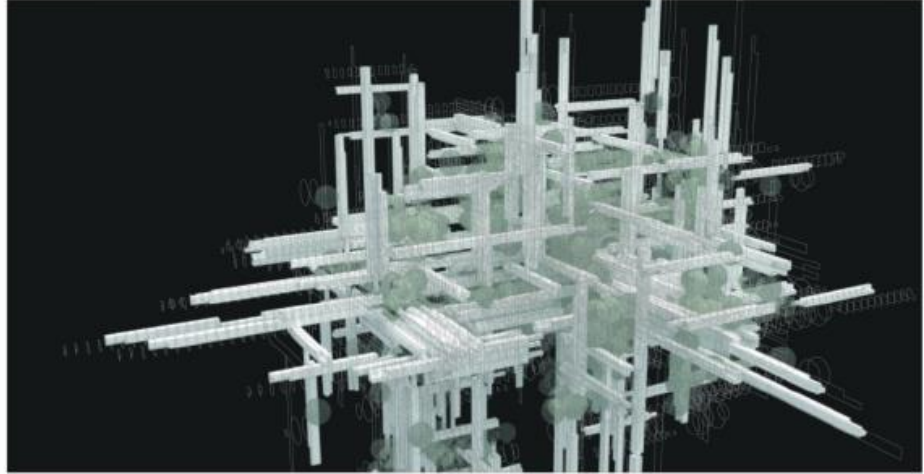
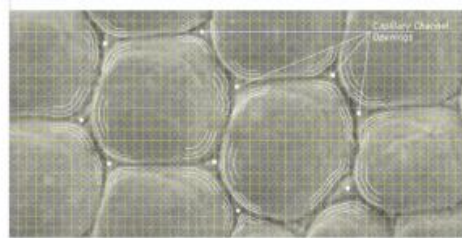
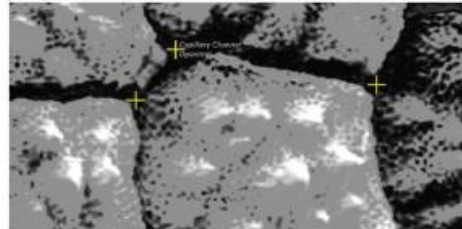
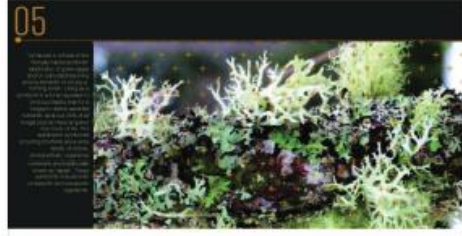
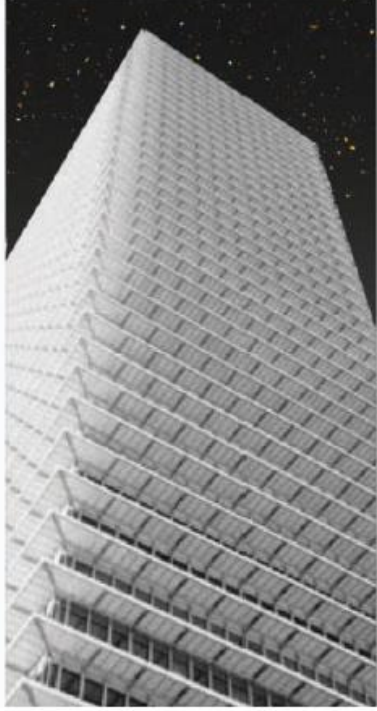
Energy fundamentally shapes the attributes and capabilities of society; accordingly, a shift in energy today demands -in addition to the adoption of renewable and sustainable energy sources- a new approach towards adapting the built environment. Interior Architecture's aptitude for reappropriating space is among its many agencies; there has never been a time and context where exercising such agency is more crucial.

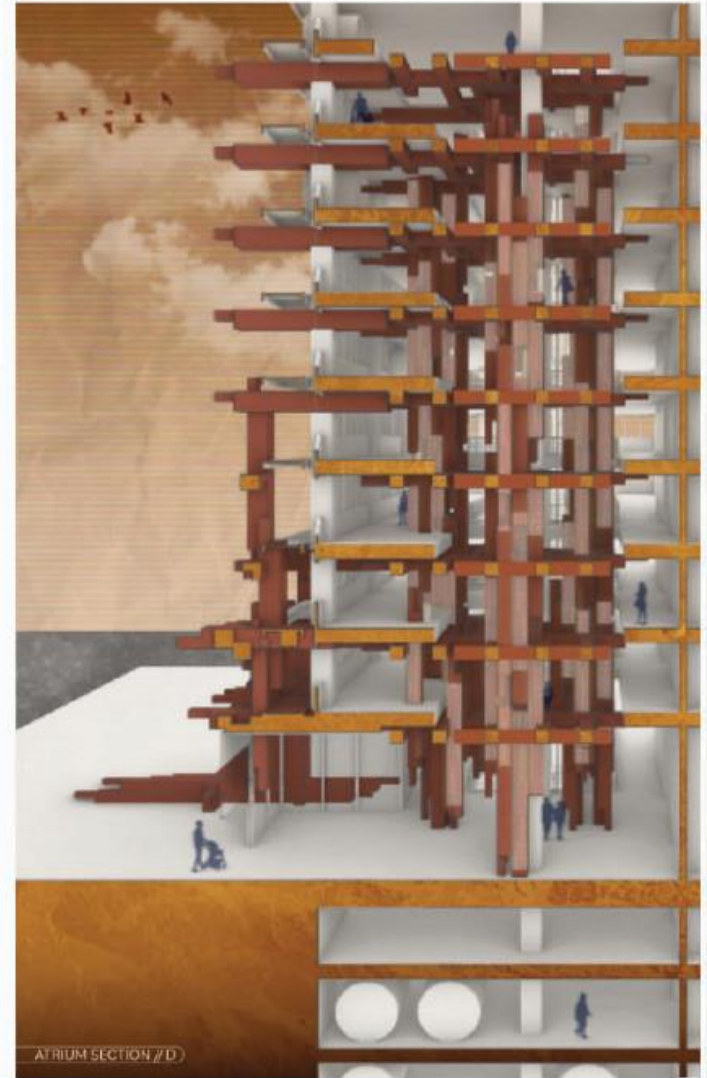
REFERENCES

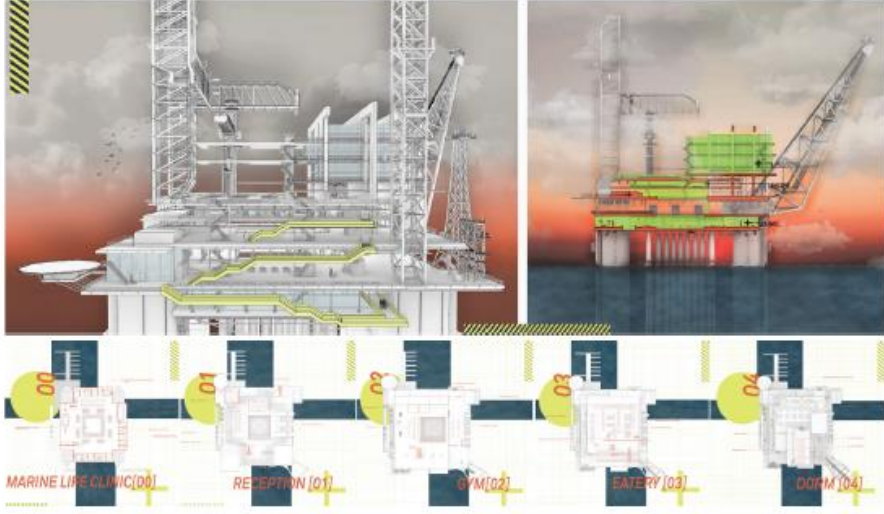
Ghosn, Rania, et al. *Climate Inheritance*. Actar Publishers, 2023.

Latour, Bruno, and Catherine Porter. *Down to Earth: Politics in the New Climatic Regime*. Polity Press, 2022.

