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> *Students' Perceptions of Wellbeing in Campus Buildings: A study of university classrooms and lounges*

Best Presentation – Scholarship of Teaching & Learning
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> *Can the Interior Design Studio be a Catalyst for Activism?*

Best Presentation – Creative Scholarship Presentation
> Hannah Dewhirst, University of Kentucky
> *Handcraft as Instructional Methodology for Fabricating Large-Scale Textiles*

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Theory 2.0: It Isn't Theory for its Own Sake, its Theory for the Sake of an Enactable Process

Jerome Gomez, Converse University
Kurt Espersen-Peters, University of Manitoba
Ricardo Navarro, Savanah College of Art and Design

ABSTRACT

Thinking and feeling, eye and mind, objective and subjective: these are some of the dichotomous splits we concoct to account for the tenuous relationship between human perception and conscious thought. Since the Enlightenment and Romantic movements, the goal has been to establish the dominance of one mode of thinking over another. In the wake of Modernism, we see the emergence of pluralistic and diverse viewpoints that have been systematically marginalized by the Modern techno-narrative. Free from such subversive dialectics, how does one chart a reconciliation between thinking and feeling, or is such recompense even possible? Are there still strategies for dealing with the objective/subjective schism in our time, or do we need new, holistic modalities to better capture our current critical position? To answer such questions, we can turn to design thinking which continually wrestles with this problem. The design and experience of the built environment encompass thinking and feeling, and designers must possess the agility and cognizance to dance between both. Without the luxury of a dogmatic theoretical foundation, the discourse between eye and mind is contextually dependent and requires critical and reflective thought for meaningful resolution. Confronted by this situation, this panel asks: are we prepared—as students, practitioners, and students—to handle this? What, in our current pedagogy and professional practice, prepares the interior designer to cope with these situations, and what needs to be developed and included in addressing such deficiencies? The panel presentation Theory 2.0 is not the promotion of one way of thinking but a dialogue of how one should be thinking. The discussion is structured around concepts developed by phenomenologists who emphasized the experiential quality of space by fusing various

contemplative strategies through enactment. Enactment is the active realization of reflective thought and a potential bridging strategy for design theory and practice. Putting theory into practice is not new; however, in the complex social, cultural, political, and economic climate of our time, reliance on old models is shaky at best. To be relevant, enactment must adapt to existing contexts and reflect current modes of thought that include contemplation, reflection, experience, empathy, and imagination. Enactment must also address the different modalities of thinking/feeling and theory/practice by addressing evidence-based design, phenomenological research, alternate forms of knowledge, identity and diversity, and micro-narratives and storytelling. Rather than perpetuate existing divisions, enactment can become a pathway for inclusion, diversity, and recognition through collective thinking, reflection, and communication. The panel seeks to explore this situation by assessing current modes of thought and investigating what enactment as a thinking and acting strategy could and should include. The discussion critically examines entrenched or dogmatic positions, outdated narratives, contextual challenges, and alternate design and thinking strategies. The goal is to encourage collaborative thinking/feeling and objective/subjective modality and extinguish the theory/practice schisms that smolder in interior design pedagogy and practice. The findings of the Theory 2.0 panel will have relevance to interior design education, thinking, and practice and be of value to educators, practitioners, scholars, and students.

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Feeling WELL: Covid-19 and the adoption of well-being themes in interior design curricula

Heather Carlile-Carter, Johnson County Community College
Gloria Stafford, University of Northern Iowa
Laura Cole, Colorado State University
Emily Plotkin, Johnson County Community College

ABSTRACT

RELEVANCE/PROBLEM: Perhaps more than any other event during our lifetimes, the Covid-19 global pandemic experience elevated our collective understanding of contagions, disease transmission, sanitation practices, vaccination efficacy, and immunity, as well as the devastating turmoil—social, economic, and psychological—of the pandemic's tragic spread (Usher, et.al, 2020). This instigated our research team, from multiple institutions, to examine the relationship between interior design educators' raised consciousness about immunology and disease transmission and their intentions to increase teaching about human wellness. We used the theory of planned behavior (Ajzen, 1991) as our conceptual framework. CONTEXT: Interior design pedagogy includes theories and applications which advance health and human wellness in the built environment and is evidenced by the focus on design for human wellness in four of the thirteen CIDA knowledge application standards (CIDA, 2022). To address the gap in scientific literature after the onset of the pandemic, the research team conducted an exploratory mixed methods study investigating interior design educators' evolving intent to teach wellness concepts and their plans to incorporate these concepts in course design. We wanted to understand how the Covid experience impacted educators' attitudes about teaching wellness concepts, specifically if and how: 1. perceptions about colleagues' and others' attitudes were influential, 2. educators felt personally equipped to teach these concepts, and 3. individuals' encounters with the disease affected their teaching intentions. Data indicated several predictors and correlates of actual teaching behaviors and showed wide-ranging and diverse understandings of wellness related

issues. Our work uncovered diverse ways that educators defined wellness. We found that educators, who integrated wellness into their interior design courses, were inspired by colleagues and peers, which suggested that peer influence mattered with regards to our teaching decisions. We also found that educators who formed strong intentions to teach wellness, had prior experience on the topic, felt confident in their ability to do it, and had favorable attitudes toward the teaching of wellness. Findings illustrated opportunities for greater incorporation of the WELL Building Standard into course curriculum. Additionally, within qualitative interviews, educators noted an increase in students who revealed ongoing mental health issues, which was supported in research literature (Huckins, et. al, 2020, Roche, Holdefer, & Thomas, 2022). This impacted student learning and motivated instructors to improve student wellness within classroom/studio environments. METHOD: The panel will include the research team, which has members who have WELL Building and LEED AP certification, and a college advising and guidance licensed counselor who focuses on student anxiety and depression. During the panelists' presentations, research findings will be presented along with implications and suggestions related to the classroom environment from the college counselor. Afterwards scripted and impromptu questions will be incorporated into audience participation. Questions will address: 1. Educators' diverse conceptualizations of wellness/well-being, 2. Information dissemination and sharing through formal and informal networks, and 3. Embedding wellness/well-being themes into our curricula and studio practice. OUTCOMES: The panel's goal is to build upon research findings and generat conversation about how professional networks, such as WELL Building, Green Building Institute, and IDEC can facilitate applications, for use by interior design educators, to increase educator knowledge about wellness and assistance in implementing instructional materials in the classroom.

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Designing for Underserved Populations: New Avenues for Research-based Advocacy

Yelena McLane, Florida State University
Tasoulla Hadjiyanni, University of Minnesota
Jill Pable, Florida State University
Beth Tauke, University at Buffalo

ABSTRACT

In 2007, the Cooper Hewitt National Design Museum showcased an exhibition called Design for the other 90% highlighting the fact that close to 5.83 billion of the world's 6.5 billion inhabitants (90%) have little access to workable, well-designed spaces and other designed products that can protect their health and help them thrive (Smith, 2007). There are many populations whose needs have not been identified or attended to with quality environments, including racial and ethnic groups, persons in crisis such as refugees and the unhoused, and the poor. The last decade was marked by dynamic changes affecting underserved populations, including a growing diaspora of peoples displaced by violence and global warming effects, unprecedented housing shortages, and a reckoning of racial and socio-economic inequalities. In response, designers are exploring this void through movements such as public architecture (Bell, 2008), the Design Justice Network (Costanza-Chock, 2020), the Social Economic Environmental Design network (2022), and, increasingly, the work of academic researchers devoted to addressing specific populations in need and wider societal issues (e.g., Taylor, 2019). Many hurdles remain in this area, including the requirement for cultural sensitivity in building design, the development of more inclusive and socially just spatial typologies, and the full address of interior spatial design that complements and completes innovative architectural building shells in service to human needs. A panel is proposed to promote open discussion about the current state and future promise of academic research and advocacy concerning interior design for underserved and marginalized populations.

The goal is to reckon with the current state of research, discuss potential future steps for more experimental inquiries with the event's audience, and raise awareness of the research's potential to effect change. Panelists will include leading design researchers engaged in inquiry and advocacy that will discuss questions with each other and the audience, such as: How can interior design research raise awareness of underserved populations' needs? What new questions can interior design researchers ask to advance inquiries with a potentially greater effect on underserved populations? How can interior design research provide translative ideas for application in design projects? What is the role of the design researcher in advocacy activities to effect cultural change? What are we learning about effective and ineffective ways for research and related activities to bring about the desired change in agent audiences? The implications of the panel discussion for interior design may lie in identifying new avenues and sites of research, identifying ways for altering the existing design practices to advance innovative solutions that address inequalities, and outlining advocacy strategies for more equitable and supportive built environments.

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Rethinking the Lighting Lab

Collette Cosminski, University of Louisiana at Lafayette
Alana Pulay, PhD, Washington State University
Elif Tural, PhD, Virginia Tech
Erin Speck, The George Washington State University

ABSTRACT

With the rapid advancement of lighting technologies, the traditional lighting setting still in a defined space has become an outdated and often unused space. Existing lighting labs can feel more like a museum of antiquated lamps and luminaries than interactive learning environments. This brings the question; how do we reinvent the lighting lab and create a relevant and sustainable educational space in a time of rapid technological change? As interior design educators, we will need to be ever more conscious of change to avoid fitting out spaces that may quickly become obsolete. In a time of increased economic pressures on higher education, wasted space is a rising concern. Lighting educators adapting to ever faster technological cycles can save lighting labs from relegation to the past. We have confronted and addressed this before with the shifting landscape of communication technology, and expectations of interior design programs have shifted to prioritize opportunities for student exposure to evolving communication technologies (Swearingen 2019). This panel reviews multivariant approaches to this issue asking a range of important questions. How does a lighting lab respond to these ever-changing requirements and pressures on the use of fixed physical space? Will virtual reality (VR) be a new priority? We know that the potential use of VR capabilities in a lighting lab, but we also know that this advancement comes with the concern of the accuracy of the simulated VR experience in relation to real world settings. (Jin, Xu, et al. 2021) Regardless of the approach, the future of interior design is "honed in on the ubiquity of technology and the vast technological literacy reshaping design education today." (Coleman 2015) In addition to evolving the physical space of the lab, we also want to improve access. In contrast to traditional labs which have

focused on upper-level studios, how do we explore new, innovative lab structures to support teaching of lighting design at every level and across many design disciplines (i.e., interior design, architecture, product design). Innovative approaches to integrating lighting design through all stages of design education can build disciplinary engagement and can avoid missed opportunities for cross discipline engagement. Modern, innovative academic workspaces must support increased connectivity and collaboration; they must cross boundaries, create new categories, and support a sense of spatial ecology. (Bhalodia, et al. 2017) another important question, how could a cross disciplinary lighting lab provide a relevant space for lighting studies that is beneficial for students at all levels? This panel presentation will discuss best practices for a cross disciplinary lighting lab built to actively engage students with relevant technology by bringing together experts in lighting education, interdisciplinary educational resources, and virtual reality.

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Transitioning to and Expectations of Academia: Uncovering the Many Paths of Assimilation into the Culture of Academia?

Shelby Hicks, Western Carolina University
Miranda S. Anderso, University of Idaho
Erin Hamilton, University of Wisconsin-Madison
Sarah Wilhoit, Harding University

ABSTRACT

How does one assimilate into the culture of academia, especially considering the diversity of methods, contexts, and expectations across institutions? Research on the challenges of faculty preparedness cites lack of "academic socialization" as a key impediment to smooth transition among new faculty members (Gaff, 2010). This is especially true in the skills-based field of interior design, where educators may come from many years of practice in the industry with professional certification or directly from earning MFA or PhD degrees. The literature suggests that challenges arising from the lack of preparedness of new faculty are universal across multiple disciplines. In the healthcare field, one recent study suggests "academics transitioning from clinical practice may feel stressed, confused and disillusioned" in their new roles (Wakely, 2021). Though there are few published scholarly articles on the challenges facing new interior design faculty specifically, the proposed panel aims to acknowledge and illuminate potential challenges, with the goal of preparing future design faculty. Panelists will share challenges and successes of their unique experiences within the following four interrelated themes: 1) diverse paths to academia, 2) differences in academic roles and workload due to the diversity of institutions, 3) departmental context and culture, and 4) the challenges and necessity of work/life balance. A secondary goal of the panel is to engage audience members to identify other challenges to transitioning to a career in academia. Representing a combined 43 years of professional practice, 66 years as design educators, and MFA, MArch, and PhD degrees, the

panelists are all interior design educators who have traveled different pathways to academia. Offering valuable diverse viewpoints, the panel will reflect on their current roles and the varied roads that led them to interior design education. 1) Diverse paths to academia: The panel recognizes the reality that in order "To meet Boyer and Mitgang's recommendation for a connected curriculum and a more unified profession, we must prepare practitioners who can teach. These new educators must have degrees in Interior Design, professional Interior Design practice experience, Interior Design credentials (e.g., NCIDQ certificate holders, licensed), and teaching expertise or education" (Guerrin 2004). 2) Differences in academic roles and workload due to the diversity of institutions: Faculty roles and titles are as varied as their paths to academia. Panelists represent a mix of tenure-track and non-tenure-track (Clinical, teaching) faculty, and will share how these roles and institutional emphasis on teaching or research can dramatically change responsibilities, expectations, and workload for faculty. 3) Departmental context and culture: A recent study addressed the influences of departmental contexts (including person-department fit, professional development resources, transparency, etc.) on faculty sense of agency in career advancement and identified a strong correlation to "job satisfaction, organizational commitment, productivity, and intent to leave" (Campbell et al, 2014). 4) The challenges and necessity of work/life balance: Research has shown that burnout occurs among both practicing professionals and students, as well as university faculty at large (Gale et al., 2014; Hill et al., 2014; Jaremka et al., 2020). As expectations within the academic setting increase, exploring faculty work/life balance, burnout and the psychological/physical stressors specifically upon interior design faculty would produce insight into faculty recruitment, retention, and the impact of such on the faculty's quality of life.