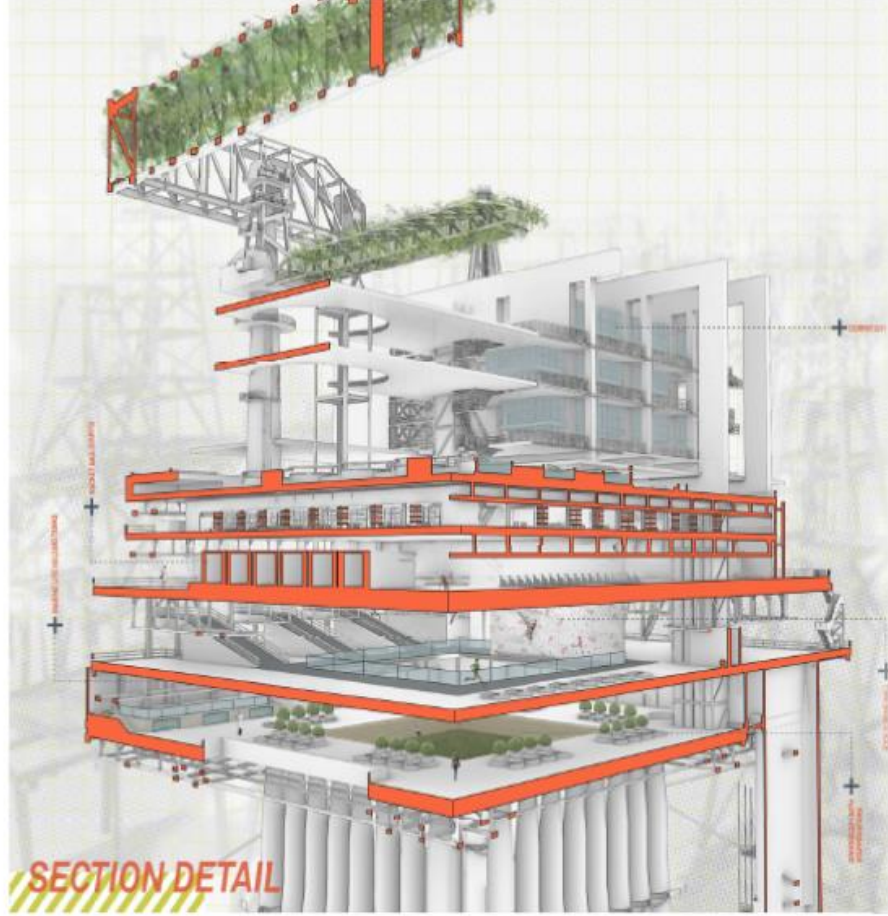
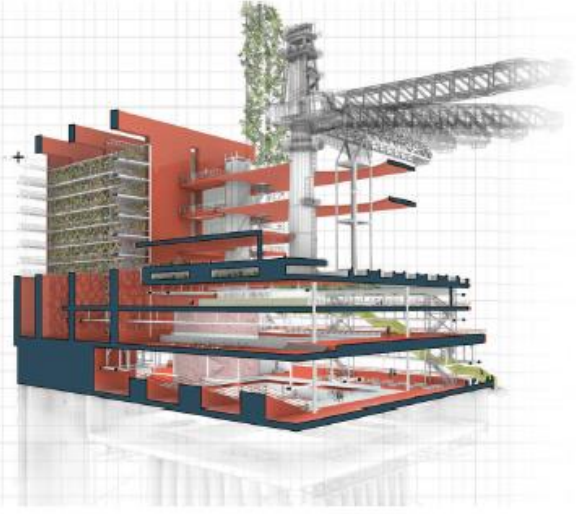
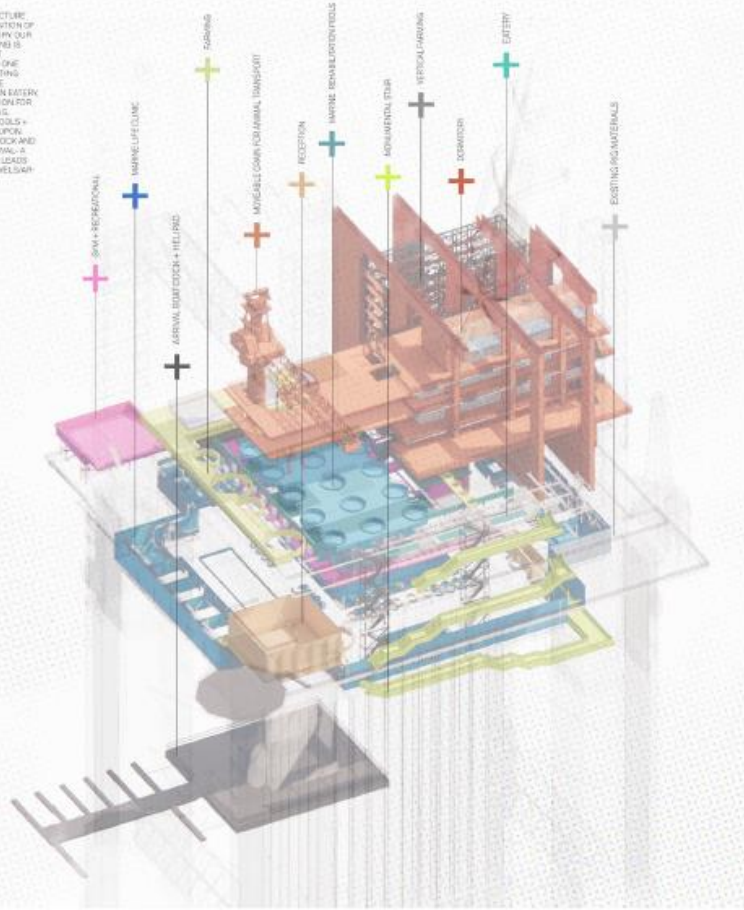
Lim, C. J., and Ed Liu. *Smartcities Resilient Landscapes + Eco-Warriors*. Routledge, 2019.

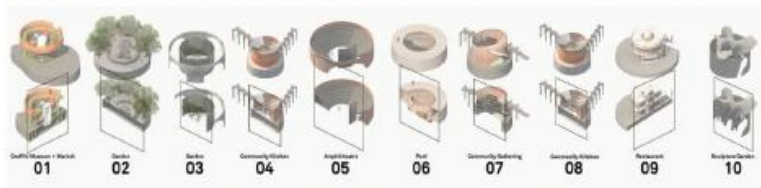
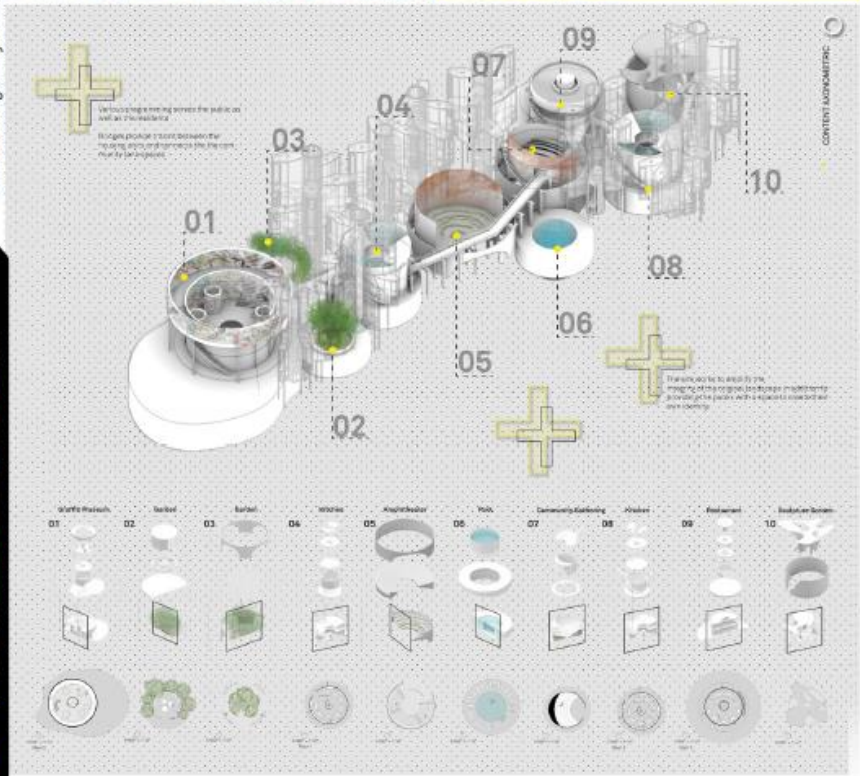
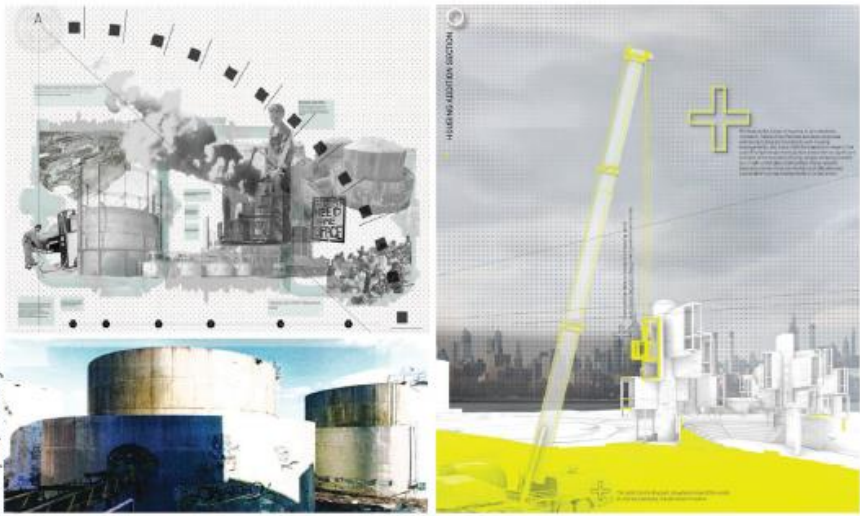


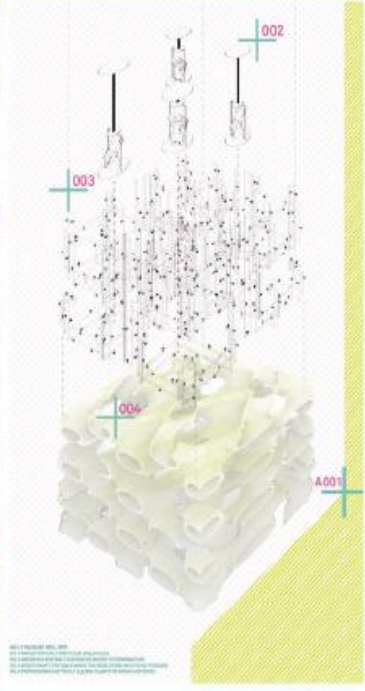
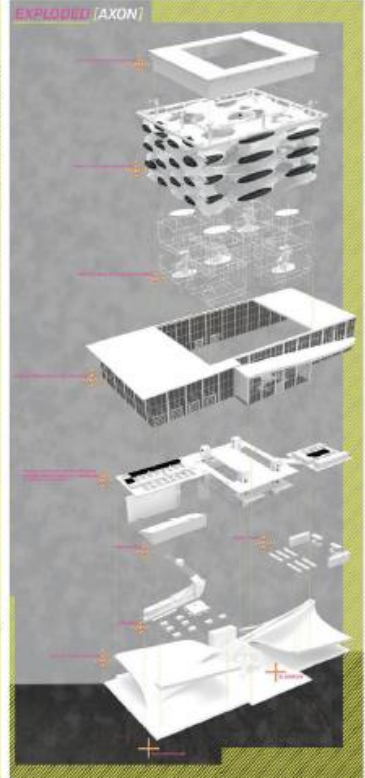
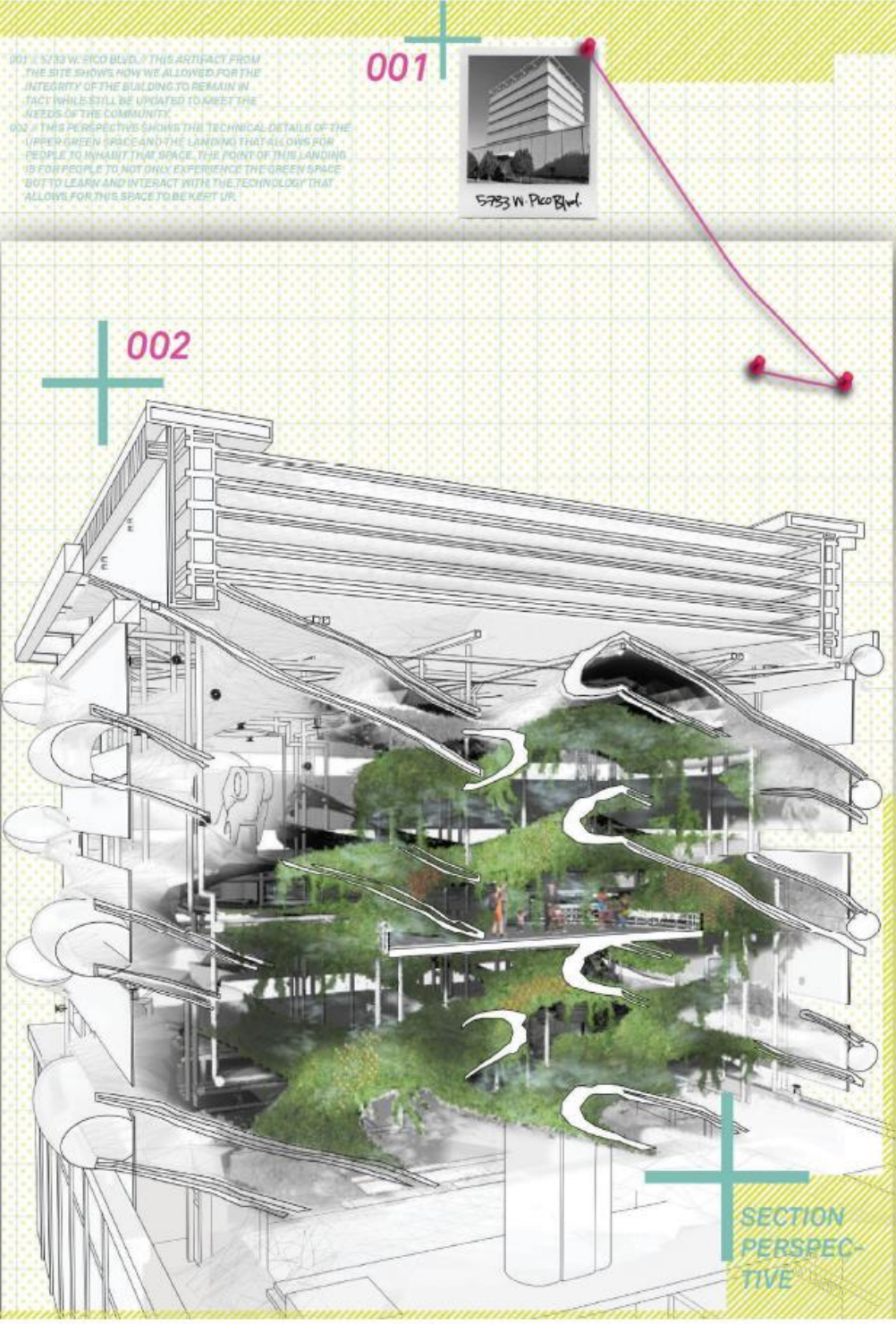