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The Art and Design of Teaching Interior Construction-Related Courses in CIDA-Accredited Programs

Keena Suh, Pratt Institute
Martha Anez, Thomas Jefferson University
Kristin Carleton, Virginia Commonwealth University
Allison Gaskins, University of Texas at Austin
Brian Orthel, Indiana University at Bloomington
William Riehm, University of Louisiana at Lafayette

ABSTRACT

This panel brings together educators from five different interior design programs in North America for a conversation about how interior design construction is taught at their schools in addressing standards outlined by the Council for Interior Design Accreditation (CIDA). Representing both undergraduate- and graduate-level CIDA-accredited programs, panelists bring with them a wide range of perspectives—as faculty and as program directors—with experience and insight from teaching, in-depth knowledge of CIDA standards, curriculum development, and program-level coordination. Many CIDA-accredited programs have built upon the framework of the standards to address current and global issues and have developed innovative teaching ideas in response. But they are also challenged by the means of critically and effectively addressing rapidly-evolving, expanding, and complex factors of the constructed environment to be addressed in their courses. At the program level, how is this content distributed and reinforced throughout the curriculum to support student learning? This panel is conceived as a starting point to share our experiences of teaching, acknowledging the impact of CIDA standards, but seeks to further build a community forum where educators can share knowledge, assignments, student work, and other resources with a focus on teaching of construction and fabrication of interior environments and also to explore new ideas and directions building on collective energies. The

panelists represent a wide gamut of teaching focus related to construction, including materials and methods, interior building technology, and systems thinking, but also studio courses integrating construction documents. In addition to sharing examples of student work, panelists will also discuss explorations of various methods of instruction, such as flipped classrooms, and balancing individual and group work. Each of the five panelists will provide a brief overview of their program's overall curriculum to provide context for the construction-related coursework, identify courses in which construction is a focus or explicitly integrated into other courses, and select project examples that exemplify learning outcomes and/or pose challenges related to specific CIDA standards. The moderated discussion to follow will provide not only a shared space for exchange and rebounding of ideas among the participants but seeks to prompt further, more expansive conversations beyond the panel. Opportunities for discussions of history, theory, representation, creative practice, and interior design education in general are far more numerous than those with a focus on pedagogy related to construction courses overlaid with accreditation requirements, but building a community to share these experiences will help uncover existing inspiring examples and foster innovation in teaching. This community in formation seeks to support conversations and knowledge sharing to assist with the challenges of accreditation but ultimately seeks to create more enriching experiences for students and for the instructors who benefit from a supportive and inspiring network for an evolving discipline facing urgent current issues. Beyond technical skills, how are we critically rehoning or reconfiguring our tools, languages, references, and teaching modalities to address human health and wellness, acknowledge diverse pathways of learning for more inclusive environments, integrate sustainable strategies, and support ethical and responsible design in the teaching of constructed environments?

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The Future of the IDEC Student Design Competition: Member Perspectives

Steven Webber, Florida State University
Laura Kimball, Radford University
Sharran Parkinson, Texas Tech University
Miranda Anderson, University of Idaho
Christina Birkentall, University of Louisiana Lafayette
Seyeon Lee, Syracuse University

ABSTRACT

Previous Student Design Competition (SDC) research reinforces the value of student engagement in these learning experiences to promote awareness of quality design and social and cultural values; to address topics such as sustainability (e.g., energy efficiency), and to explore the impact of emergent materials contributing to the discipline(s). These experiences promote healthy competition while allowing competitors to compare their skills with others (Palmer, 1982). Another study (Wankat, 2005) highlights the benefit of well-designed SDCs to enhance the quality of education and grow motivation for learning. While research concerning SDC has been conducted in architecture and engineering education, there is little to no research conducted within interior design education. The IDEC SDC has served interior design students and educators for many years, however, it often competes with other established national and international competitions offered by design industry manufacturers and professional organizations. Challenges faced by the team organizing the IDEC SDC include creating an engaging and relevant design problem, establishing a clear set of criteria supported by a rubric, and accommodating logistical concerns (coordination with the academic calendar, student skill level, etc.). Within the classroom, educators are faced with difficult choices selecting competitions as they seek to find the best "fit" for students and course implementation. A survey of the IDEC membership was conducted (May-June 2022) to collect perceptions of topics related

to the existing IDEC SDC. Research questions guiding the study included: 1. What topics are most relevant for the competition to address? 2. What should the student work evaluation focus be for the competition? 3. What logistical characteristics are necessary to maximize participation? Ninety-three (93) responses were collected from IDEC members. Trending issues and social concerns are ranked the highest as most relevant for the competition to address. Design creativity/innovation and "good design" (i.e., space planning, elements, and principles of design, etc.) follow as important attributes. Respondents voice that student work must demonstrate: a clear understanding of the end users. Respondents indicate that the competition should focus on upper-level students and/or offer separate awards for upper and lower-level students. Many respondents were agreeable to expanding the SDC to include some portion of both the fall and spring semesters. Separate award categories for individual entries and teamwork entries are seen as added ways to increase participation. This panel will present and interpret survey findings, share personal experiences implementing SDCs at their institutions, offer lessons learned from participating in both IDEC and other design SDCs with students, and reveal their experiences acting as competition judges. Panel members will share a draft competition call for 2023-24 based upon the survey findings. The presentation will be followed by open discussion with attendees. Discourse will be critical to clarify survey findings and to integrate additional viewpoints from the attendees to further inform the future of IDEC SDCs. Panel members are design educators who have created and judged SDCs and have integrated SDCs into their courses.

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Clouds of Thought: An installation built of repurposed studio paper models

Eiman Elgewely, Virginia Tech

ABSTRACT

Clouds of Thought is a paper installation made from multiple three-dimensional paper models created during the development of the second-year studio project Space Cases, a multi-phased project where interior design students are prompted to design a hypothetical interior environment composed of five distinct spaces whose spatial qualities work together to support a range of choreographed experiences. Students explored concepts through many iterations using paper models – on two different scales – that implement the golden ratio as an ordering system to generate a rectangular form based on this system. The spatial scheme considers degrees of openness structured upon an intentional hierarchy of spaces. The prompt focuses on forming distinct yet connected spaces and choreographing a spatial flow between those spaces while considering spatial principles from Roberto Rengel's book Basics of Space. The Clouds of Thought reflects the growth of student ideas across the studio throughout the Space Cases project's duration of five weeks and the accumulation of layers of students' ideas by recreating an entirely new version of their thoughts in the form of an installation. A Tree for Life is the overarching concept of the installation this year, where three teams of students work together towards one integrated installation. An hour of studio time is dedicated to designing and building the model over two weeks. The students were encouraged to consider ways to incorporate concepts discussed in the studio in composing the Clouds of Thought. The final installation combines the efforts of each team into one large-scale experience that centers around the notion of environmental responsibility and the importance of reducing design studio waste. Moreover, the experience educates students about the 3Rs rule (reduce, reuse, and recycle) and its application inside the design studio environment, which is achieved by reusing the multiple

iterations of the paper models created by students and turning them into creative, experimental ever-growing installation design. This educational experiment first took place in one of the southeastern universities in the US in a class of 52 second-year students in fall 2021 as part of the Interior Design Studio I course co-taught by two interior design educators. This fall, the experiment is repeated but refined in a class of 38 students.

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Tensegrity Model and Gamification

Maureen Monhollen, Chatham University

ABSTRACT

Gamification in educational pedagogy has been a growing trend since 2010, but to gamify curriculum for its own sake is not beneficial. There are several benefits and challenges regarding gamification. Some of the benefits include increased motivation and engagement, peer-to-peer competition, and rewards-based outcomes. Challenges include the time, expense and resources needed to develop a gamification program, the possibility of diminished value over time, and the perception that games are only poorly masked quizzes. This presentation demonstrates the gamification of a model-building exercise in a construction systems and methods course offered in the 2nd year of an undergraduate degree in a CIDA accredited program. The assignment began with a classroom lecture on building structures (Tucker, 2021) specifically addressing structural forces of compression, tension, and deflection. Live and dead loads were also addressed. Students were then shown a mock up of the model they were going to build to provide some context of the design intent and quality of work expected. A trainer in information services assisted the students in downloading, installing, and testing a smartphone app called "Stop Motion studio" which is available on both Google play and the Apple App store. This free app allows students to shoot a series of photographs and lace them together to create a stop-motion video in the spirit of Ray Harryhausen's animation style. Students were then provided with a model kits including a cutting mat, Exacto knife, a panel of foam core, and 5 strings. Tape, pins, and glue were also permitted in the construction of the model. A first aid kit was also present in case any injuries were sustained. There were several learning objectives for this assignment, not the least of which were fulfilling 13 expectations across 4 CIDA standards; standard 8: Design Process, Standard 9: Communication, Standard 11: Design Elements and Principles, and Standard 15: Construction Additional learning objectives were the reinforcement of manual design skills; once students learn SketchUp, AutoCAD and Revit, they are less interested in

applying and maintaining manual hand skills. Also, by requiring them to apply the principles of tension and compression, a basic understanding of physics and the balance of these two forces helps students understand that just because something can be drawn, manually or digitally, the laws of physical still apply. Gamification was applied by the use of a fun phone app to create a process work document. Students only had to submit a video; the quality of the video was not included in their grade to allow students to experiment in a low-risk environment. It also provide a digital document that could be uploaded to Brightspace, and to collect digital process work for CIDA evidence, in addition to the actual physical models. A reward incentive was also included. The initial awards were tallest model, shortest model, peer favorite and faculty choice awards. The students competitive nature began to show, and several students requested additional awards which included prettiest, ugliest, most basic, and most complex awards. After videos were submitted and reviewed, two additional awards were added for outstanding video. One award, the ugliest, was not presented because there was an 8-way tie. To keep voting as fair and unbiased as possible, each student was assigned a number which was the only identifier on their model and were placed in a public display. Anonymous voting took place over a 3-day period and was open to all students and faculty in the building. Votes were collected several times throughout the open period to minimize "snooping." Certificates were created, and prizes were included for each award which were presented in class after voting was concluded.

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The academic as consultant-advocate: nudging research findings into built reality

Jill Pable, Florida State University

ABSTRACT

Literature suggests that there is a disconnect in the interior design profession between the findings of design research and applying those findings to make built environment projects more successful (Huber, 2018; Sommer, 1997). Designers value research but have little time to apply it in their projects, given the constraints of hourly billing and budgets (Huber, 2016). This 20/20 presentation will make the case that this problem could be addressed in part by design academics serving as expert research consultants on building projects, increasing the transmission of actionable research findings into the design team programming discussions and decisions of tangible design projects. Such service differs somewhat from serving as an interior designer on a project, as the main intention is to provide focused suggestions for action grounded in research findings, and to work alongside the design team's architects and interior designers. The author will share their personal experiences with design consultation services as a user experience advocate for various built projects during the last two years. One of these was a 60,000 square foot women's shelter in the southeast United States. In this project, the author found her skills and knowledge as a researcher and educator (to determine effective ways to communicate ideas) to reference design research from environmental psychology and similar fields and advocate for ideas that other design team members had not considered, such as lighting techniques to help people sleep, acoustical concerns for sensitive conversations, and environmental techniques to reduce the stress of people in crisis with color, spatial layout and furniture positioning. It was particularly helpful that the author did NOT serve as the interior designer, instead working alongside those practitioners so they could generate floor plans and make informed FF&E selections from the provided research findings. The project's inclusion of trauma-informed design amenities contributed to its selection for an Urban Land Institute Award in 2022. For

design research consultancies to be feasible, several issues require attention. First, tenure and promotion processes must sufficiently acknowledge the value of research advocacy in applied project situations, so that academics can consider this a viable form of service for their records. Second, clients need to be made aware of the utility of research findings to effect real and lasting change in their built projects. Third, academics need to develop a research knowledge translatable to built projects that is of sufficient value to design teams. And fourth, academics need to carefully consider the research they select for possible project inclusion, as not all empirical findings are suitable nor thoroughly tested. Closer ties of academics to built projects that consultant opportunities bring could increase the application of research findings without over-burdening design practitioners who are already pressed for time, and bring further strategies to clients that were previously unknown. Design academics could benefit through service credit for their academic records, plus network with practitioners for future research studies. Lastly, such efforts over time could positively affect the gap in research and applied practice, bringing to bear quality ideas from empirical research that stand a chance to better project outcomes and their users.