THE COLORED BUILD STRUCTURE FROM ABOVE THE INTERSECTION OF THE COASTAL CORRIDOR WITH OUR MAIN CONCEPT OF ENCLAVES IS SHOWN BY THE DIFFERENT PROGRAMS. FURNISHING ONE ANOTHER USING THE EXISTING STRUCTURE OF THE TOWER. WE DESIGNED A GYMnasium, AN ENTRY, EXTRA VERTICAL CIRCULATION FOR GREEN VERTICAL PARKING, ANIMAL REHABILITATION POOLS + CLINIC AND A RECEPTION AREA ENTRY. ALONG WITH THE DOCK AND HELICOPTER PAD FOR ARRIVAL. A WORKING VERTICAL STAIR ALSO LEADS YOU TO THE DIFFERENT LEVELS BASED ON THE RIG.







Wellness-Centered Learning: A Toolkit for Design Educators

Tamie Glass, The University of Texas at Austin

ABSTRACT

Problem

In 2023, higher education experts collectively agree that student mental health is in crisis. A recent national student survey spanning 158 institutions reports that almost 50% of learners believe professors bear responsibility for helping them navigate mental health concerns (Student Voices Survey, 2023). In surveys of faculty nationwide, 70% report openness to professional development tailored to supporting student well-being

Context

The Wellness-Centered Learning Toolkit provides a resource for design educators who may have deep expertise in instilling wellness features into the design of products and built environments but may need help to recognize, diagnose, and intervene in wellness issues impacting learning. The toolkit offers three pillars represented by learning conditions to influence the design of a healthy studio learning environment and three sub-conditions likely to result from such a structure.

While wellness-centered frameworks are familiar in many fields, they are relatively scarce in design pedagogy. In particular, architecture and interior design studios are known for arduous, project-based experiences with demanding expectations that mirror practice. This session will offer an approach to support wellness-centered learning in similar ways as an interior designer might do for users—all while maintaining the necessary quality and rigor of the studio.

Outcomes

After attending this session, participants will be able to draw on an evidence-based framework to create specific conditions required for healthy learning in the studio environment and sub-conditions that are likely to result when those conditions are met.

Methods

The Wellness-Centered Learning Toolkit resulted from three phases of work. The first phase included a 16-week design research investigation led by the first author of a new studio-based design graduate program. Two design students, including the second author, conducted user research, audits,

interviews, surveys, and analysis, leading to six evidence-based insights (see appendix). The findings shed light on the many factors that impact a student's sense of well-being, including high workload, fast-paced projects, and challenging team dynamics. Greater awareness of the student experience became the impetus for more research on how interior design and other studio-based education affect student wellness.

The next phase included a literature review that provided a broader context, proved relevance for this work, and supplied definitions, methods, and sources for other wellness frameworks and models. It also led to examples of wellness interventions and studies in classrooms and various work settings. The Job Demand-Control (-Support) Model for Psychological Well-being (Van der Doef et al.), along with the Gold Standard for Project-Based Learning models, became influential and led to the development of two working frameworks included in the kit: one to promote Healthy Learning Environments and another for Healthy Project-Based Learning.

In the final phase, the authors applied several recognized learning and social science constructs as the basis of recommendations for educators seeking to apply these frameworks. The kit includes research-back tactics faculty can employ to help students feel they have Control over their work, the social Support they need from their instructor and peers, and the ability to meet the Demands placed upon them, all of which promote wellness and healthy learning.

Implications

The frameworks help anchor students and faculty as they embark on fast-paced, intense design coursework that is often ambiguous and challenging in new ways. Overall, deploying the toolkit can potentially reduce academic stress and student wellness-related incidents. Design educators will increase their pedagogical competence while removing barriers for students to reach their highest potential and develop healthy work habits.

REFERENCES

Inside Higher Ed. (2023, May 17). Survey: Stress Undercutting Student Success. Inside Higher Ed. <https://www.insidehighered.com/news/student-success/health-wellness/2023/05/17/survey-stress-undercutting-student-success>

Mary Christie Institute. (2021). The Role of Faculty in Student Mental Health. <https://marychristieinstitute.org/wp-content/uploads/2021/04/The-Role-of-Faculty-in-Student-Mental-Health.pdf>

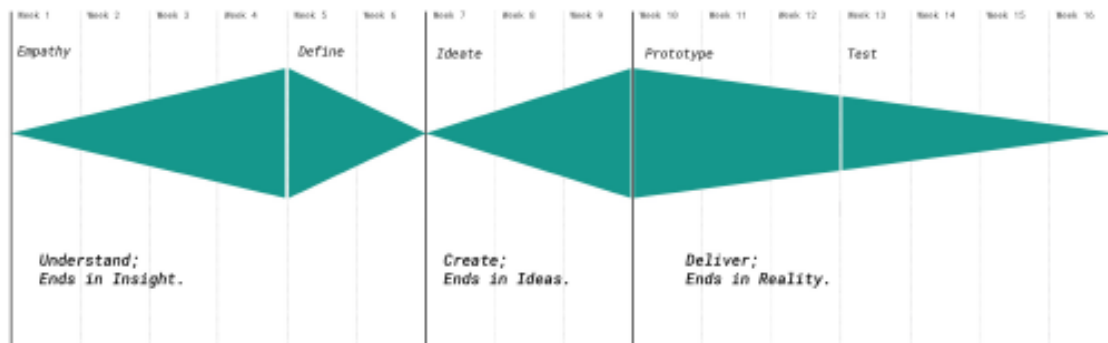
Van der Doef, M., & Maes, S. (1999). The Job Demand-Control (-Support) Model and Psychological Well-Being: A Review of 20 Years of Empirical Research. *Work & Stress*, 13(2), 87–114. <https://doi.org/10.1080/026783799296084>

What Is PBL? PBLWorks. Retrieved from www.pblworks.org/what-is-pbl on 17 Sept. 2023.

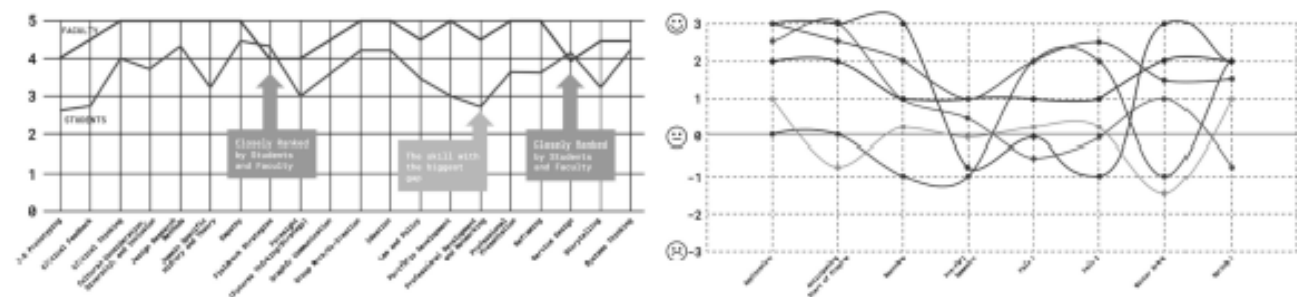
Appendix

Scholarship of Teaching and Learning

Initial Research involved a 16-week investigation into a graduate level design and healthcare program through audits, interviews, surveys, and analysis.



Virtual interviews, in the form of 3 faculty interviews, and 7 student interviews were conducted. Interactive Miro activities were developed and distributed. Two primary activities involved a "Skills Rating" activity and an "Experience Rating Activity Journey Map."



Response misalignment reveals faculty need to communicate empathy as the central skills for this field.

Data revealed a dip in the student experience in the "pre-fall semester," that emulates the "learning pit"

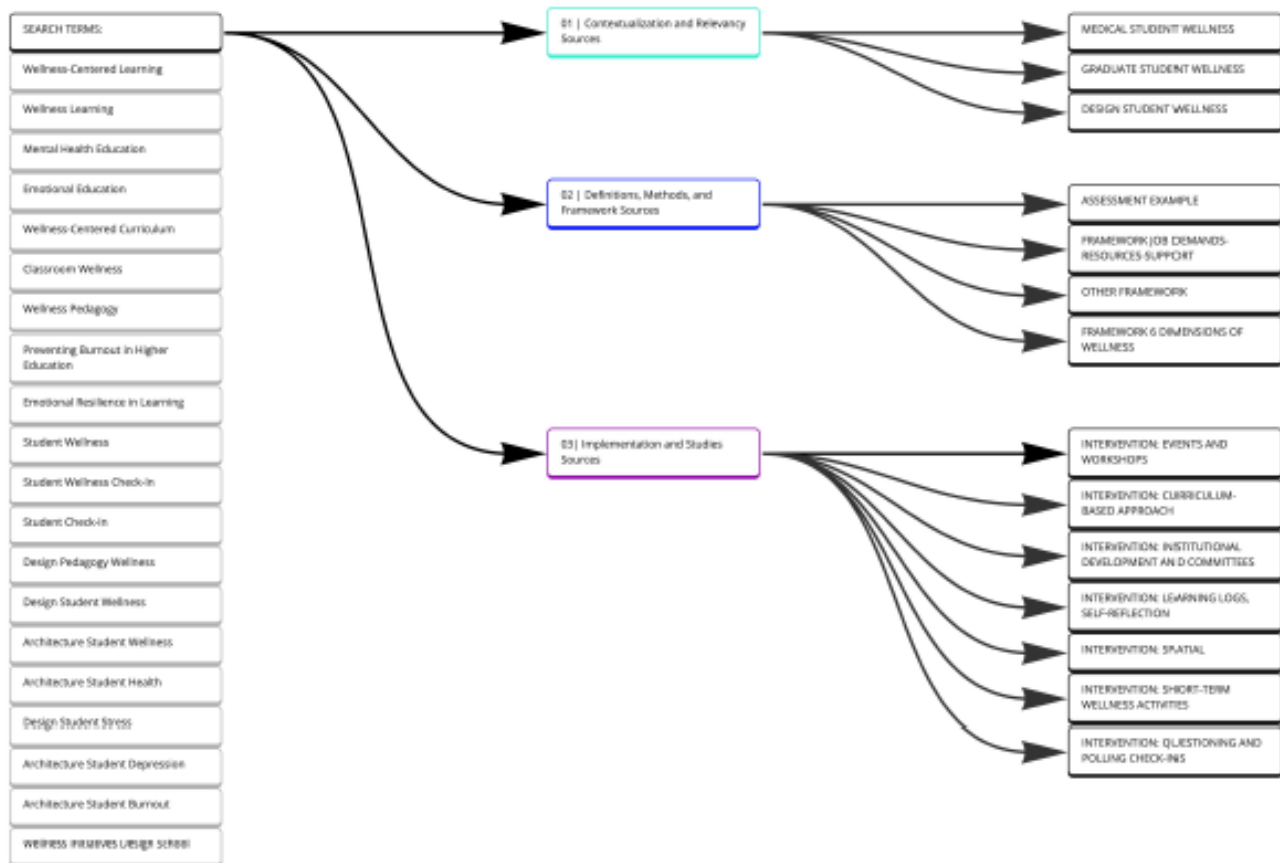
Research and coded data resulted in 6 key program insights. Six insights across various categories highlight the potential to improve project-based learning program curriculum for wellness.

- **Collaboration:** Due to program emphasis on teamwork, positive or negative team collaboration experiences generally equate to positive or negative overall program experiences.
- **Communication:** Current online modality strains communication and learning.
- **Curriculum:** Students crave more discipline-related content and "real-world" projects and assignments.
- **Diversity, Equity, Inclusion:** Lack of representation in the program leads students to question their role in the field of design.
- **Student Well-being:** Students express varying degrees of stress based on pace, workload, and career preparation, pointing to frustrations between expectation versus reality.
- **Cohort Culture:** Diverse backgrounds and ranges of experiences create friction among students and a culture of distrust.

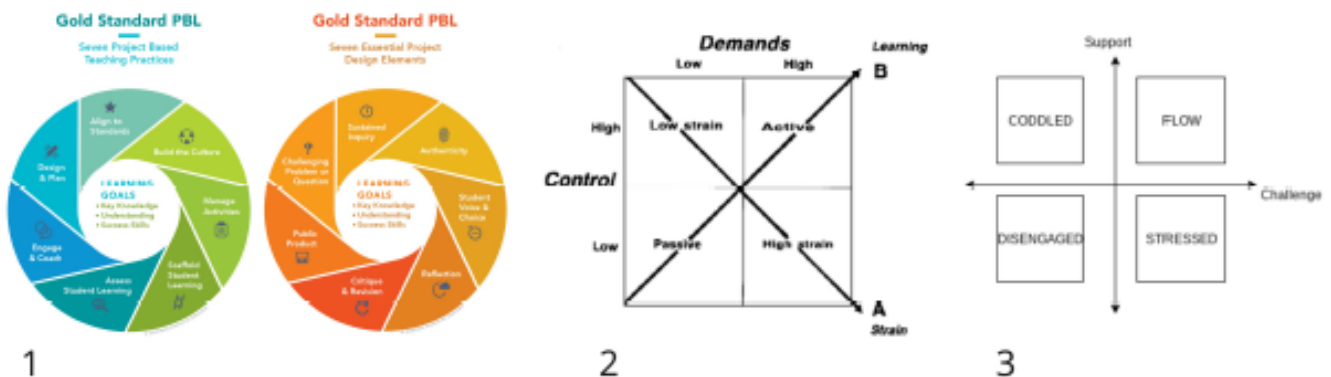
Appendix

Scholarship of Teaching and Learning

Program research and annotated bibliography prompted further investigations through the form of a literature review.



Literature review uncovered three key framework precedents.



1. "What is PBL?" PBLWorks, www.pblworks.org/what-is-pbl. Accessed 17 Sept. 2023.
2. Van der Doef, Margot, and Stan Maes. "The Job Demand-Control (-Support) Model and Psychological Well-Being: A Review of 20 Years of Empirical Research." *Work & Stress*, vol. 13, no. 2, 1999, pp. 87-114. <https://doi.org/10.1080/026783799296084>.
3. Talbert, Robert. "Agile Student Feedback through the Five-Question Summary." Robert Talbert, Ph.D., Robert Talbert, Ph.D., 19 June 2019, <https://rtalbert.org/agile-student-feedback-through-the-five-question-summary/>.

Appendix

Scholarship of Teaching and Learning

A framework adaptation was developed from precedent research and literature review:

Research Framework Definitions

WHAT

Research defines 3 conditions needed for a healthy environment, these also apply to the learning environment:

- Control
- Support
- Demand Balance

Controls are physical, psychological, social, or organizational aspects of an academic environment that provide autonomy.

Supports are physical, psychological, social, or organizational aspects of an academic environment that provide social support and relatedness.

Demands are physical, social, or organizational aspects of an academic environment that require sustained physical or mental efforts.



Research Framework Adaptation for Healthy Projects

PLANS FOR FURTHER STUDY

IF research indicates these three conditions (Control, Support, Demand Balance) are needed for a healthy learning environment...

THEN we hypothesize that healthy project-based learning yields belonging, confidence, and desirable difficulty.



Appendix

Scholarship of Teaching and Learning

Several recognized learning and social science constructs became the basis of recommendations for educators seeking to apply the frameworks to create the key conditions of healthy project-based learning.

Control / Autonomy

4 Ways to provide
Autonomy

1. Choice (within boundaries)
2. Flexibility
3. Owership
4. Fulfillment

Support / Relatedness

4 Types of Supportive
Behaviors

1. Emotional: Expressions of empathy, love trust and caring
2. Instrumental: Tangible aid and service
3. Informal: Advice, suggestions, and information
4. Appraisal: Information that is useful for self-evaluation

Demands / Mastery

5 Keys to Mastery

1. Self Regulated
2. Desirable Difficulty
3. Pre-Assessment (Metacognition)
4. Formative Feedback
5. Enrichment or Extension Activities

**TEACHING & LEARNING in
the ROUND**

Teaching & Learning in the Round | Presentation

Color Education In Interior Design: Media Approaches And Project Objectives

Jihyun Song, Drexel University

ABSTRACT

Mixing colors in physical reality is never the same as manipulating colors with the computer-generated software. Students' experiences of color selection from a screen compared to manual control raise questions regarding sensibilities of color and their aesthetic and even spiritual qualities for humans. In the practice of interior design it is essential to experiment the tools and media to describe and complement dimensional qualities in color. The advantage of media practice is that the need of individual's sensual ability achieved by observing, perceiving and experiencing colors (Pile, 1997; Reed, 2021).

During the design activity interior designers are engaged in using colors to create forms and spaces. Among the various methods, techniques and tools colors become major design elements that complement the development of the form and spatial characteristics. Color decision-making is exceptionally complex in the interior design process when the projects are demanded by possible solutions in color. As such, one questions how color might be taught to address its complexity and range. Often color is taught in a theory class format suggesting students miss full understanding and application of its integral nature to the interior as a whole (Poldma, 2009). If we turn to interior design studios, students appear to adhere to selecting colors and materials late in the process as part of finished work and presenting material and finish boards. They miss color and lights power in shaping space and communicating project objectives; thus missing performance standards. According to the Council for Interior Design Accreditation Professional Standard (CIDA), students in Interior Design programs are expected to select and apply color effectively in all aspects of visual communication (CIDA standard, 2022). Challenges for educators then occur in demonstrating their students' performance of analyzing, selecting, and creating new color palettes, placement and developmental power within the practice and across a project.

This presentation addresses color pedagogy in interior design where color plays multiple roles in communication and where different media must carry the message. The three assignments create a natural integration of design activity within the studio environment for a holistic learning experience of color. Each project aims to create a forward thinking and right-brained approach in the studio setting. Students benefit from traditional studio experience and produce tangible products that encourage intuitive thinking and active learning. Both artistic and digital media experiences were developed to emphasize personal and emotional sensibility as well as aesthetic judgment. The experience was supported through application of theoretical color concepts, knowledge of color

principles and systems supporting the integration of specific media to different aspects of design projects. Incorporating analog and digital tools--color acrylic paints, watercolor, Adobe Photoshop and NCS Color Navigator--give insight to students' motivations and the enrichment of their subjective experience with color. The author thus invites educators to examine the teaching strategies to strengthen the learning of color and exchange ideas about developing design sensitivity that offers a deeper color experience in design education.

REFERENCES

Blaukopf, Shari (2019). *Working with Color: Techniques for Using Watercolor and Color Media on the Go*. Quarto Publishing Group, Inc.

Pile, John (1997). *Color in Interior Design*. McGraw-Hill Professional. New York: John Wiley &

Sons. Poldma, Tiiu (2009). *Taking Up Space*. New York: Fairchild Publications, Inc.

Reed, Ron (2021). *Color Plus Design*. New York: Fairchild Publications, Inc.

Appendix

Examples of Color Project




BRAND IDENTITY

I created a brand identity in an office space for the international public relations firm of Haberland & Mauser. Colors were chosen based off of their logo using the NCS system and applied using Photoshop in a general document. The yellow-green was used to highlight the main features of the office, while the neutrals allowed the space to still feel like an office.



haberland & mauser agentur für public relations



MUSIC TELEVISION




design objectives

using adobe photoshop, this brief project involved the exploration of color development in branding a global company. the ncs color system was used to develop a color sentence. then the palette was applied to an interior.

concept development

the concept for developing a current color scheme for mtv involved youthful and inspiring hues; different tints, tones, and saturations were thoroughly analyzed by using the ncs color system.