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POSTERS

A Spatial Exchange: Shaping Tangible Relationships with Psychological Interiors at a Human and Architectural Scale

Ashley Ebbert, Virginia Tech
Felicia Francine Dean, University of Tennesse, Knoxville

ABSTRACT

Interiors are of an intimate nature. They remain reserved primarily for those who inhabit them and little escape beyond their enclosure. To fully comprehend an interior, one must occupy it. There is a case, however, in which interior space is limited to a single inhabitant—'the psychological interior.' Psychological space exists beyond a physical setting and in the context of this research refers to the internal wiring of one's mind. This "inescapable feature of our brain" is responsible for our unique way of being (Mahon, 2008). Exterior relationships in this context serve purely as an outward expression of what exists within, and the amount of information allowed to exist beyond the interior's enclosure. Psychological interiors are intentionally released and shared with others through the practice of spoken and nonverbal language. Their slow reveal differs from the immediate exposure to physical space. Psychological space in this conceptual framework is not reserved for living bodies. Instead, it acts a tool for designers to integrate language patterns into responsive spatial design. Architecture which communicates and engages with users is crucial to reversing the script of the limited experiences resulting from informative and/or directive design (Glass, 2018). Social mannerisms within interactive, performative spaces further provide a natural approach towards manipulable experiences through engaging "the body as a research instrument" (Hawkins, 2010). This work underlays the concept of psychological interiority into a physical space utilizing visual cues and expressions through touch activated video projections to create tangible relationships with what exists as unoccupiable "interiors." Produced as a prototype of an environment lending towards the exploration of this concept, this stage of research resulted in the creation of an interactive furniture installation utilizing

occupancy as a pattern of spatial language to spotlight user decisions and narratives. The installation was composed of four ambiguous module units to allow its occupants to determine the optimal use and arrangement of space. As users interpreted and occupied units in differing patterns, tactile elements triggered capacitive touch sensors to activate overlaid digital projection mapped videos (see Figure 05). This action was designed to mirror the patterns of language in which users' engagement would be matched with a visual cue suggestive of conversation. Each module hosted 4 triggers creating 20 different projections and countless combinations hosted within its 'psychological interior' (see Figure 04). As engagement occurs, both users and the space itself slowly reveal who they are to each other through either movement or visuals. The outcome is unpredictable and entirely a result of the conversation between a space and its participants each time it is activated (see Figure 02). While this prototype serves merely as an investigation for using a spatial exchange of cues and manners to share in untraditional space-based conversation, this work lies a foundation for developing alternate, meaningful expressions of who we are. Through sharing this work through IDEC within a poster format, the continuation of this dialogue and discussion with conference attendees will generate new ideas and additional opportunities associated with furthering this research. Presented for exhibition and discussion, the produced poster will satisfy the proposed 36" x 42" printed media requirement. The poster will be composed of a diagrammatic narrative representing the conceptual framework and interior's relation to occupancy within the context of this project. Alongside this narrative, photography and drawings documenting the process, build, and result of this prototype will support project drivers including untraditional materiality, the integration of technology into design, and reshaping user experience in spatial settings.

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Classrooms for Environmentally Responsible Behaviors: Building Environmental Literacy in Children with Biophilic Design

John Gonzalez, Washington State University

ABSTRACT

The rapid deterioration of our planets' health emphasizes the importance of nurturing future generations with a sense of care and compassion towards their ecological environments and the threats that lie within (Hollweg et al., 2011; Han et al., 2018). Environmental literacy (EL) instills the necessary environmentally responsible behaviors and skills needed to face those threats and is directly impacted by the amount of time one spends in and around nature. This is concerning when one considers that humans today spend more than 90% of their time indoors (Nen-Chen et al, 2005). Nearly all found studies involving child environmental literacy development pertain purely to its relation to student academic success within environmental education programs whereas none involved linking EL development and the built environment. The purpose of this project was to attempt to answer the following questions: 1) Are there specific biophilic design features and strategies that could be linked to positive environmental literacy development in users? 2) How could specific biophilic design features and strategies, related to environmental literacy development, be applied effectively to child classroom environments? This project utilized the 14 Patterns of Biophilic Design (Browning, 2014) as a primary source for tried and tested biophilic design strategies. In an effort to identify which patterns of biophilic design would have the most potential to positively impact EL development, each were cross-examined against the North American Association for Environmental Education (NAAEE) domain framework for environmental literacy (Hollweg et al., 2011). This framework describes the skills, competencies and dispositions necessary for building environmentally responsible behaviors, the primary objective in EL development. This allowed us to filter the initial 14 biophilic patterns, down to the 8 that most were most relevant to the project. To further

narrow down the biophilic patterns, this project used three studies that examined how biophilic patterns applied in different educational environments could impact child user's skill acquisition: a primary component of the EL theoretical framework. This yielded four patterns most likely to positively impact EL development: Visual Connection to Nature, Prospect/Refuge, Dynamic & Diffuse Light and Material Connection to Nature (See appendix page 1). The results of this project yielded the creation of four individual classroom model designs, one for each of the final four patterns (See appendix pages 2-5). These models were built virtually using the same base model and were designed based on the recommended design features and strategies related to each pattern. The goal of this design project began by attempting to find a correlation between interior design and a progression of a child's empathy and care for their ecological environments. Environmental literacy (EL) development could act as a bridge between the two. In an effort to simulate what spaces that could correlate with EL in children could look like, this project used the 14 Patterns of Biophilic Design, the NAAEE framework and three studies related to the biophilic patterns and child education environments, to test possibly related interior design strategies. Results yielded four virtually generated interior classroom models. These models could act as a springboard for future studies to test which features might or might not perform well in positive EL development in children and would hopefully uncover other methods or features that would perform better.

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Public Interiority: Giovanni Battista Nolli, Richard Sennett & Mick Jagger

Liz Teston, University of Tennessee Knoxville

ABSTRACT

Public Interiority focuses on inside-feeling-places within the urban outdoors. I have described this phenomenon as "a condition of the senses rather than an indoor place…[discoverable] within the urban realm..." Public Interiority engages in theory-building, empirical research, and public engagement. This multiplicity reflects the intersections of practical and academic concerns in contemporary architecture. I advocate for unrestricted, transient interiorities via case studies in case studies from around the globe--including Rome. The focus of this poster presentation will be twofold. Firstly, I will analyze the social conditions of public interiority found in Nolli's 18th-century ichnographic maps. Then, I will study contemporary exterior-interior occupations of areas near the Palatine Hill (Circus Maximus, Mercato Campagna Amica, etc.). Following this, I will make drawings and models that reveal these distinctly Roman interiorities. Nolli's maps demonstrate the exfiltration of the Roman public interior into the urban realm. This interior leakage generates perforations in the urban fabric—making space for both quotidian and spectacular interiorities in the urban outdoors. These uninhibited atmospheric borders, or sinuous flow spaces, slip-slide between rigid, private zones. They approach intimacy through the portals of sensory variety and contextuality. Nolli's fissures persist today and shape Rome's non-binary conditional interiors. In UN Habitat III, urbanist Richard Sennett uses Nolli maps to identify open borders that intensify activity. Events at Circus Maximus, like the Rolling Stone's 2014 concert, exemplify Sennett's borders and Open Cities theory. Mick Jagger's performance spectacularized temporal and experiential interior activities, generating a phantasmagorical and communal experience within the ancient ruins. Circus Maximus, as an exterior-interior, is temporal, sensual, and ever-changing—bound up in the tension of that which has occurred, is about to happen, and changing even as it exists today. This experience of the spectacle contrasts

with everyday interior life, spilling out of the Mercato Campagna Amica onto Via di S. Teodoro. Both conditions represent fields of interior contrast within conditional exteriorities. The edges of the Palatine Hill mediate temporal interiors, shaped by atmospheres, history, and fleeting events. What is the nature of interiority if not indoors? How can designers compose frameworks that support enriched urban experiences that respect both present-day urbanism and conservation? This Roman case study reveal the intersectionality between history and contemporaneity in these provisional interior frameworks. This Roman case study broadens the body of knowledge on public interiority, via a cultural and historical scope. The poster will explore highbrow (Nolli maps) and lowbrow (concerts) and the everyday (outdoor markets) to reveal Roman public interiority. It blends empirical understandings with complex issues largely unexplored in interior architectural theory. Scholars have described public interiority as "at a critical moment of discourse… [and] valuable and substantial" and potentially changing our conception of the interior architecture discipline.

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Soft: A prefabricated and deployable stress-relief, interactive prototype for the neurodiverse

Severino Alfonso, Thomas Jefferson University

ABSTRACT

Adults and more so children with autism frequently seek out smaller sensory-friendly spaces to help them self-regulate. Soft is a deployable stress-relief, interactive prototype currently under development with the consultancy of health experts, autistic individuals and their caregivers, and textile, industrial, and interaction designers. The project's curvilinear, nature-inspired geometry is conceived as a self-regulatory space with a smooth transition zone from the larger space where the prototype is placed to its interior. The provision of various microzones, resting options/intimate nooks, and the ability to self-organize components such as movable furniture pieces of the space help with 'heavy work'. Simultaneously, the interactive features of the space inform ongoing work on the role technology and responsive environments play in redirecting our built environment relationships around neurodiversity. The work examines how purposefully modifying aspects of the environment in real-time - with the use of sensor and actuator technologies– such as the effect of color, light, and sound, and their wavelength, frequency, brightness, and oscillation can affect people's pace within a space, their posture, heart, and respiratory rate and variability, in addition to other physiological and psychological factors. The prototype, along with color, light, and sound, the space incorporates body pressure pockets. The idea is to modulate intensity, frequency, and topography of pressure in proportion to respiratory rate and create a "steady state somatosensory" input interacting with brain rhythms generated endogenously and by other stimuli. The design strategy is to establish a series of spatial parameters that serve as a scaffold and then customize them based on the individual, with continuous, real-time adaptation happening ongoing dynamically. In examining the possibilities of data-driven metrics to evaluate a design environment, on the one hand, the space has the capacity to both sense and respond in order to accommodate a set of comfort thresholds for the

human body. This occurs through the use of technology within the built environment where values such as light, temperature, and humidity, adapt depending on the circuits' inputs and outputs. On the other hand, the human body itself serves as the entity being measured to thereafter evaluate an environment and to also inform design decisions. The simultaneous employment of metrics for both the space and the body can be a multilayered approach. Either way, the goal is a human-environment conversation. From the human enacting on the predetermined possibilities the space affords, project soft explores how the space itself offers opportunities for meaningful interaction. The project is measured by three principal design operations: The implementation of geometric composition, material finishes, and details that follow a research-based logic based on design principles such as color, light, texture, materiality, morphological attributes, etc. The introduction of interior architecture as a driver of the principles mentioned above. We think of it as a place in which structure is defined by memory. The lines dividing the interior and exterior are diffused, creating an uncanny relationship between organic forms and manufactured materials. We associate the work's interior architecture also with material characteristics - yielding readily to touch or pressure; deficient in hardness; smooth; pliable, malleable, or plastic. The inclusion of interactive design components that regulate the environment via sensory inputs.