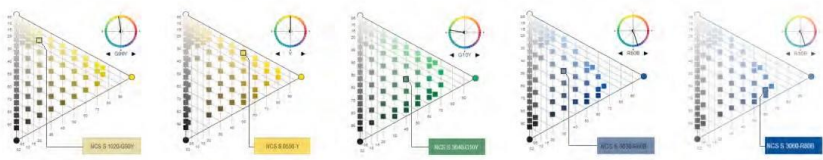
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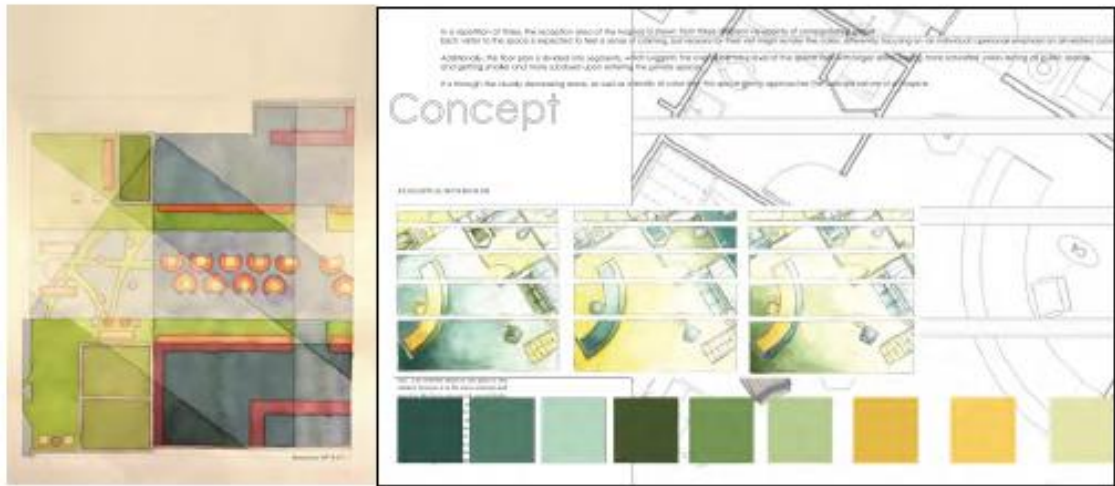
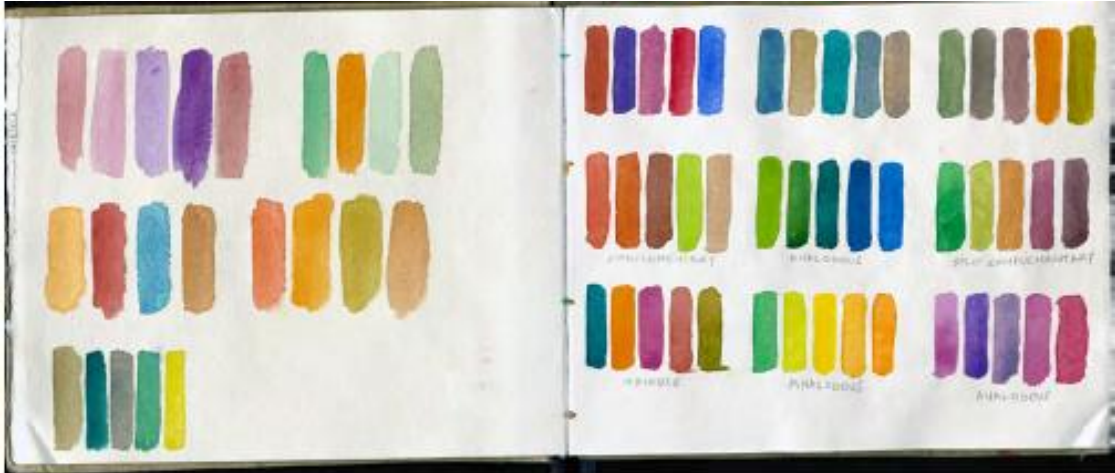
Ann & Robert H. Lurie Children's Hospital of Chicago



This image shows a primary circulation corridor on the 20th floor of the Lurie Children's Hospital. Each patient floor uses similar color applications, but is differentiated by a unique animal. The 20th floor is characterized by the baby chick, seen to the right. Each floor has one of these logos, which is used next to the respective elevator buttons, creating a unique floor identity.

The application of color in this space is very deliberate, and very successful in aiding circulation. The palette itself is a collection of cool, calming colors that are widely used in healthcare settings for their positive impacts on recovery and well-being. Though the colors are calming, they are not dull. They are, rather, quite lively and bright. The zig-zagging walls add interest to the corridor and also allow for a unique alcove near each private patient room. The alcoves are accented by yellow drop ceilings, and green flooring that mirrors the same curvilinear shape. This bright alcove seems to successfully create almost a "front porch" effect, which makes the patient rooms feel more private for those occupying them. The entrances to rooms are clearly distinguished from the corridor circulation path, but do not feel closed off or uninviting - simply more private. The bright blue stripe along the floor draws our attention to the nurses' station, a critically important feature on any patient floor. This blue also happens to be the color with the most chromaticness (60%), as the diagrams below indicate. Since this color is used in such a small amount, it is very successful in drawing our attention to an area without feeling overwhelming. None of the colors have a blackness value of over 30% which is why this entire space feels so light and breathable. The majority of the colors used are in the 20-50% range of chromaticness, creating a calm, yet still colorful palette for this healing space.



Teaching & Learning in the Round | Presentation

Empowering Students with 3D Modeling and Visualization Skills

Seunghae Lee Wentworth Institute of Technology

ABSTRACT

With the rapid advancement of digital technology in recent years, many Interior Design programs now incorporate instruction on various 3D visualization, presentation, and documentation tools including popular software like SketchUp, Revit, and Adobe Suites (Miller, 2023). While these 3D visualization programs offer significant benefits for students, concerns have been raised by educators in architectural design (Christensen, 2006; Zainudin et al., 2015). For instance, Revit's extensive library of "families" and its immediate availability can inadvertently limit students' exploration of different options and possibilities, potentially impeding their overall learning outcomes. This presentation aims to introduce a digital drawing course with a primary focus on instructing students in the effective and proficient use of 3D modeling tools. Understanding the specific challenges faced within the interior design program, efforts have been invested in crafting a curriculum that not only advances students beyond parametric modeling but also equips them to articulate their distinctive design visions through the integration of various interoperable digital platforms. The interoperability between has seen significant improvements over the past couple of years especially with the release of Rhino version 7 and Revit versions 2023 and 2024. This has greatly enriched the learning experience and elevated design outcomes. Furthermore, the incorporation of the Enscape plug-in across multiple programs help empowers students to explore the 3D space they have created through VR (Virtual Reality), contributing to the iterative design process by allowing students to evaluate and redevelop (Lee, 2009). The course introduces SketchUp, Revit, Rhino, and Enscape programs with four assignments (SketchUp, Revit Residential, Revit Commercial, and Rhino Furniture) and two tests (SketchUp and Revit) in 14 weeks (see Figure 1 for the schedule). The presentation will demonstrate the progressive development of students' 3D modeling skills and discuss each software's strengths and limitations and how interoperability between different programs can help students building up their modeling skills to express their ideas. To engage the attendees, QR codes generated from the initial SketchUp assignment will be shared, enabling attendees to explore the students' created space virtually on their mobile devices (see Figure 2 for an example of a QR code). Meanwhile, the presenter will elucidate the assignment's intricacies and highlight the advantages of utilizing SketchUp for swift 3D Modeling, along with the transformative potential of the Enscape Plug-in in inspiring and motivating students to focus on finer details. Following this, the presentation will delve into the seamless integration of Revit and Rhino. Attendees will gain insight into how students hone their digital 3D modeling skills in both Revit and Rhino, as demonstrated through specially crafted instructional videos tailored for the course. (In total, there are 51 videos, and select ones will be shared during the presentation to elucidate assignment requirements) -Refer to Figure 3 for a snapshot from one of these videos. The live demonstration will further illuminate the interoperable process between Revit and Rhino. This will include the creation of furniture and interior building elements in Rhino,

followed by their exportation to a Revit project file, complete with materials and finishes information. See Figure 4 and 5 for student work examples. Student feedback revealed that they felt better able to express design ideas in 3D using diverse programs, not restricted to parametric modeling or a limited set of pre-made Revit Families, based on course feedback.

REFERENCES

Miller, T. (2023). BIM through the eyes of a child, Proceedings of Interior Design Educators Council Annual Conference, IDEC.

Christensen, M. (2008). Capabilities and Limitations of Autodesk Revit in a Construction Technology Course. Building Technology Educators' Symposium Proceedings (ISBN 9780615249117), pp. 55-62.

Zainudin, H., Haron, N.A., & Bachek, S. H. (2015) Visualization in Building Information Modeling (BIM) for Interior Design education: A Case Study at Sunway University. Proceedings of the Asian Conference on Education, 199-210, Kobe, Japan.

Lee, S. (2009). The development of 3-D visualization technology: the potential impact on interior design and its consumers. International Journal of Consumer Studies, 33, 611-617.

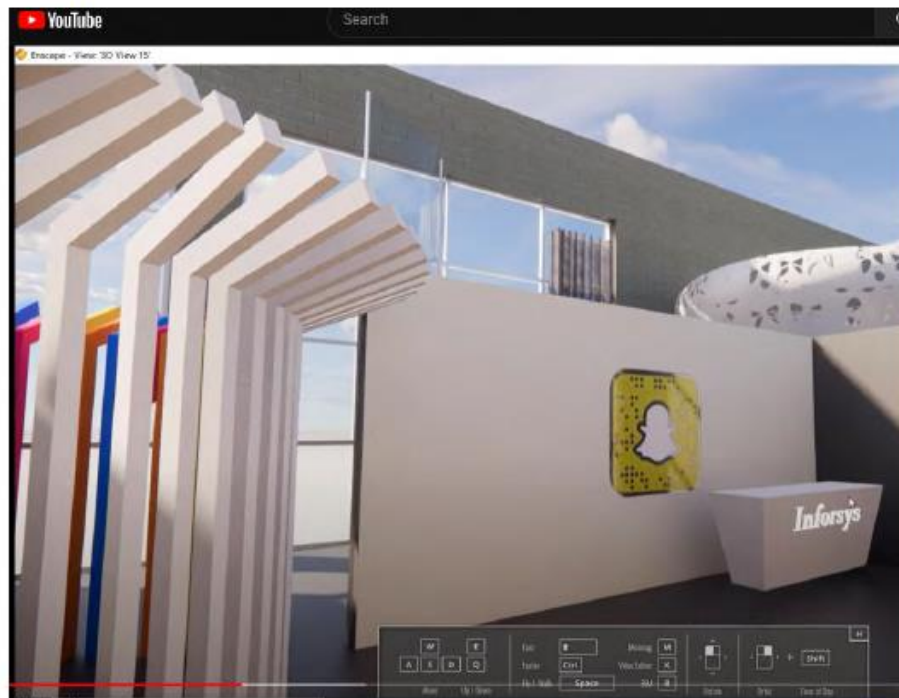
FIGURE 1.