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BIM Through the Eyes of a Child

Tonya Miller, University of Tennessee Chattanooga

ABSTRACT

Teaching interior design students the digital "tools of the trade" is a necessary part of preparing them for their future careers, but an entire course devoted to learning computer software can be seen as a missed opportunity for more holistic learning (Aykak, 2020). Instruction focusing on more complex software which requires sequential tasks, such as CAD or Revit, can also lead to diminishing enthusiasm and understanding, particularly for students who are more "holistic learners" (McLain-Kark & Rawls, 1988). The integration of software skills development with applications-based studio coursework is one way to ensure broader learning outcomes are achieved, but what other pedagogical methods could be employed to achieve broader learning outcomes while simultaneously increasing student engagement? It has been said that "though the eyes of a child, you will see nothing but magic all around" (Unknown). This project aimed to tap into the magical lens through which children tend to see the world. Eighteen students in a third-year Building Information Modeling (BIM) course were tasked with developing renderings and construction documents based on the artwork of first graders. In an initial "client meeting," BIM students met with their assigned first-grade client to review dream bedrooms drawings developed by the first-grade students in their art class. Prior to this meeting, BIM students were asked to prepare questions that might help them understand the intent behind their client's drawing. During the meeting, students were able to ask these questions and talk with their client about what they had drawn. Their deliverables for the project consisted of a small set of construction documents as well as a poster presentation featuring the original artwork, at least one camera view rendered in Revit, and a QR code linked to a stereo panorama view of the space (also created in Revit). BIM students were allowed to take liberties in transforming the space into a constructable, habitable environment, but the look and intent of the original art piece had to remain. Qualitative and quantitative data regarding the BIM students' experience was collected

via surveys at the end of the term. In comparison to a previous course offering that featured a more traditional design application for this project, students' perception of the course increased by 7% in two key areas—development of critical thinking skills and active engagement in course content. Many students also positively described having the opportunity to exhibit more creativity in an otherwise technical course. According to King et al. (2017), "[b]oth the Council for Interior Design Accreditation (CIDA) and the National Council for Interior Design Qualification (NCIDQ) have identified creativity, problem solving, and critical thinking as key components of design education and practice." The project also resulted in some unforeseen benefits from the interaction with the first graders. Some of the male students of color were visibly excited to see college design students that looked like them, and the entire first-grade class (including the instructor) gained a deeper understanding of the capabilities of interior design students. Overall, the project allowed students to hone their Revit skills, practice communication skills with a particularly challenging "client," and exhibit their creativity in new ways.

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Bringing VR to the Classroom: Integrating Virtual Heritage Projects as Part of the History of Interiors Curriculum

Eiman Elgewely, Virginia Tech

ABSTRACT

For many years, the History of Interiors course curriculum in many interior design programs used to be centered around textbooks, photographs, and architectural drawings of historic interiors. However, the younger generation of students who are growing up with technology might expect a change in how this content is presented to them, especially after three years of online learning amid the COVID-19 pandemic, which emphasized the importance of rethinking the study curriculums and teaching methods to create more engaging educational experiences. Digital technology opens new possibilities for delivering educational content, including virtual reality (VR), augmented reality (AR), and, most recently, artificial intelligence (AI). Virtual reality applications have extended to education; it is becoming increasingly relevant to the culture and tools students of this generation are using in their daily life, either in social networking or entertainment. There exists a diverse range of applications that could be used on mobile phones or tablets, including 360 videos, AR applications, and VR headset applications. VR applications provide a more interactive and immersive experience but require more specialized equipment that is now becoming more available for many users today. In this poster, we present the first phase of an educational experiment that examines the effectiveness of the integration of virtual heritage projects as part of the History of Interiors curriculum. This experiment took place in one of the southeastern universities in the US, in a class of 38 second-year students. This phase entails three virtual heritage project case studies that involve the 3D reconstruction of cultural heritage sites and interior environments as part of the curriculum of the interior design course (part I), which spans prehistoric and early civilization to the 19th century. The three selected projects for the experiment are the Digital Karnak

(https://digitalkarnak.ucsc.edu/), the Hadrian's Villa Reborn (https://www.flyoverzone.com/hadrians-villa-reborn-stadiumgarden/), and the Reviving Karanis in 3D (https://www.revivingkaranis3d.com/) projects. The virtual reconstruction of the historic interior environments is used as an educational tool during the lecture. A survey is then shared with the students, including Likert-style questions and some open-ended questions to collect their feedback on each experience as they reflect on what they learned from the virtual environments. Following this first phase of the educational experiment is a hands-on experiential learning stage that includes applications of the same digital technologies that the students experienced in the first level, where students implement digital visualization techniques and explore state-of-the-art technologies, such as VR, AR applications, and 3D printing. A final survey will be filled by the students to evaluate their feedback and reflect on their takeaways from the experiential learning project. The study aims to exploit the extensive research put into digital cultural heritage projects entrapped inside academic journals for several years and bring those into the classrooms to analyze the students' responses to such innovative educational content. The preliminary results of this research study show how virtual heritage projects helped the students develop a sense of scale and proportion and create comparisons between different building materials and furniture styles. It also reflected the students' appreciation of the visualization process and enabled them to develop a sense of curiosity to understand how the virtual model was created. This research also discusses the difficulties that interior design educators might encounter in implementing such educational approaches in their classrooms and concludes with some recommended best practices for activating similar educational initiatives.

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Fostering empathy using web-based digital simulation of older adults eye impairments

Daejin Kim, Iowa State University

ABSTRACT

Empathy is an important and useful skill for interior designers in that this ability is extremely helpful for understanding another person's point of view and establishing an emotional connection (Altay, 2017). As the global population ages, interior designers are faced with the challenge of creating built environments to accommodate the various needs of older adults. Especially, many older adults experience various eye impairments and interior design students must be equipped with the knowledge and skills to design for these populations. There is a need for pedagogical resources that support interior designers in this venture. This research aims to understand how the web-based vision simulator fosters students' empathy for a better understanding of older adults with eye impairment. A mixed-methods approach was employed in a post-secondary education environment. In this study, the web-based vision simulation was introduced in a workshop after mid-term. The web-based vision simulator allows students to explore how older adults with different eye impairments such as cataracts, glaucoma, macular degeneration, and diabetic retinopathy experience students' design after exporting their rendering (Appendix I). The pre/post survey was conducted to examine whether the web-based vision simulation positively influences students' empathy as well as the design outcome. Students were asked to rate their knowledge and empathy level about older adults with eye impairments using five Likert-scale surveys before the workshop (Week 8) and after the semester (Week 16). These questions were intended to gauge the participant's perspective-taking ability, and how their ability changed after participating in a class activity about designing for low vision. The total number of participants in this pre/post-test was 21 and the response for all components of the study was 47.8%. All participants used the simulation software independently after the workshop, with 9 respondents (42.9%) using the software 4-6 times and 9 respondents using the

software more than 7 times. As shown in Appendix II, A series of paired sample t-tests were used to explore differences in students' perceptions. Results showed that the average of students' awareness and empathy for older adults with low vision was statistically significantly increased after the semester (M = 4.56, SD = .470), compared to the week before the workshop (M = 3.17, SD = 0.518), (t(1) = -12.154, p = .001). At the end of the semester, respondents indicated that they were much more in tune with what someone with low vision experiences, including macular degeneration (t(1)= -7.888, p = 0.000) cataracts (t(1)= -9.137, p = 0.000), and glaucoma (t(1) = -8.133, df = 1, p = 0.000). Also, a paired sample t-test showed that there was a statistically significant increase in overall valuation of inclusive design after the intervention (M = 4.90, SD = 0.187), compared to the week before the workshop (M = 4.59, SD = 0.407) (t(1) = -3.301, p = 0.002). Students showed stronger self-confidence in inclusive design. For example, participants more strongly agreed that their designs could make a difference in someone's life after the workshop (M = 4.76, SD = 0.539), (t(1) = -2.092, p = 0.025). Respondents found the simulation tool to be beneficial to both interior design students (M = 4.48, SD = .750) and professionals (M = 4.48, SD = .750), and indicated a continued use of the tool in the future (M = 4.29, SD = .717). Our research found that this pedagogical intervention using a web-based vision simulator was successful in positively changing students' perspective-taking ability as an essential skill for gauging their empathy levels. Also, the web-based digital simulation was beneficial for students learning outcomes. The conference presentation will show more information on how students' designs were changed using the web-based vision simulator.

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Mindfulness in the studio: Improving mental health and creative thought

Holly Murdock, Utah State University

ABSTRACT

College students face many challenges in their pursuit of an education, and mental health issues can significantly affect how students face those challenges. Anxiety is the most commonly diagnosed mental health disorder in the United States. The American Psychological Association defines it as an emotion that causes a feeling of future danger or misfortune combined with a physical response in the body to meet the perceived threat. Symptoms include long-term negative intrusive thoughts and feelings of worry, along with physical indicators like trembling, dizziness, and a rapid heart rate. According to the Centers for Disease Control and Prevention, the number of adults suffering from anxiety in the general population is 20%. In 2015 this number proved true for college students, with the same percentage suffering from moderate to severe generalized anxiety disorder. Unfortunately, the number of students experiencing anxiety has risen in recent years, with 30% experiencing moderate to severe anxiety by 2020 (Healthy Minds, n.d.). Beyond the immediate symptoms of anxiety, the disorder negatively impacts a student's ability to work and study, participate in social activities, and experience a positive quality of life. Furthermore, it puts them at risk of developing a life-long anxiety disorder (Edwards et al., 2018). Interventions focused on mindfulness have proven to play a positive role in reducing feelings of anxiety. These include meditation, journaling, and walking. These same practices also play a role in enhancing creative thought. For example, meditation has proven to reduce stress and symptoms of anxiety, as well as enhance positive thinking, self-compassion, and empathy (Edwards et al., 2018). It can also produce clarity of mind that promotes the ability to approach problems in a novel and non-judgmental fashion, which has shown effectiveness in improving creative thought (Henriksen et al., 2022). Journaling is an intervention that allows people to engage in reflective observation and prompts them to develop a personal understanding of a topic. It may help students reframe

their experiences in a positive light and reduce anxiety over situations with the added benefit of increasing their ability to develop creative solutions in addressing design problems (Jenkins & Clarke, 2017). Additionally, walking in intervals as short as 10 minutes and especially when combined with meditation, can significantly reduce anxiety (Edwards et al., 2018). Walking can also improve a person's ability to generate novel and appropriate ideas both during the walk and for a period of time after the conclusion of the walk (Oppezzo, 2014). This study examines how mindfulness practices such as these can be integrated into a studio course to provide positive benefits to students while supporting course and learning objectives. Each class session begins with a guided meditation, and journaling and walking exercises with prompts are implemented at project milestones to aid students in decision-making. Specific prompts for these activities are tied to research or conceptual design. Students also set personal goals to develop skills over the semester to build confidence and self-esteem. The purpose of integrating practices that have the potential to improve both mental health and creative thinking in a studio course is to build resilience in students, develop empathy for the self and others, and enhance the ability to solve problems creatively.

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Mixed Media Investigations of Light: The Aperture

Michelle Pannone, Marywood University

ABSTRACT

The aperture is a fundamental instrument in crafting interior spaces. Through the manipulation of architectonic forms, designers utilize the aperture as a mechanism that both connects and separates the interior from the exterior, making deliberate spatial qualities possible. As the architect dissects the spatial qualities of an interior environment, it is largely the apertures that define movement within the space, allow light to flow from one space to another, and define how the space functions in adjacency to its neighboring spaces. As stated by Peter Zumthor, "In architecture, there are two possibilities of spatial composition: the closed architectural body which isolates space within itself, and the open body which embraces an area of space that is connected with the endless continuum" (22). Apertures are, by their very nature, the element that connects spaces together and enables an architect to embrace the interconnection between spaces. For a designer to develop an interior with intention for its end use, apertures are one of the fundamental elements that must be considered. In particular, apertures define the openings by which light enters a space and how light behaves within a space, both of which are integral to the atmospheric qualities and functionality of the space. Therefore, it is of critical importance that in interior design education that students experiment with, understand, identify, and analyze the apertures within the spaces they are designing. This presentation will examine an introductory project to an interior architecture studio where students were tasked to begin their creative process through the design of an aperture. Through physical models and mixed media visualizations, the students designed and represented their unique apertures while analyzing their properties: lighting qualities at various angles and adjacencies to the aperture, the functional use (view and/or movement) of the aperture, and how the particular aperture influences adjacent spatial qualities. These visualizations utilize fundamental representation approaches exploring

contrast, tonal values, composition, and color theory. This project serves as an introduction to the crafting of interior spaces through the heightened consideration of the term aperture and its critical role in creating atmospheres in the built environment. The students carry through their initial ideas of apertures to their final designs of an adaptive reuse project, further exploring the conceptual connections to an existing context. Through utilizing light as a building material, the students are able to draw critical connections to not only address functional needs but also intentionally craft a space's atmospheric quality.

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Technology as Pedagogical Tool for Better Mental Visualization of Three-dimensional Objects in Interior Design Education

Georges Fares, Kansas State University

ABSTRACT

International research studies have evaluated the spatial visualization capacities of college students to understand abilities related to effective visual communication, which is essential for success in different technical and scientific fields Mental visualization of two-dimensional and three-dimensional objects is an essential skill in a discipline such as Interior Design (Arslan and Tazkir, 2017). Unlike the disciplines that emphasize didactic methods, interior design education focuses primarily on engagement strategies that teach perception and space visualization and leads students to transfer their mental conception of the design onto two-dimensional and three-dimensional drawings. Students benefit from the inspiration and clarification of design problems for a successful design process. Ideas evolve from imagination to create a physical object and the use of different technologies, such as 3-D printing, VR, and AR, may provide a needed "perceptual leap" for students by supporting their mental visualization of three-dimensional objects. This can improve comprehension of their designs. Furthermore, using technologies can enhance students' interest, learning, and enthusiasm (Al Ruheili and Al Hajri, 2021; Boumaraf and İnceoğlu, 2019). This poster presentation outlines the pedagogical framework and strategies that integrate learning experiences associated with the digital technologies in a studio learning environment. Curricular enhancements using equipment and software needed such as laser cutter, 3D printers, and VR headsets are featured. Examples highlight how different technologies are being implemented into the curriculum starting from beginning to senior-level studios. Engagements vary from hands-on 3D printed elements to virtual and augmented reality models that allow students and educators to embed artificial computer-generated artifacts into their "real-world" settings, thus allowing students to experience the relevant content in the real-world rather

than only in a 2D-based system. These pedagogical practices also extend learning experiences beyond the classroom and campus. With the use of smart phones, students can reproduce high quality graphics from the comfort of their own homes which allows for a fluid extension of the studio classroom. In a recent study, mixed and augmented reality-based teaching materials were shown to positively influence students' learning behaviors, the effectiveness of their learning, and their satisfaction with the learning experience (Chang, et al., 2020). The hypothesis is that by better visualizing form students will more fluidly enhance their design skills. It is also hypothesized that this will promote greater student engagement in understanding of theoretical concepts, thus integrating practical and theoretical skills in a more meaningful manner (Assante, et al., 2020). The incorporation of technology throughout the curriculum is also anticipated to help educators plan more effective learning experiences using both manual and digital tools simultaneously. Finally, the poster identifies the goals, objectives, and assessment strategies to measure the effectiveness of such technologies in the interior design curriculum. The author hopes to engage participants in a discussion over the potential of educating, encouraging, and inspiring future designers by creating a stronger understanding of spatial translation between 2D drawings and 3D space. Dialogue over pedagogical approaches for these technologies will include the benefits for creating a hands-on experience for design thinking and special visualization to enhance aesthetic sensibilities and advance teaching and learning outcomes. Once pedagogical strategies are in place, this process can be studied, measured, and then further disseminated to inform the practices of design education.

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Texture Studies: Evaluating the Effectiveness of Collage Diagrams in Materials Selection

Melanie Duffey, Auburn University

ABSTRACT

Collage is a medium commonly used in the fine arts, and during the Dada and Surrealism movements of the 1920's it served as a visualization tool in architecture and landscape architecture education and can still be present today in curriculum. Often, in interior design education, collage is less commonly used as a visualization tool (Canoglu, 2019). The aim of this study was to evaluate how the use of collage could serve as a supportive technique to better understanding materials and selections during the schematic design process for interior design students. Often, sample trays and presentation renderings depict the material selections for student projects and are often pulled together in the final stages of the design process. However, this study explores the introduction of material experimentation earlier in the design process, in schematic design, through diagrammatic visualizations called 'collage texture studies.' Both Johannes Itten and Josef Albers placed an emphasis on experimentation with material and the sensory elements of material properties in the Bauhaus education; even stating "we do not always create 'works of art' but rather experiments; it is not our ambition to fill museums: we are gathering 'experience' (Albers, 1928, p.142). This study was designed for student to gain a deeper understanding of how materials behave on their own, and then in concert with the other. Students were encouraged to identify abstract image textures that visually portray the feeling of a desired material texture (i.e., something hard, soft, reflective, matte, rough, smooth etc.) that can be later interpreted as a range of materials to be explored in final material selections. For example, texture studies may explore the surface texture of a matte material as it relates to something reflective or explore the use of a single texture explored through a variety of materials. This process ultimately was used as a visual aid tool in the form of collage diagrams to translate abstract textures that could then inform the student's final selections of materials in a

semester long project. Students (n=32) reported more satisfaction with selecting materials that better represented their final design intent after completing this visualization study.

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Enhancing caregivers Health & Wellbeing Through Interior Design at Memory Care Facilities

ChunYu Wei, Washington State University

Minyoung Cerruti, Washington State University

Alana Pulay, Washington State University

Robert Krikac, Washington State University

ABSTRACT

There is an unprecedented number of problems in healthcare and senior care work environments. One of the most significant problems was an increasing demand for caregivers. According to the UCSF Health Workforce Research Center (2015), the percentage of staff who left the career was higher than entrants into the healthcare industry. The needs of caregivers were frequently unmet because the shortage caused workload increases, resulting in caregivers' burnout and stress (Chew, 2017). Furthermore, few studies have addressed the role of physical environment in caregivers' stress within memory care settings while major attention was given to residents' opinions and perspectives on memory care facility design (Byal, 2015). In light of this deficiency, we investigated how interior qualities of workplace design influence staff caregivers' stress and retention at memory care facilities in order to address the serious problem of caregiver shortage. Our study was theoretically guided by Maslow's hierarchy of needs (1943) to focus on caregivers' work environment improvements for the problem of caregiver shortage through interior design. There is a significant relationship between an appropriate work environment and a stable workforce (Christmas, 2008). A quality work environment reduces work burden, improves positive emotions, increases efficiency, and decreases the rate of turnover. Our study was based on a multi-methodological approach and three steps were taken. First, a literature review in healthcare and office environments was conducted to get office workers' perspectives on workplace design. Second, 15 memory care facilities chosen from the 2020 AIA Design for Aging were analyzed to identify key design features allaying stress in healthcare and office environments. Third, an expert survey was conducted to obtain design recommendations and strategies from experienced interior designers in senior care design. Finally, design features

identified from the previous 3 steps were implemented into photo renders for a survey that focused on caregivers' perceptions and opinions about their work environments. The renders included windows to view on nature and outdoor, acoustic materials, biophilic elements, personalization, workplace and private space for relaxing, access to outdoors and daylight, homelike environment, and music in four spaces including a nurse's station and office, a break room, a lavender/respite room, and a caregivers' outdoor space (see Figure 1). Data were collected by means of an online survey questionnaire from 30 staff caregivers at memory care facilities in the state of Washington. Participants were predominately young and middle ages (96%; 21 to 40 years old) and less than five years work experience (90%) in senior living communities. Findings of this study showed that most staff caregivers are stressed (fairly stressful 25%, frequently stressful 50%, very stressful 14%), which is consistent with the OnShift (2021) survey report. Almost 40% of participants felt that their workplace design did not meet their expectations and was likely to influence their work-related stress (86%) and desire to continue working in senior living communities (89%). The impact of workplace design on participants' stress (93%) and retention (90%) was even stronger in their closer evaluation of changes made to the work environment (see Tables 1 and 2). In particular, participants valued personalized environment, workplace and relaxing spaces separation, airflow and ventilation system, access to outdoor or daylight, and homelike environment which would alleviate stress and burnout from work. Similarly, participants felt most comfortable in a break room and a lavender/respite room which offered all the aforementioned four design features (see Table 3). In sum, the findings confirmed the Maslow's hierarchy of needs and the influence of the quality interior design on improving staff caregivers' work-related stress and retention.

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Pop Up: Designing the CB to You Mobile Art Lab

Charles Sharpless, University of Arkansas

ABSTRACT

This presentation describes an advanced undergraduate interior design studio that in the Spring of 2022 researched and designed a mobile platform to host arts workshops, performances and conversations within communities in the region of our university. The studio worked in direct collaboration with the Crystal Bridges Museum of American Art to design a mobile or temporary structure for the CB to You Mobile Art Lab program whose missions is to "energize the power of community through art."1 In "Building Communities Not Audiences" Dan Borwick describes the many challenges facing institutions as they attempt to build programs for honest community engagement that aim to address systemic inequalities present in the audience/patron/board member participation focus of today's art museums.2 CB to You brings artists directly into communities around the region for multi-day happenings that feature artmaking demonstrations, music and dance performances, and storytelling and conversations. These events form a vital component of the museums mission to increase access and availability of the arts within the region and to support local artists working within the community. The eighteen students in the design studio with backgrounds in interior design and architecture worked in collaboration with museum staff, local artists and community members to understand the goals of the program and imagine the physical infrastructure for these events. To begin our work, the studio researched social practices in the arts, regional community histories and ethnographies, and the technical considerations of temporary structures and vehicular design. Throughout the semester, students worked individually, in small groups and collectively as a studio-wide team. The first half of the semester was dedicated to research and the creation of a series of design proposals to serve as the basis for discussion, leaving the second half of the semester to be necessarily open ended as the students worked directly with a dynamic client group towards the further development and refinement of the Mobile Art Lab concept. Design development in the second half of the

semester consisted of the progression of parallel and interrelated design inquires that gave specificity to the proposal. Requiring research, drawing, and making, students developed fabrication details, transportation logistics, site configurations, preliminary budgets, and potential future vehicles, uses and configurations for mobile art labs. The studio research involved the active student participation in art-making and design workshops with CB to You staff and local artists. First, the students were the audience-participants in a collage making workshop led by a local artist. Then, the students took on the role of workshop leaders, guiding 100+ school children at a local afterschool care program through a clay-sculpting exercise. The design phase of the semester was also structured by workshops, this time with the students leading the conversation and sharing their work with the museum staff and administrators on three separate occasions. By experiencing both sides of the community arts workshops (leader and participant), the students not only gained tangible working knowledge of their client and program, but they also enjoyed a shared experience outside of studio that formed a basis for the teamwork necessary to accomplish the design tasks ahead. At the conclusion of the studio, the students successfully delivered a "Bid Set" of design drawings and specifications that the Museum has used to fundraise and solicit bids from local fabricators. The students finished the semester with an enthusiasm for design as a process of collaboration and conversation that has the potential to meaningfully impact in their community.

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Wayfinding design for older adults with dementia: Importance-satisfaction analysis

Silvia Alam, Iowa State University

ABSTRACT

The wayfinding experience of older adults is critical for designing a long-term care facility because impaired wayfinding ability can cause psychological responses such as insecurity, agitation, and falling in their environment (Caspi, 2014; Chiu et al., 2004). Especially, given that many older adults experience relocation stress syndrome which is a symptom such as anxiety, confusion, and loneliness after moving from a private residence to a long-term care facility, wayfinding design plays an essential role in increasing their physical and social activity in the facility. It is particularly true that wayfinding problems are the earliest symptoms of dementia and older adults with cognitive impairment are more likely to get lost in the community, which significantly decreases in independence. Even wayfinding issues become a profound problem, the person with dementia can be harmed or even die from getting lost in the community due to the extreme severity of wayfinding problems (Rowe & Bennett, 2003). Therefore, developing a positive wayfinding experience for older adults with dementia is very important to ensure residents' safety and fulfill their obligation. However, there is relatively little known about what kinds of wayfinding design elements have been used by older adults with dementia in long-term care facilities. The main purpose of this research is to understand the wayfinding experience of older adults with dementia in long-term care facilities and identify environmental cues that support older adults' spatial abilities. After an extensive literature review, this research created a survey questionnaire on perceptions of wayfinding design elements for older adults with dementia in a long-term care setting. The survey included 22 wayfinding design elements and caregivers (N=30) from two long-term care facilities in the Midwest area were asked to rate the importance and satisfaction of these design elements by using a 5-point Likert scale ranging from 1 to 5. The survey was conducted via one-on-one interviews in July and August 2022. To test the

reliability of this survey, Cronbach's alpha was tested, and the internal consistency was high (Cronbach alpha Importance: .870 and Satisfaction: .893). As shown in Appendix 1, a descriptive analysis of the importance of 22 design elements showed that 16 items were rated above 4 (Important), with the top five in descending order: "visibility" (M=4.73), "Sound/Noice" (M=4.57), "Temperature" (M=4.50), "landmark location" (M=4.43), "Natural light" (M=4.33). Also, the satisfaction of same design elements showed that only 8 items were rated above 4 (Satisfied): "Memory box at their door" (M=4.37), "Visibility" (M=4.23), "Artificial light for night" (M=4.20), "Temperature" (M=4.10), "Landmark location" (M=4.07). An independent sample t-test was conducted to compare mean differences of importance and satisfaction on the 22 wayfinding design elements. The independent t-test indicated that 10 design items were statistically significantly different so are shown in bold type in the appendix. Among them, "Floor color/pattern/texture" showed a relatively significant difference between importance and satisfaction. That is, staff members considered the floor color/pattern/texture is very important (M=4.37) for a better wayfinding experience of older adults with dementia, but they are relatively not satisfied with this item. Also, various sensory experiences such as touch, sound, and temperature were considered as important but, they were not satisfied too. The result of this research showed different perceptions of caregivers about the importance and satisfaction of wayfinding design elements in their facility. The conference poster will provide statistical analysis and photo analysis, which will be a good opportunity to discuss how interior designers could provide a better wayfinding experience for older adults with dementia.