Wk	#	Topic	Assignments	
1	1	Introduction to the class Brightspace File management and storage -student onedrive folder; Programs – SketchUpPro, Revit, Rhino, Adobe CC, Enscape Orthographic Projection Exercise		
2	2	SketchUp Intro Basic tools Drawing Environment Importing AutoCAD file; Creating walls, opening, windows; move, copy, rotate; creating components and groups; modifying the view		
	3	Kitchen Design Custom design in SketchUp Materials 3D Warehouse		
3	4	Scenes/Styles/Enscape/Export		
	5	Revit Residential Revit Interface Getting started, basic tools dashboard, levels, creating walls		
4	6	SketchUp Test Revit Doors, windows, rooms	SketchUp SketchUp Test	15% 5%
	7	Revit Doors, windows, rooms, families		
5	8	Revit Kitchen cabinets and countertop		
	9	Revit Custom millwork: Model in Place, Family modeling		
6	10	Revit Lighting and RCP		
	11	Dimensions, room names, Setting up sheets, printing		
7	12	Rhino Furniture	Revit Residential	20%
	13	Rhino Furniture		
8	14	Rhino Furniture		
	15	Rhino Furniture		
9	16	Rhino Furniture		
	17	Revit Commercial Levels and grids; Exterior walls, columns		
10	18	Rhino Test Revit Commercial Levels, views, context	Rhino Furniture Rhino Test	20% 10%
	19	Revit Commercial Curtain walls; curtain wall doors		
11	20	Revit Commercial Stairs; floors; elevators; interior walls; doors		
	21	Revit – Rhino Interoperability		
12	22	Revit Commercial Materials		
13	23	Rhino Revit Commercial		
	24	Rhino Revit Commercial		
14	25	VR		
	26	Rhino Revit Commercial		
		TBD		
			Rhino Commercial	30%

FIGURE2.

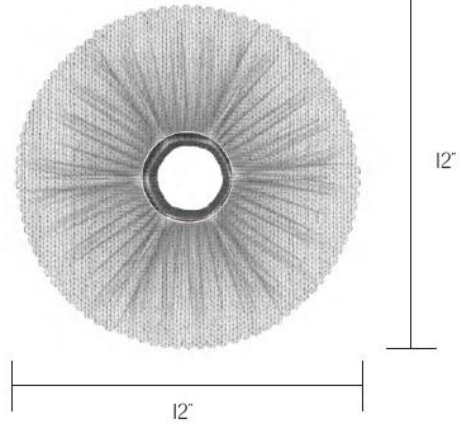


FIGURE3.

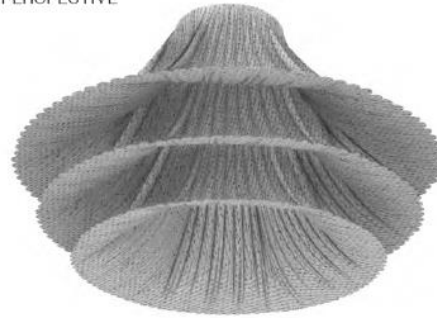


LIGHTING

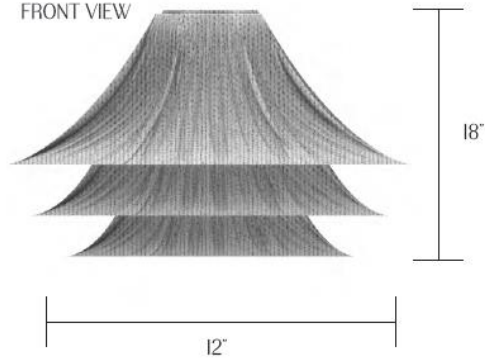
TOP VIEW



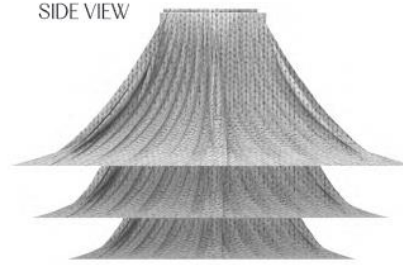
PERSPECTIVE



FRONT VIEW



SIDE VIEW



This tutu lighting fixture is inspired by a ballerina's tutu and was originally made custom for the cafe of a Montreal ballet school by Atelier Zebulon Perron. The light mimics the movement of fabric and brings rhythm into a space. To create this object I created a scallop-like curve at a variety of sizes and heights. From there I used the loft tool to connect all three curves to create the sweeping motion. From there I revolved the piece around a circle and scaled the shade to create three copies at various heights and sizes. The materials applied are a periwinkle fabric and black metal for the hardware.

Petalos

FIGURES.

Concept Statement

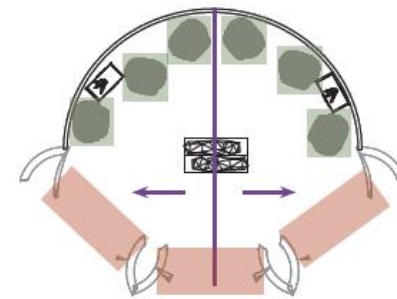
Inspired by flowers and petals, this pavilion provides a room to relax and a getaway within a space. The entry creates a passage that transports visitors to a different environment. The walls come together and form arches that resemble petals which help with the visual interpretation of the space.



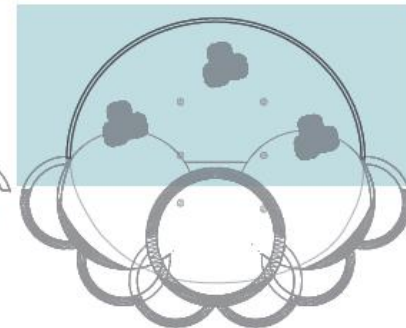
Project Description

- ### Design Elements
- Curves • Thresholds •
 - Rythm • Balance •

Through biophilic design, this gazebo-like structure adds a private room for relaxation and privacy. Arches come together and overlap each other to form a petal shape and an overall circle. The light fixtures are flower inspired and as every furniture piece included, they are all curved and flowing into each other.



Floor Plan



Reflected Ceiling Plan

Teaching & Learning in the Round | Presentation

Getting Started with Environmental Analysis: A Set of Scaffolded Projects

Apoorva Rane, University of Wisconsin - Stevens Point

ABSTRACT

The Introduction of Human Behavior and Built Environments is one of the lecture-based courses in a CIDA-accredited interior architecture (IA) program. This course is administered in several modalities: online, in-person, hybrid, synchronous, and asynchronous. Student learning is assessed on a variation of environmental analysis of real or virtual spaces and exams. Environmental analysis projects aim to improve students' observational, drawing, and note-taking skills. Depending on their maturity and knowledge of drawing, it is challenging for IA students to begin visualizing, conceptualizing spaces, and learning foundational theories, especially during their initial time in the program. Teaching and providing opportunities to practice comprehensive graphical tools such as bubble diagrams are some great solutions to support students in developing theoretical and contextual analytical abilities. Student-friendly environments, such as dorm rooms and university spaces, can be studied at the earlier stages of learning environmental research.

Recent literature underscores the pedagogical changes in the learning style of Generation Z (Szymkowiak et al., 2021; Vizcaya-Moreno & Pérez-Cañaveras, 2020). Students prefer to learn from how-to-videos and online resources (Demirkan, 2016). Similarly, students' educational value and satisfaction are closely related to experiential learning and keeping up with social trends (Gamage et al., 2021; Nicholas, n.d.). While the human behavior-based course delves into theories and concepts, students may find lecture-heavy content challenging to understand or lose interest. Integrating quality and expert content from the entertainment industry in hands-on, in-class activities, quizzes, and scaffolded approaches for creating approachable content for Generation Z. Connection and familiarity with the content can motivate students to extend their theoretical and conceptual understanding.

Project goals: Exploring the intertwined nature of human behavior and environment. Learning and describing foundational theories of human-environment relationships. Promoting hand-drawn graphical techniques to explain ideation, concepts, and theories. Improving student attachment to the course content.

Project development: This presentation focuses on four (4) scaffolded learning exercises for students to practice their bubble diagrams, circulation analysis, and note-taking skills. The scaffolded assignments require students to understand and apply concepts and theories, such as territoriality and proxemics theory, to the content from the entertainment industry, dorm rooms, and an indoor on-campus environment. The scaffolding encourages learning and practicing hand drawing and analytical skills. Students are also required to include detailed notes to support their analytical communication.

Recreating relevant content from the television series of their interests encourages them to practice observation-based research methods. The projects include one in-class activity, two environmental analysis practice assignments, one midterm research poster, and a presentation. Students are required to visit the university writing center to improve effective writing communication skills.

Results: The scaffolded projects are developed for the Fall 2023 cohort, and students will complete this assessment by midterm. The results consist of student outcomes from the environmental analysis of their dorm rooms, two (2) spaces from their favorite television series, and an indoor on-campus environment will be presented and discussed in this presentation.

REFERENCES

Demirkan, H. (2016). An inquiry into the learning-style and knowledge-building preferences of interior architecture students. *Design Studies*, 44, 28–51. <https://doi.org/10.1016/j.destud.2015.12.009>

Gamage, K. A. A., Dehideniya, D. M. S. C. P. K., & Ekanayake, S. Y. (2021). The Role of Personal Values in Learning Approaches and Student Achievements. *Behavioral Sciences*, 11(7), 102.

<https://doi.org/10.3390/bs11070102>

Nicholas, A. J. (n.d.). Preferred Learning Methods of Generation Z.

Szymkowiak, A., Melović, B., Dabić, M., Jeganathan, K., & Kundi, G. S. (2021). Information technology and Gen Z: The role of teachers, the internet, and technology in the education of young people.

Technology in Society, 65, 101565. <https://doi.org/10.1016/j.techsoc.2021.101565>

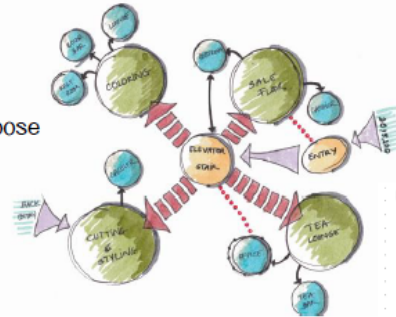
In-Class Activity 1. Making Bubbles

(SCAN YOUR WORK AND ADD TO Q&D5)

- You will create one bubble diagram of the most familiar space your choice in class. For example: your home, dorm room, etc.
- Create bubble diagrams for functional zones and relationships for the space. These diagrams can be conceptual. While it's an option, you don't need to trace the bubbles off the floorplan. (Tracing space bubbles in exact locations on the floorplan represents blocking diagram, not a conceptual bubble diagram)
- Remember all areas and how they were utilized. Recall important events, for example, thanksgiving, parties, and how the space was planned or used flexibly. Add labels for zones and notes to communicate your diagrams effectively.
- Your annotations must be comprehensive and meaningful, explaining your thought process to readers regardless of their expertise in the subject matter.
- Create the floorplans on a grid paper and scan them. Copy them in a PowerPoint presentation for reference.