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Lessons to Learn: Post-pandemic Design and the Future of Retail Interiors

Sonya Turkman, University of Nebraska Lincoln
Keely Perkins, University of Nebraska, Lincoln

ABSTRACT

As we enter the third year of the COVID pandemic, both public and domestic interiors continue to evolve with "workaround" solutions to keep people safe: social distancing markers, sanitizers, and plexiglass shields. Since the onset of the pandemic, retailers have implemented online ordering and pick-up services. Consequently, these practices have altered the interior of the store for holding these online orders. These health-conscious measures are the result of centuries of scientific knowledge about how and why people contract and spread disease. Decontamination thresholds, increased air circulation with ventilation, and the use of sunlight as a disinfectant within interior spaces were responses to the increased need for sanitation after the flu pandemic of 1918. Today's industry standards Leadership in Energy and Environmental Design (LEED) and the International Well Building Institute (IWBI) set building performance standards for physical and mental health; however, both program schemes update those metrics as new scientific data emerge from the study of this pandemic. While these standards develop the retail environment is facing reluctance to implement post-pandemic spatial strategies. In this project, student researchers will evaluate the retail interiors of the origins of the Target corporation beginning from Goodfellow Dry Goods to Dayton's Department Store. Target is one of the only large retailers that has experienced both the flu pandemic of 1914-1918 and the COVID-19 pandemic. Using a historic perspective, actively documenting, and analyzing current conditions in retail, and projections of future health and safety trends in the industry, the student researchers will be able to make informed decisions about the future of retail environments. The project will utilize archived floor plans of original Dayton stores as well as historic advertisements and photographs, newspaper articles, and books that depict the evolution of Dayton (see Appendix).

In the Dayton era, a focus will be given to how the store adapted to the 1918 flu pandemic. In the current Target era, press releases, the company website, and in-person documentation and observation will give insight into the impact of the COVID-19 pandemic on Target and other retail giants. Considering global and local health regulations, the researchers will investigate current Target interiors that reflect these standards. The researchers will gather both qualitative and quantitative data by conducting interviews, surveys, and plan analysis. The data will be gathered and presented in a multimedia experience that allows the community to view the past, present, and predicted future of retail design. This research constitutes the foundation for designing healthy and safe retail environments for future pandemic responses. It will be used to inform the education of student designers, to further study the impact of the pandemic and to connect scientific data with working interior designers. The scholarly community, the design community, and the retail environments we all inhabit will benefit from this research.

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Exploring the Relationship between Physical Qualities of Activity-Based Workplaces and Stress: A Qualitative Study

Hande Burcu Deniz, University of Wisconsin Madison

ABSTRACT

Work-related stress is associated with absenteeism, reduced productivity, accidents, and reduced mental and physical well-being, with an estimated cost to the US industry of more than $300 billion (The American Institute of Stress). At the individual level, it causes serious health problems such as cardiovascular diseases, immunity system failure, and unhealthy eating behaviors (Andrade & Devlin, 2015; Öhman, et al., 2007). The current study aims to understand how the physical qualities of workplaces influence workers' stress levels and how the workers utilize and modify spaces to counteract workplace stressors using the grounded theory approach. Ulrich's stress reduction theory (Ulrich, 1991) served as the theoretical framework. This study fills the current gaps in the literature as most existing studies focus on quantifying the impact of stress on singular outcomes such as turnover, engagement in work, absenteeism, and burnout, or the impact of singular environmental factors on stress levels such as access to outdoors, correlated color temperature of lighting, and presence of plants or artwork. This study included 20 participants from technology companies that adopted activity-based workplaces (ABW) in their facilities. ABW is an emergent way of working, where workers may or may not have an assigned workspace and they have the option to work in any of the spaces provided for them. ABW has a strong potential to create a positive impact on reducing the stress levels of workers (Engelen, et al., 2018) and has recently attracted attention from design researchers and designers because of its benefits. This study population is chosen because they work in very fast-paced work environments and reportedly experience high levels of stress. The study employed two methods of data collection: (1) an online survey; (2) semi-structured, in-depth qualitative interviews either through an online meeting platform or in person. A survey was created to

collect data from people who work at technology companies with ABW adopted offices. The dataset included demographics and their experiences at the workplace, regarding both the nature of their job, the impact of their physical work environment, their stress levels, and how they cope with it. The semi-structured interview aimed at understanding what physical qualities of workplaces contribute to the workers' stress level, their overall experiences with ABW, work-related stress, and how the physical qualities of work environments and mental processes and/or emotions are connected. The survey data was analyzed using descriptive and correlational analysis. The interview narratives were analyzed using a grounded theory approach to produce a mid-level theory about the impact of the physical qualities of workplaces on stress. Three major themes were identified: autonomy, control, and positive distraction. The ways in which the study participants succeeded or failed to achieve these qualities were further explored to produce a mid-level theory. The findings from this approach offer a theoretical foundation upon which further empirical study on workplace design can be conducted and help generate actionable knowledge for future research and application on workplace design.

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Outside-In: How Exterior Colors Affect Interior Perceptions

Stevi Eggers, Purdue University

ABSTRACT

Interior design is the practice of enhancing, organizing, and creating a functional indoor environment. Further, this intricate design practice can depict a space's furnishings, fixtures, textiles, and colors to enhance a user's experience. This profession is not commonly interpreted as blending the exterior and interior of a building due to stereotypical architecture vs. interior design boundaries. Results from the notion of outside vs. inside create a disconnect between an exterior impression and an interior experience. This possible influence was investigated by surveying the color perceptions of first-year interior design students. Reinforcing the importance of user perceptions concerning space and past experiences, Lorrin Kline argues, "when entering a space, there is already a preconceived notion placed in one's mind of how a space should be before you enter it, which is based on past experiences. The way in which we perceive a space will either add up to those expectations or fall short" (Kline, 2019, p6) Sliburyte and Skeryte (2014) discovered the impacts of consumers' color perceptions in retail and marketing. Their findings similarly revealed that specific colors were connected to positive and negative emotions, and favorite colors are informed by gender. Rita Carter's, Mapping the Mind (2010) identified three levels of perception: emotional response, unusual setting and pattern disruption, and a human's hardwired or subconscious response, which one cannot control. These ideas of user perception in the context of consumer marketing, perception of architecture, and the subconscious human brain lead to the research questions: What is the response associated with a specific exterior façade color by first-year interior design students, and is there a connection between interior perception and color? These questions challenge interior designers to communicate through reactions based on shared cultural experiences. In agreement, Kline (2019) posits that understanding users' perceptions and emotions is imperative to architectural design.

30 first-year interior design students participated in an in-class survey conducted through Survey monkey. Responses associated with nine exterior façade colors were collected. The survey was created using an online platform and consisted of a 9-part question and written answer form. A PowerPoint slide show was shown on a projection screen to display a single façade image for students to stimulate color responses. A content analysis was then performed by looking for similarities between student survey responses and categorizing popular word associations with the perceived retail types. The research resulted in a retail facade color collection and interactive design tool. Limitations of this study include the abbreviated time frame, projection equipment used, and the small number of surveys collected. The survey audience consisted of a gender identification ratio of 6:1 female to male and students under the age of 21. The connection between student responses and their past associations with specific colors was evidenced in the findings. These findings were similar to Sliburyte and Skeryte's (2014) findings on the impacts of consumers' color perceptions. They reinforced the link between the importance of marketed interior content and users' response to exterior facades in retail design. The results of the color response study might suggest that user responses vary based on past experiences. However, based on the findings of Kline's (2019) user center design applications and children's perceptions, a more plausible explanation is that every user has a preconceived notion before entering a space, regardless of age or experience level. These findings and interactive design tool can assist retail clients, architects, and interior designers in cohesively portraying the intended interior experience through exterior design.

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Influence of Placemaking in Afghan Refugee Home Design on their Resettlement Process in Host Community

Azra Fific, University of Oklahoma

ABSTRACT

When individuals of any socioeconomic or cultural background enter a new environment, one of their first instincts is to seek familiarity (Sabie et. al, 2020). This can be achieved in different ways: through picking up old hobbies and habits, interacting with like-minded individuals, befriending those with personalities similar to our relationships from the past, or anything else that reflects one's political and cultural identity. One of the most prominent reflections of that complex identity are the domestic spaces they occupy (Sabie et. al, 2020) due to the amount of time spent within those spaces (Hadjiyanni, 2009), and the fact that many individuals and groups customize them according to their memories and available resources (Sabie et. al, 2020). This process of adapting one's built environment to better accommodate one's needs, support senses of pride and identity, and create an escape into an alternate, more safe reality is known as placemaking. Placemaking ultimately aims to create a sense of home and belonging (Sabie et. al, 2020) in any environment. It is a powerful tool, able to transform any space of function into a place of healing, growth, and safety. Due to its potency and versatility, placemaking was chosen as the central concept of this research project, which focuses on investigating the impact of the interior design of Afghan refugee homes on the integration progress in their new communities in Oklahoma City. Ever since the US troops pulled out of Afghanistan in 2021, approximately 1800 refugees have been resettled throughout Oklahoma, out of which many came directly from the war's front (Knight, 2021). With additional layers of psychological trauma, loss, and physical pain coating the already difficult resettlement process, placemaking could potentially help alleviate some of those burdens by creating a more welcoming and accepting experience in their

new environment (Hadjiyanni, 2009). If differences between their native and Oklahoma homes could be minimized through interior design, their emotional and psychological well-being could be improved, allowing for more of their energy and headspace to be channeled towards integration with the environment outside of their home. This is why investigating the impact extents of placemaking being incorporated into the homes of such a vulnerable group is extremely important. Data on living conditions in both country of origin and current location will be collected using photovoice through surveys, focus group interviews and in-home visits to determine the presence of placemaking in the above-mentioned housing units. Further investigation into implemented placemaking techniques will then be conducted. A cultural liaison and local NGOs with established relations with the research participant group will assist in recruiting participants and translating into native language as necessary. The data collected and findings identified in this research project will contribute towards the ongoing efforts to assist with the resettlement process of Afghan refugees not only in Oklahoma but in the United States as a whole. At its conclusion, this project will also aim to generate suggestions regarding ways in which placemaking through interior design could potentially help with the integration process of Afghan refugees into the US host communities. The finding of this study could be provided to social welfare and resettlement agencies on both a local and federal level in future, which could be of help when addressing housing procurement, resources and amenities offered, and activities that need to be accommodated for a more successful and efficient integration process. The poster for this presentation will be a printed 36" H x 42" W board which will include project background and research group demographic information, data collected, findings identified, and suggestions generated for future studies and resettlement agencies to reference.

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Reusing What We Have: Historic Home Preservation and Environmental Advocacy through Adaptive Reuse

Tamara Rice, Texas Christian University

ABSTRACT

Historic homes in the United States are meeting the fate of demolition to make way for newly built energy efficient homes in their place. Due to rapid tear down and new growth of residential developments, an enormous volume of material waste is produced, which negatively impacts the environment yearly. The energy from a new sustainable home has proven to be more detrimental to the environment opposed to the rehabilitation and reuse of an existing home. New structures could take 10 to 80 years to survive the consequences of their construction phase, resulting in ecosystem and community setbacks. When considering adaptive reuse, we maximize environmental benefits, community togetherness and financial gain. The materials and transportation necessary to renovate and bring older homes to building code is minimized when we reuse, which sends less waste to landfills, and minimizes pollution. The United States Environmental Protection Agency (EPA) states that 600 million tons of construction and demolition debris were generated in 2018, which is more than twice the amount of generated municipal solid waste. ^1 As designers we can do our part in specifying material selections that meet the LEED standard, which encourages the use of low-emitting materials that can provide benefits to air quality, human health, and productivity. The cost to build a new average home in the United States based on 2,000 to 2,500 square feet, is $200,000 to $300,000. The renovation of an existing older home based on the same square footage can run anywhere from $15,000 to $200,000. In the report "The greenest building: Quantifying the environmental value of building reuse", they found that the savings from a reused building are around 4 to 46 percent higher than a new build when comparing similar metrics. ^2 The approach of reusing existing homes,

creating energy efficient design solutions, and making eco-friendly material selections will minimize energy use, and create cleaner power sources. With this, we are presented the chance to also create employment opportunities in our communities thanks to residential rehabilitation. The Greenest Building report shows that Historical rehab has a 32-year track record of creating 2 million jobs and generating 90 billion in investment funds, their studies also show residential rehab creates 50% more jobs than new construction. ^3 In conclusion, I encourage those who influence shape and design-built environments throughout the United States to reuse what we have, to be an advocate for historical preservation, and rally for environmental protection. The LEED (Leadership in Energy and Environmental Design) organization plays a crucial role in the overall wellness of our planet by pushing those same goals. They work to create sustainable strategies, and generate less waste by encouraging reduction, reuse, and recycling. It is beneficial to understand that rehabilitation and retrofitting of an existing home will always be the most sustainable and "green" way to build.

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Developing a Framework for Analyzing the Sustainability of Furniture

Hillary Burgess, Ball State University

ABSTRACT

Interior designers must consider a wide breadth of issues when they create design solutions that promote the health, safety, and welfare of the occupants (About CIDQ, 2022). In the era of global climate change, this must include the sustainability of their designs (LEED and Human Health, 2022). But the sustainability of furniture in particular can be overwhelmingly complex. Determining the environmental impact of furniture selections is a task that may leave interior designers feeling they have no choice but to trust manufacturer marketing tactics. There may be some truth to the popular "sustainably sourced" claims, but it is more likely these claims do not represent a full picture of the furniture in question. To grasp the full potential impact of furniture selections, interior designers need to understand the furniture supply chain and what elements can be controlled in each stage, which is indeed complicated: Furniture is an often an assembly of many materials and built components (Lawson, 2016). The raw materials that eventually become furniture may or may not be responsibly sourced. The components of furniture may be processed and assembled in multiple manufacturing facilities across the globe. Those manufacturing facilities may not have socially or environmentally sustainable practices. The components, and ultimately the finished furniture, may be shipped from great distances before reaching its final user. To extend its useful life, furniture should be appropriately durable, easy to maintain, and constructed in a manner that can be repaired instead of discarded. Finally, furniture should be able to be eventually disassembled into its parts and repurposed in a cradle-to-cradle life cycle, avoiding a landfill 'grave' (McDonough & Braungart, 2002). Taking all these elements into consideration may be an overwhelming task to an interior designer who is not an expert in sustainability. But with the assistance of a framework for analyzing furniture sustainability, interior designers can work through researching the steps of the supply chain, identify potential greenwashing tactics (Lyon & Montgomery, 2015), and identify legitimate

third-party sustainability certifications. Before developing the framework, important elements must be considered: Regardless of the importance of sustainability, do interior designers want to know more about the sustainability of their furniture selections? And will interior designers take the time to perform a guided analysis of the sustainability of their furniture selections? To answer these questions, and most importantly, to determine if a guided analysis of furniture sustainability increases the interior designer's ability to make informed decisions when selecting furniture, a study of interior designer's sustainability analyses must be completed. This study, performed as an online questionnaire, compares interior designers' ability to evaluate the environmental impact of furniture with and without the guidance of a framework. While the study is in progress at this time, the results comparing the feedback from the unguided and guided analysis will be statistically analyzed using a paired-sample T-test. Selection trends will also be analyzed in the unguided section of the questionnaire. Utilizing this data as a backbone and guide, a framework will be developed to assist interior designers in the analysis of the sustainability of furniture. If accepted by IDEC to present a poster at the Annual Conference, I will be thrilled to present a graphical overview of the furniture supply chain including pitfalls and challenges, an analysis of the study results, and a presentation of the framework that will help interior designers analyze the sustainability of their furniture selections. Thank you for your consideration.

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Educational built environments and their effect on school shootings

Dana Vaux, University of Nebraska Kearney

ABSTRACT

Purpose: This paper explores school shootings within educational facilities to understand the connections between the interior environment, bullying, negative place attachment, and student organizations. Context: Existing studies emphasize a primary relationship between bullying and school shootings in conjunction with additional attributing factors (Duplechain & Morris 2014). Research also shows there are accentuated locations where bullying occurs, there is not one specific type of bullying, and bullying differs based on the location where it takes place (Migliaccio et. al., 2017; Perkins et. al., 2014). Current design guidelines encourage the strategic placement of administration offices for preventative measures (US Department of Homeland Security, 2012) and emphasize designing safety features within high-risk locations where large amounts of students gather at a given time, such as hallways during passing periods students congregate in a short amount of time (O'Shea & Awwad-Rafferty, 2009). However, information regarding the location of student organizations within the school and associated bullying is lacking. Methods: The goal of this qualitative research study was to understand the connections between the placement of student organizations and bullying. Telephone interviews were conducted, and two surveys were distributed online. Additionally, floor plans of two existing schools and one newly constructed school were analyzed to determine various attributing factors to bullying by examining the placement and size of student organizations, exterior doors, bullying zones, administrative offices, and collaborative spaces. Findings: Findings show an emphasis placed on physical security measures in school interiors, but a lack of information regarding the physiological effects of the building's interior on the students. Survey results confirmed a link between student organizations, negative place attachment, and the frequency of bullying that occurred in specific locations. The results also confirmed the prevalence of bullying

in areas of prioritized student organizations, such as athletics, which suggests these locations may need to be deemphasized to reduce the frequency of bullying. Advancement of Design Knowledge: To decrease the likelihood of school shootings occurring, removing lockers and a scheduled bell system increases independence among students and decreases the likelihood of physical bullying within hallways. A prototypical design solution based on findings suggests innovative checkrooms, checkpoint systems, and smart glass classroom walls could decrease bullying, protect students' safety, and enable students to selectively pick their environments of choice to study. Creating independence among students impacts positive place attachment and could decrease bullying, potentially impacting the number of school shootings taking place.

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Hybrid Palettes for Student Athletes: Exploring Color and Space in Therapeutic Facilities

Breanna McGrath, University of Florida

ABSTRACT

Environmental color can be used as a tool to foster patient wellbeing in orthopedic facilities designed to facilitate treatment and recovery. This study has preliminary insights on the role of environmental color in therapeutic spaces from patient, staff, and designer perspectives. Specifically, the user preferences will be compared to color palettes assessed and curated by professionals with healthcare design expertise. By examining student athletes, physical therapists, and healthcare design experts in concert, a multi-stakeholder process informing color decisions is possible to elevate the user experience, see figures 1 and 2. Background & Research Purpose: Designing healthcare facilities should integrate functionality with an empathetic approach, addressing the physical and psychological human-based considerations. Supportive designed environments create space better positioned for healing and recovery for patients (Ulrich, 1991). Design influences emotion, and in turn emotion fostering empathy can influence design, especially in spaces where individuals engage in sometimes difficult therapy interventions critical to wellbeing. Elements of design, including the dimensions of color and space, can influence behavioral and emotional responses within environments (Portillo, 2009). Given the realities, and sometimes stress of physical therapy, color offers a design tool to help foster recovery and wellbeing. Therapeutic spaces can project a range of associations, perceived comfort level and feel of a space. Research has identified that physical comfort, sense of freedom in choice, and ability to personalize a space are consistently associated with home, see figure 3. Further, elderly patients relate "homey" healthcare spaces as emphasizing comfort and a sense of family (Gilmour, 2005). Yet, controlled studies on emotion elicited within interiors, especially healthcare environments, has not been adequately examined (Helvacioglu, 2011). Therefore, the first phase of this study begins by exploring appropriate color palettes in healthcare settings by

design experts to begin exploring how to employ color to create comfortable yet professional therapeutic spaces. Methodology: This multi-phase project aimed to identify appropriate color palettes for healthcare spaces is in the final stages of the IRB approval. The goal of phase 1 is to create a data collection instrument of color palettes selected by design experts. These design experts reviewed 2019/2021 industry forecast palettes, as seen in figures 4 and 5, and selected the most appropriate color palettes for orthopedic healthcare and residential spaces. The next step of research underway involves surveying users of orthopedic spaces on the role color plays in the color and space preferences of said user groups in orthopedic spaces, see figure 6 for outline of next stages of research. Data collection completion is expected by Jan 15, 2023. Findings and Expected Impact: The design expert data found agreement in the palettes that were viewed as appropriate to healthcare interiors, and unanimously selected Palette 1 as the most appropriate for healthcare and residential spaces. This palette was described as sophisticated and cool, with timeless qualities representing how in healthcare we expect to see color palettes with a long lifespan because these spaces are not renovated frequently. The remaining palettes were also described in detail as earthy, bright, saturated, warm, etc., see figure 7. The research underway will examine the level of alignment in the view of color and its roles between designers and end users. The findings can offer a line of research on orthopedic spaces that directly consider the student athletes and their physical therapists. This study can be replicated and refined to examine a broader cross-section of university athletes and healthcare providers to develop evidence-based strategies and solutions that improve the patient and provider experience.

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Impacts of Human-Centric Lighting Design on Older Adult's Health and Performance A bibliometric analysis

Nasrin Golshany, University of Oregon

ABSTRACT

Appropriate lighting condition is one of the significant indoor environmental qualities that could potentially impact the living environment and enhance health and wellbeing in older adults. Elderly residents in assisted living facilities spend ninety percent of their time in indoor spaces, therefore, they experience dimmer days and brighter nights than they need to in nature. In addition, aging causes a reduction in circadian rhythm amplitude and results in impairment of the internal biological clock in humans, especially after the age of 80. Human-Centric lighting is a new approach in lighting design that focuses not only on the visual impact of light, but also on its non-visual aspects that influence circadian rhythms, sleep, mood, and cognitive performance. Human-Centric Design for elderly environments has attracted significant attention from researchers in both architecture and medical sciences in recent years. While an increasing body of knowledge exists within this rapidly growing field of research, there is still a lack of a systematic conceptual framework that highlights the parameters and variables essential to quantify the structure and evolution of the field. In addition, the literature in this field of study is challenging to manage because of its multidisciplinary approach and wide range of studies that approached this topic through the specific disciplinary lens of architecture, medicine, and gerontology. The main goal of this study is to conduct a bibliometric analysis of research studies from 1990 to 2022 specific to Human-Centric lighting design for elderly people. The study reports on a compiled database of over 335 publications that were analyzed and screened using a theoretical targeted framework. VOSviewer is a science mapping software tool that was utilized to identify major topic areas and detect influential publications, authors, countries, and prominent journals through various network analysis techniques such as term co-occurrence, co-

citation, and bibliographic coupling. In addition, SciMAT was used to identify major themes of each period and the evolution of the parametric variables database of the field over time. For this purpose, three different periods were identified (1990-1999; 1999-2013; 2014-2022). Results showed that this field of study initially focused on the relationship between light and sleep quality while in the second period it has been diversified to investigate the impact of light on both visual and non-visual outcomes of elderly people. The results also showed that while circadian rhythm and sleep quality are still dominant topics in the field, light therapy for cognitive impairment, and Alzheimer's disease are the emerging trends in these domains of studies.