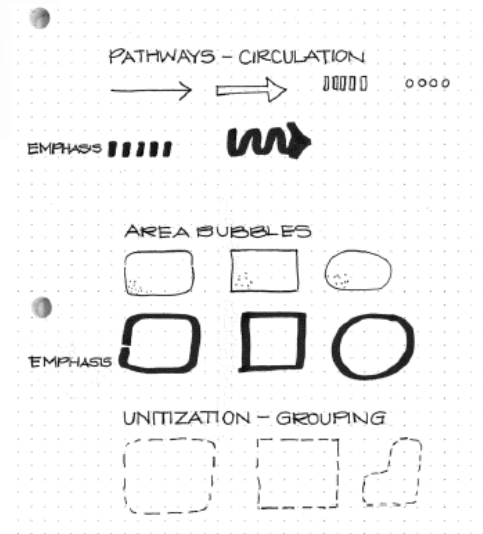
Bubble diagrams

- Create clear separation between areas for different purpose (formal seating, lounge seating, bathrooms, etc.)
- Use standardize pathway symbols
- Add colors/ pattern for space bubbles
- Make sure annotations and notes are legible



Space circulation

- Draw arrows/ pathways on the floor plan or bubble diagram to show where you enter and move through the space.
- Mark a general pattern of movement of this space
- Make notes about factors that affect the pathways such as obstructions, smells, noise, people, etc.
- Make notes about not only your path but also your walking pace/ speed.
- Describe any other senses that may be impacting the movement, space selection, and individual or group behavior within this environment.
- Do you interact with objects or people? How? Why?



In-Class Activity 1. Bubble Diagrams

Name:

Date:

IA 120 Section__| Fall 2023

Environmental Analysis Practice Assignments

Practice Assignment 1 (25 points) and Practice Assignment 2 (40 points)

Environmental analysis combines several research techniques such as observation, field study, literature review, case studies, and more. Using more than one research technique provides in-depth knowledge about a particular subject through several lenses, which makes the analysis more robust. These techniques are commonly used in various fields, including psychology, sociology, anthropology, education, and design, to gather qualitative data about human behavior and interactions. This environmental analysis will combine two essential research techniques: observation and field study. Begin this research exploration with keen eyes and an open mind to overcome the drawbacks of these research techniques. Visit your selected research setting several times and study it thoroughly. Remember, we aim to create thorough observations and accurately analyze intertwined human behavior and environmental relationships.

EA Practice Assignment 1: Practicing Bubble Diagrams

(25 points | Due: Thu. Sept. 21)

Bubble diagrams are a visual tool commonly used in interior design and architecture to conceptualize and organize spatial relationships within a given space. These diagrams are often used in the early stages of the design process to outline functional and visual considerations before more detailed plans are developed. During the early introduction to the bubble diagrams, we learned that they indicate essential functions, proximity, zones, and relationships between them. Bubble diagrams are also a great tool for mental and visual representation of a particular space.

- Find two (2) floorplans for your favorite series online. A great resource is Interior Designer and Artist: Iñaki Aliste Lizarralde. Visit: <https://inakialistelizarralde.tumblr.com/> (see Figure 3)
- If you are unable to find this information, watch a couple of episodes of the series/sitcom/ shows of your liking.
- Create the floorplans on a grid paper and scan them. Copy them in a PowerPoint presentation for reference.
- Create two (2) bubble diagrams for functional zones and relationships for spaces. These diagrams can be conceptual. While it's an option, you don't need to trace the bubbles off the floorplan. (Tracing space bubbles in exact locations on the floorplan represents blocking diagram, not a conceptual bubble diagram)
- Add labels for zones and notes to communicate your diagrams effectively.
- Your annotations must be comprehensive and meaningful, explaining your thought process to readers regardless of their expertise in the subject matter.

Bubble diagrams

- Create clear separation between areas for different purposes (lunch/ dinner areas, lounge seating, bathrooms, etc.)
- Use standardizes pathway symbols.
- Add colors/ pattern for space bubbles.
- Make sure annotations and notes are legible. (See Figure 1)

Space circulation

- Draw arrows/ pathways on the floor plan or bubble diagram to show where you enter and move through the space.
- Mark a general pattern of movement of this space. (See Figure 2)
- Make notes about factors that affect the pathways such as obstructions, smells, noise, people, etc.
- Make notes about not only your path but also your walking pace/ speed.
- Describe any other senses that may be impacting the movement, space selection, and individual or group behavior within this environment.
- Do you interact with objects or people? How? Why?

Submission: 1. Scan the completed assignment and upload it on Canvas.

2. Assignments must be submitted on paper in class.

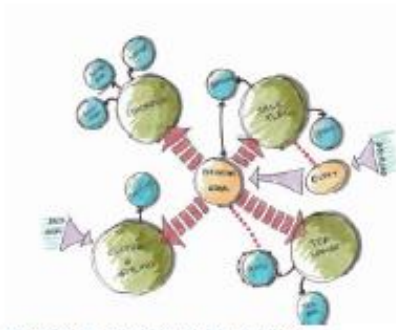


Figure 1. Example of bubble diagram

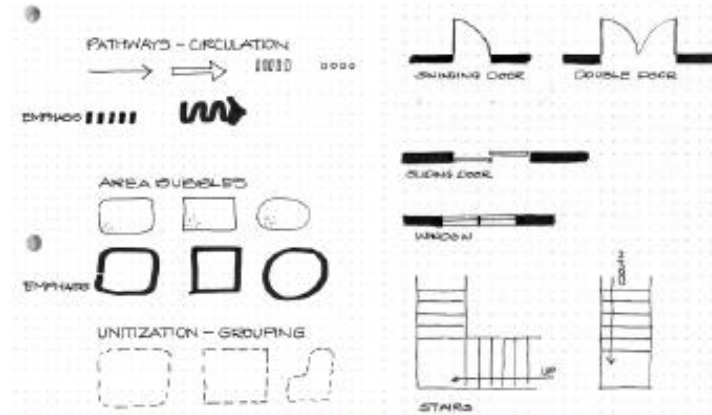


Figure 2. example of bubble diagram elements and common architectural elements

<p>Chandler - Joey & Monica - Rachel Apartments 40 Bedford St - Apts. 19th & 20th New York City NY 10014 U.S.A.</p>		
<p>The Office Dunder Mifflin Paper Company, Inc. 1125 Broad Avenue Scranton, PA - USA</p>	<p>GILMORE GIRLS LORELAI & RORY'S HOUSE FIRST FLOOR</p>	
<p>Interior Designer and Artist: Iñaki Aliste Lizarralde Source: https://www.archdaily.com/544885/from-friends-to-fraser-13-famous-houses-rendered-in-plan</p>		
<p>EA Practice Assignment 1. Inspirations</p>	<p>Name: _____ Date: _____</p>	<p>IA 120 Section__ Fall 2023</p>

Figure 3. Examples of work by Iñaki Aliste Lizarralde

You have practiced several building blocks for preliminary environmental analysis. For this EA practice assignment 2, you will be observing your dorm room.

Part I: Observation and documentation

Observation: Focus on aspects like seating preferences, movement patterns, social interactions, and your overall comfort level. Pay attention to any patterns or trends that emerge in terms of how patrons utilize the space. Observe how patrons use the walls, floors, ceilings, and any other architectural elements or accessories within the space.

Observe the environment based on the following **four (4)** components.

1. **Environment.** Objectively describe the environment using pictures, floor plans, bubble diagrams, notes, and sketches of the space and any peculiar elements. Include descriptions of the physical layout, furniture arrangements, ceiling, and wall design, egress (entrance and exit), decorations, color, pattern, and aspects that catch the five senses (vision, hearing, smell, taste, and touch). Do not interact with your roommate during observation. (It is a good idea to let your roommate know that this is a part of your assignment).
2. **Path.** Describe how you or anyone enter and move through space. Use arrows and bubble diagrams to explain. Observe a general pattern of movement and factors that affect the pathways, such as obstructions, smells, noise, people, etc. Describe patron's path and their walking pace/ speed. Describe any other senses that you think may impact patron's movement, space selection, and individual or group behavior within this environment. Identify and describe any events, reactions, or anomalies that would change others' typical behaviors in this environment.
3. **Behavioral setting.** Describe how patrons are using the space and engage with the surroundings. Does your' behavior change over time, considering factors like time of day, day of the week, and the purpose of their visit? For example, studying, socializing, eating, seat selection, walking patterns. Do you see more than one behavior setting existing in this space? There are two behavior settings in this same environment. Are they defining your behavioral setting? How? (*Hint*: room decorations, and seating arrangements, territoriality, personalization, grouping, etc.*)
4. **Theory.** Explain how territoriality and proxemics theory unfolds in this environment, in your words. Does the theory's framework help you understand why certain behavioral patterns exist? Connect components of theory to patron's behavior. You can discuss and explain behavioral territoriality, personalization, and proxemics.

Part II: Documentation. Draw a floorplan of the observed environment. Accurately create a layout with windows, doors, columns, fireplaces, furniture, accessories, and other architectural elements. Add labels for zones and notes to improve legibility and presentation of your drawings. You must follow the standard key provided in class for the floor plan and building elements. Hand drawings are preferred. You can make copies of your floorplan for 1-2 observations. Write down time, day, number of patrons present, for each observation. Take detailed notes on how patrons interact with the environment. You can include these drawings in your poster.

Submission is online, on Canvas. Scan all handmade drawings and add them into the provided PowerPoint template as necessary. The content must be summarized comprehensively and briefly on MS PowerPoint on at least **four (4)** slides using pictures, sketches, notes, bubble diagrams, and proper citations for your sources (APA 7th edition, recommended). Write your analysis using 250 words and create a logical flow of your ideas and concepts. Please refrain from copying the floor plan from a website or illustrations. Drawing the space as your mental representation is an essential process and a great learning experience.

General guidelines:

- Assignment submission is online, on Canvas.
- Font size. Notes: 16-18 pts, Content: 20 pts (1 to 1.5 spaced)
- Font name: Calibri, Times New Roman, Franklin Gothic Book
- Use a formal structure: Introduction, Method, Components, and Conclusion.
- Use figure numbers and titles; include them in the narrative.
- Story boarding brief (250 words): a logical flow of ideas and concepts.
- Proper citations for your sources APA 7th edition are a must.
- Create cohesive composition using the design principles: rhythm, proportion, emphasis, balance, pattern, repetition, variety, unity. (Please avoid using Canva.com for complete presentation)

Note:

- Yes, writing is challenging. Give yourself a day or two to edit and re-reading your analysis brief. Have someone read your work. Set up an appointment with the University writing center and take their feedback.
- Must include a title slide.

Environmental Analysis Project

Poster (60 points) | Presentation (25 points)

Due on Tuesday, October 17

This assignment is aligned with the following IA 100 level course Learning Outcomes

1. Recall the intertwined nature of environment-behavior phenomena.
2. Analyze some of the foundational theories of human-environment relationships.
3. Identify how designers can investigate environment-behavior phenomena.
4. Evaluate how environment-behavior data can inform design decisions.
5. Research and analyze how built environments are influenced by social value systems around the world and vice versa.
6. Explain and apply major concepts, methods, or theories used in the social sciences to investigate, analyze, or predict human behavior.
7. Examine and explain how social institutions influence individuals or groups.

Environmental analysis combines several research techniques such as observation, field study, literature review, case studies, and more. Using more than one research technique provides in-depth knowledge about a particular subject through several lenses, which makes the analysis more robust. These techniques are commonly used in various fields, including psychology, sociology, anthropology, education, and design, to gather qualitative data about human behavior and interactions. This environmental analysis will combine two essential research techniques: observation and field study. Begin this research exploration with keen eyes and an open mind to overcome the drawbacks of these research techniques. Visit your selected research setting several times and study it thoroughly. Remember, we aim to create thorough observations and accurately analyze intertwined human behavior and environmental relationships.

Part I: Selecting research environment.

Choose an on-campus communal space and a theory from the following list for your environmental analysis. Register your selection on canvas to avoid any conflict by **Thu. Sept. 21**. You must visit all these environments before selection.

Study Environment (Pick 1)	Theory (Pick 1)
1. Option 1	A. Control theory
2. Option 2	B. Attention Restoration theory
3. Option 3	C. Stimulation theory
4. Option 4	D. Integration theory
5. Option 5	E. Behavior setting theory

Part II: Observation and documentation

Documentation: Draw a bubble diagram and a floor plan for your selected on-campus environment. Bubble diagrams must show walking paths and connections within the selected environments. Create a layout with windows, doors, columns, fireplaces, furniture, accessories, and other architectural elements on your floor plan. Make sure that your drawings are legible and presentable. You must follow the standard key provided in class for the floor plan and building elements. Hand drawings are preferred. You can make copies of your floor plan for 1-2 observations. Write down each observation's time, day, and number of patrons. Take detailed notes on how patrons interact with the environment. You can include these drawings in your poster.

Observation: Focus on aspects like seating preferences, movement patterns, social interactions, and their overall comfort level. Pay attention to any patterns or trends that emerge in terms of how patrons utilize the space. Observe how patrons use the walls, floors, ceilings, and any other architectural elements or accessories within the space.

(Note: Do not to intrude patron's privacy. If you think you need a letter from me stating that this is a class project, let me know.)

Observe the environment based on the following **five** components.

1. **Environment.** Draw a bubble diagram and a floor plan. Objectively describe the environment using pictures, floor plans, bubble diagrams, notes, and sketches of the space and any peculiar elements. Include descriptions of the physical layout, furniture arrangements, ceiling, and wall design, egress (entrance and exit), decorations, color, pattern, and aspects that catch the five senses (vision, hearing, smell, taste, and touch). Do not interact with the patrons for this analysis but observe them from a distance.

- 2. Path.** Describe how many (roughly) people enter and move through the space. Use arrows and bubble diagrams to explain. Observe a general pattern of movement and factors that affect the pathways, such as obstructions, smells, noise, people, etc. Describe patron's path and their walking pace/ speed. Describe any other senses that you think may impact patron's movement, space selection, and individual or group behavior within this environment. Identify and describe any events, reactions, or anomalies that would change others' typical behaviors in this environment.
- 3. Behavioral setting.** Describe how patrons are using the space and engage with the surroundings. Does patrons' behavior changes over time, considering factors like time of day, day of the week, and the purpose of their visit. For example, studying, socializing, eating, seat selection, walking patterns. Do you see more than one behavior settings existing in this space? For example, a girl is working on her laptop with headphones on, and two friends are sitting and talking while eating lunch. There are two behavior settings in this same environment. Are they defining their behavioral setting? How? (*Hint*: alcoves, doors, floor level, flooring material, and seating arrangements, territoriality, personalization, grouping, etc.*)
- 4. Ergonomics.** How does the furniture dimensions facilitate the purpose of this space. Which functions does it facilitate. Measure the furniture dimensions, and distance between them. Does it promote conversation or restrict it? Is it movable? Is it adaptable for different function? Describe. (*Hint*: sociofugal, sociopetal*)
- 5. Theory.** Explain the selected theory and how it unfolds in this environment, in your words. Does the theory's framework help you understand why certain behavioral patterns exist? Connect components of theory to patron's behavior. You can discuss and explain behavior territoriality, personalization, and proxemics, in addition to the selected theory.

Mindful multitasking: You will be conducting an in-depth observation of this space on campus. This observation will involve closely watching and documenting various activities that take place within the space in real time. You must conduct Part II: Observation and documentation twice, possibly at different time of the day. For example, if people rearrange furniture, engage in conversations, use specific areas for activities, or exhibit certain behaviors during different times of the day, these should be documented on your annotated floorplan.

Poster submission is online, on Canvas. Scan all handmade drawings and add them into the provided PowerPoint template as necessary. Your analysis must be summarized using 400 – 500 words and create a logical flow of your ideas and concepts. Use pictures, sketches, notes, bubble diagrams, and proper citations for your sources (APA 7th edition). You may use computer-aided tools for drawing the floor plan, but handmade drawings are preferred. Please refrain from copying the floor plan from a website or illustrations. Drawing the space as your mental representation is an essential process and a great learning experience.

General guidelines:

- Poster size 24 inches X 36 inches. Font size. Notes: 16-18 pts, Content: 20 pts (1 to 1.5 spaced)
- Font name: Calibri, Times New Roman, Franklin Gothic Book
- Use a formal structure: Introduction, Method, 5 components, and Conclusion.
- Use figure numbers and titles; include them in the narrative.
- Story boarding brief (400 – 500 words): a logical flow of ideas and concepts.
- Proper citations for your sources APA 7th edition are a must.
- Create cohesive composition using the design principles: rhythm, proportion, emphasis, balance, pattern, repetition, variety, unity.

Note:

- Please be courteous and polite to people around you during observation. If you are taking pictures, let the server/supervisor/ in charge of that establishment know that you are doing a project and it is only for your class work. Select a less busy time to click pictures of your project site.
- Yes, writing is challenging. Give yourself a day or two to edit and re-reading your analysis brief. Have someone read your work. Set up an appointment with the University writing center and take their feedback.
- Use the provided EA poster template. Try several compositions/ layouts for the poster within the template. The title block must be on the right-hand bottom corner.

Teaching & Learning in the Round | Presentation

Reintroducing Play and Playful Engagement to Strengthen Spatial Skills in 3D Design Foundations Course

Ellis Heitzke Kirkdorffer, Texas Christian University

ABSTRACT

Research shows repeated motor and cognitive activity cause structural change in the brains of children as well as adults (Draganski). Play-based activities provide low-risk opportunities for students to improve skills while engaging with peers. In this 3D Design Foundations course, students engaged in a play-based warm-up activity for 20 minutes at the beginning of each class. The warm-up activities were on a rotation to maintain student interest but allowed for activities to be repeated periodically or positive repetition. Activities included team and individual structured block play, competitive construction challenges (using wooden planks, straws, cards, boxes or build-a-fort kits) scooter races, bubble wands, and a giant multi-colored parachute. The students were expected to engage in play, an opportunity they embraced fully.

Structured block-play requires reading and interpreting 2-dimensional drawings or diagrams to build 3-dimensional structures and is particularly useful as an interior design pedagogical tool. The 3D Design Foundations course utilized Keva Brain Builders to introduce plan and elevation views and to practice reading and interpreting these views for block constructions. Keva Brain Builders were also used in an activity developed by the presenter to improve the use of spatial language among students. You will have the opportunity to participate in this activity, called Builder and Communicator, which requires a team of two working together to build a structure.

REFERENCES

- Draganski, B. & May, A. (2008). Training-induced structural changes in the adult human brain. *Behavioral Brain Research*, 137-142.
- Lillard, A. S., & Erisir, A. (2011). Old dogs learning new tricks: Neuroplasticity beyond the juvenile period. *Developmental Review*, 207-39.
- Newman, S. D., Hansen, M. T., & Gutierrez, A. (2016). An fMRI Study of the Impact of Block Building and Board Games on Spatial Ability. *frontiers in Psychology*, 1-9.
- Sorby, S. A. (2007). Developing 3D spatial skills for engineering students. *Australasian Association of Engineering Education*, 1-11.

Appendix:

Planned Learning Activity

Participants will be guided through a hands-on block-building exercise that the presenter has developed and implemented in 3D design foundations studio. This is a partner block-building activity is called BUILDER & COMMUNICATOR and uses building blocks and activity cards to introduce & reinforce 2D orthographic drawing views, strengthen 3D visualization skills, and build, practice, and expand the use of spatial vocabulary (The specific product is KEVA Brain Builders, but can be used with other blocks).

Planned activity utilizes “keva brain builders” building planks and challenge cards but may be substituted for implementation. Substitutions: drawings should 1. Provide 3 orthographic drawings (1 plan and 2 elevations) and 2. 3d view or photograph of correct construction.

Round 1: Independent Build

Round 2: Verbal instruction and using hands to indicate

Round 3: Verbal instructions, no hands allowed

Partner build/ Builder + Communicator – strengthens communication skills: Communicator must look at the card with three 2D diagrammatic drawings then give verbal building instructions to their partner (who is not permitted to see the drawings).

The Builder must listen carefully and follow verbal instructions given by their partner, the Communicator.

This exercise consists of three rounds of construction. Round 1, each participant will build on their own to become familiar with the activity components. For the remaining rounds, each partner will take one turn per round. Rounds end when each participant or team is finished and ready to look at the solution. No timers are used in this activity.

ROUND 1: INDEPENDENT BUILD - Each participant builds a structure using the 2D drawings provided on the projected activity card.

ROUND 2: PARTNER BUILD - BUILDER + COMMUNICATOR (+ SILENT OBSERVER*) - Partner Build

In this round, the participants' partner takes the role of Builder or the role of Communicator. The builder orients themselves with their back to the projector screen so they cannot see the images when they are projected. The communicator orients themselves so they can view the projected images and what their partner is building. Once the images are projected, the communicator may begin instructing the builder on how to place the blocks as indicated on the activity card. This round is concluded with all teams having finished their build.

**If there are an odd number of participants, there will be one team of three. The third role each member will rotate through is the role of Silent Observer. The Silent Observer may view the activity card and the builder's progress but may not interact verbally or physically in any way with the Communicator or Builder.*

As the Communicator gives instructions, they may continuously review the 2D drawings. They may find it necessary to update or change their verbal instructions.

The presenter will make a list of spatial vocabulary (conventional and unconventional) the participants used.

ROUND 3: PARTNER BUILD - BUILDER + COMMUNICATOR...LISTEN BUILDER! NO HANDS!

In this round, the communicators must sit on their hands and rely entirely on verbal communication to give instructions to the builder.

The presenter will add to the list of spatial vocabulary (conventional and unconventional) the participants used.

Important – communicator may NOT indicate what they think the final construction will look like (i.e. “it’s a tree”) or if this structure has been built previously.