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Importance of craftsmanship by examining Don Ho: Wood Block Printing

Hojung Kim, University of Tennessee Knoxville

ABSTRACT

Relevance: According to the General Department of Vietnam Customs, the export of products to the US surged 22.4 percent in 2021 to 8.8 billion USD, nearly 88 percent of which came from wooden furniture. Vietnam's furniture industry is currently one of the top-ten economic sectors in the country, bringing some of the highest export turnovers to the country (MARD 2017). The US, as one of the biggest global markets, takes big responsibility for determining the fate of socioeconomic of craft villages in Vietnam. Importance In contrast to the fast-paced mass-produced production of interior products, "The Craftsman" by Richard Sennett highlights that "every good craftsman conducts a dialogue between concrete practices and thinking, this dialogue evolves into sustaining habits, and these habits establish a rhythm between problem-solving and problem finding." (Sennett). With the disappearance of traditional craft and hand-making skills, in today's digital age, the writer examines the importance of such practice where most of the skills are replaced by mass-produced manufacturing. Context / Problem Since the Renewal or Đổi Mới, market liberalization, the resurgence of individual business, and implementing government policies have promoted the development of non-agricultural rural activities and have revived village craftsmanship. Dong Ho: Wood Block Printing technique in Song Ho Commune in Vietnam is one of the prime examples. The practice of woodblock painting has existed since the 16th century, and in the 1950s, there were over 100 wood block painting artisans documented to be living and painting in the area. But because of years of war against the French colonization and Communist regimes, they deemed the practice of arts and craft culture "unfit for the revolutionary." Today, there are few families who carry on with this tradition. Although craft items were once common in Vietnam's past, their usefulness and function are slowly being replaced by cheaper commercial goods and times, which contributes to

the rising concern of preserving cultural values. Objective 1. Understand the vanishing traditional techniques, raw materials, and tools. 2. Examine how Dong Ho process has the potential to influence contemporary interior architectural elements such as wallpapers, textiles, and screens. 3. Develop prototype of Dong Ho using the identity and originality from craft villages with contemporary design technologies. Method/Position/Approach I have factored the study of the traditional Vietnamese craftsmanship in the following categories to provide comparisons: 1. Geographical location and the influence of the materials 2. Economic and political impact through the region. 4. Process of the production techniques by both machine and hands. 5 Technological implications towards architectural elements. 6. How mass production replaces traditional technology. Initial Findings 1. The wood blocks are still cut by hand, and even the pigments for the inks are still sourced from nature. In mass production methods, wood printing blocks will be replaced by a CNC router that is pre-programmed with the design to cut the blocks. This would allow for the automation of a time-consuming process but might reduce the hand-finished quality. 2. The printing method that the Dong Ho woodblock printers use is printing in its most simple and basic form. The creation of the blocks and overlays of color is the origin of modern colored printing. It can apply the printing technique to any manner of printed items in interiors, including wallpapers, screens, and wall module textiles in contemporary interiors. 3. Based on the "Declaration on Vietnamese Craft Sector Promotion." Vietnamese crafts significantly contribute to income generation and poverty reduction in rural and mountainous areas. However, problems such as loss of traditional values, lack of traditional craft successors, lack of raw materials. are becoming serious as modernization and the market economy progress.

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On Luminance Contrast and Visual Acuity: Analyzing Egress Lighting with Digital Imaging and Occlusion Filters

Alp Tural, Virginia Tech

ABSTRACT

Luminance contrast is one of the five metrics that describe the relationship between the stimuli and human's visual system (Rea, 2000, pp.3-42). As a significant lighting quality definer, the metric and contrast ratio recommendations necessitate a systemic revisit: a. since the studies they are based on are primarily context limited and task dependent; b. due to the lack of methodological consensus on the employed experimental protocols and analysis procedures for collecting luminance-related data (Fotios, 2001; Fotios & Houser, 2009); c. due to the necessity of enhancing the body of knowledge on human visual perception representations for making better design decisions to respond to varying degrees of visual abilities. The study focuses on visual acuity loss and examines luminance contrast metric within the context of means of egress and its components. High dynamic range digital images of the egress paths are photographed and luminance maps of these settings were analyzed to assess luminance distribution and contrast ratios on the travel path, considering the egress code lighting requirements, exit signage and markings. To incorporate the needs of different visual abilities to the design process, and to reflect on the issues related to aging eye and visual system, it is necessary to develop visual perception-based assessment tools. As reduced visual acuity decreases luminance contrast perception, the research uses occlusion filters to represent degrees of visual acuity loss. The study involved an experimental setup to test occlusion filter use with a wide-angle lens fitted digital SLR camera for data collection. The experimental setup helped ensure that the camera can capture images at varying exposure settings when the lens is fitted with an occlusion filter. A comparative case study was conducted to test viability of this method within egress context comparing an existing construction and a new educational building on a college campus. The

findings include lighting design caveats with respect to materiality and color choices as well as contrast ratio proposals for enhancing edge and surface detection throughout the egress route.

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PRESENTATIONS

~Kerv: A Study of Culture, Furniture, and Fabrication using the Bargello Spiral Bands Pattern to Merge Stone and Fabric Material Identities

Felicia Francine Dean, University of Tennessee, Knoxville

ABSTRACT

My work embodies a cross-disciplinary approach to research and collaboration between Interior Architecture, Architecture, Craft, Fashion, and Art to uncover physical and spatial material identities. These characteristics are latent material attributes. Textiles are the primary materials connecting the narratives of all my works. Discoveries within the creative investigation are facilitated by historical and environmental narratives embedded into the design process. These embedded perspectives facilitate the findings within the creative research. The stories pair textile-making techniques with wood, stone, foam, fiberglass, upholstery fabric, handwoven textiles, and video. The fabrication of the works combines digital, machine, and handmade methods of making, while the cultural and sociocultural accounts of identity/identification steer the creative design investigations. The ~kerv stool was developed from my project, Perceptions of Misconceptions: Intersecting Stone and Fabric Material Identities. The translation of the materials and systems is based on the sites of Tuscany, Italy, and East Tennessee. The project links the regions' histories by connecting the locations' stone and fabric material identities through the making and design process. ~Kerv is the first in the series of stools to be developed for the study. For the project, stone carving, fabric quilting techniques, and patterns visually communicate the intersections of space and place in relation to stone and fabric material identities. The origins of bargello patterns exist through the legend of a Hungarian princess (Williams, 5). She married into the Italian Medici family, introducing Hungarian Point embroidery, which became bargello and Florentine canvas work in the Italian tradition (Williams, 5). In quilting, the patterns created with the embroidery style translate into hand and

machine-sewn fabric techniques. The ~kerv stool integrates the bargello s-curved embroidery and quilting pattern into the form and surface design of the work using digital and hand fabrication. Robotically carved into the stool's legs is an s-curved composition. Initially, the ~kerv stool's upholstery design included a bargello pattern on the fabric surface. However, the work took a new direction after the milling of the furniture legs was assessed. Instead, the striations of the milled stone surface merge with the texture of the woven upholstery fabric to create a unified visual consistency for the entire stool's surface. The project location in the Apuan Alps provided a new direction for the upholstery. The town of Gramolazzo, Italy where the work was fabricated, is very small. Thus, there is limited access to resources. The event of completing furniture upholstery in such a small town afforded opportunities for investigating the merging of the material surface identities in other ways. Through observations and reflections, it was evident that the surface rendered by the milling process lent itself to the appearance of a woven-like fabric. As a result, due to the analysis and the limited resources for sewing on site, the project uncovered new knowledge for the approach of intertwining the material identities.

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BioMateriality and the Interior Built Environment

Kendra Locklear Ordia, University of Nebraska Lincoln
Nathan Bicak, University of Nebraska-Lincoln
John Andrews, University of Nebraska-Lincoln

ABSTRACT

A key component of integrating nature in designed environments is recognizing the transformative capabilities and creative potential of materials. Upcycling and closed-looped life cycles assist in managing waste and can shift designers' perspectives on source materials and resource management. Many natural source materials have a deep connection with place (Hashemnezhad et al. 2013, 6-7) allowing for opportunities of increased narration to raise awareness of embedded ecological, sustainability, or resiliency issues. When considering ecological inspiration in the built environment, connections to natural systems, native materiality, cultural explorations, spatial patterns, and built forms can all advance the role of biomaterials in interior space. The objective of this work is to explore the viability of transforming regional invasive species into works of beauty; into material surfaces which have the power to enhance our interior experiences, as opposed to degrading our natural environment. Embodied in this work is a story, a narrative of change. Regional materials once seen as waste or off cuttings are capable of being worked into useful, beautiful objects with a variety of applications. This work doesn't simply mimic nature, it attempts to tell a story of place by using natural materials in novel forms (Karana et al. 2020, 37) and in applications not typically associated with the interior. The design team first investigated these capabilities through a series of precedent analyses and materials prototypes to determine the feasibility and benefits of using Great Plains biowaste or living materials to inform and mediate our spatial experience. This work relies on testing novel methods of processing, manipulating, fabrication, and craft to turn otherwise biological waste into products suitable for interior use. The design team established a framework for material testing through prototyping at various scales including: 1. Collecting and

classifying raw material aggregate sizes 2. Identifying a series of bio-based binders (hempcrete, resins, organic glues, mycelium) 3. Mixing elements from #1 and #2 above at differing ratios 4. Pressing new mixtures into silicone forms at varying pressures 5. Designing and fabricating novel forms 6. Manipulating materials over/into new forms (cast, extruded, molded, heated) The resulting materials are intended as tests, to study material quality, durability, and feasibility for application in interior spaces. Although not designed with a specific location in mind, these prototype results and further design speculations suggest these materials would be suitable in applications such as wall panels, ceiling panels, vertical and horizontal acoustic panels, light filtering devices, and decorative components. The produced materials and objects reinforce awareness of place, identity, and local ecosystems. They allow us to rethink our ecological relationship with non-native or invasive plant species as an abundant local resource for resilient interior materials. This upcycling process attempts to reshape our perspective of natural materials we might otherwise view as problematic, by embodying them with processes and narratives of novel use and embedded ecology. It is the poetic transformation of noxious materials, manipulated in form and function, that interplays to create beauty, which allows for increased human-nature connections in the interior.

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Creative Scholarship | Design as Art **|** Presentation

Departures and Arrivals

Derek Toomes, University of North Carloina at Greensboro

ABSTRACT

Elsewhere Museum, located in Greensboro North Carolina, is housed in a three-story building constructed in 1910 and containing an idiosyncratic collection of esoteric objects, themselves the historical remnants of a thriving thrift-store, run out of the building from 1937-1997. The museum, in part founded as a memorial container for this collection in 2003, now also hosts an internationally renown artist-residency program. The understanding between the museum and its artist-residents is that each artist utilize the collection in a socially applied manner in order to enhance the lives of the Greensboro community through collaboration, education and inclusive programming. Every fall and winter the museum hosts public facing cross-disciplinary events inviting community members to participate in a celebratory evening of art, music, film, dancing, and communal dining. The museum, known for its mission to activate community engagement by bringing the prosperity of creative experience to all people while dismantling traditional institutional hierarchies deleterious to the broad access of art, invited me to develop an interactive projection-mapping and drawing project for their Winter Extravaganza, Departures and Arrivals. The objective of this project was to entirely immerse the three-story façade of the Elsewhere Building within the context of a live-stream digital projection, visually transforming the building into a filmic environment; the scene, cast to embody the event's theme of Departures and Arrivals, depicted a massively scaled airliner ascending and descending through the night sky. The projection alone created an animate and dramatic environment, rich in color, light and movement, which served as a vibrant visual field against which other performances were seen throughout the night. Having been solicited by the museum to utilize technology as an opportunity for interactivity and participation across the diverse age-range and interests of the event attendees, I decided to activate a developer version of the application called Tagtool, created to be used with iPad and iOS interface, in order to allow anyone interested, the

opportunity to paint with light and to have this drawing projected and animated upon the building in real-time. I strategically used projection-mapping to isolate interior and exterior structural and ornamental aspects of the building's façade in order to choreograph small projected details and animations, bringing specific narrative focus and suggestion to the Elsewhere building as a site of perceived history, spontaneous activity, and unique communal relevance, collectively shared and invested in by the participants of the event and members of the Greensboro community at large. It was not only a away to make participants, and viewers, aware for the architectural nuances, but this platform also opened a portal to draw connections to the interior narratives, the functional utility and designs of the building. Because the Elsewhere building holds an intact collection of objects referencing and sustaining the unique history of its site, a deliberate objective of utilizing projection mapping was to attend to the exterior of the building in a manner that sparked awareness of it not only as a temporal vessel, but also as an enduring site and home to a continuum of creative exchange and communal participation and evolution.

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Fabric Origami: Algorithmic Textile for Interior Space

Jiangmei Wu, Indiana University

ABSTRACT

Textile has always been an integral part of interior design history, from the textile decoration as a symbol of status in the Baroque era to the "fabric craze" associated with the rise of the middle classes in the nineteenth century (Lasc, 2016). In modern interior architecture, textiles continue to play an important role, for example, as seen in the Bauhaus and Black Mountain College textile designer Anni Albers's work. For Albers, the notion of architecture as a "third skin" demonstrated the uncontested influence of textiles within interior spaces. Petra Blaisse, a contemporary British-born Dutch designer who works in the intersection of textile design, architecture, and interior design provides many examples of interior textiles that blur the boundary between these disciplines (Weinthal, 2016). Since the time of ancient Rome and Egypt, fabric has been used to fold pleats instead of paper. Compared to paper fibers, woven cloth fibers are able to move freely or be distorted, making cloth an ideal medium to fold intricate, yet easy-to-produce tessellations. In fabric origami tessellation, points marked on the cloth are tied and knotted together, allowing the resulting gathering of the fabric to flatten into pleats on the other side. The technique of tying and knotting fabric is commonly known as fabric manipulation, and it is found in such approaches as smocking, gathering, shirring, and pleating (Singer, 2008). Today, fabric manipulation is used by designers to create specialized decorative patterns that blend traditional craft with modern aesthetics. Fabric origami, unlike smocking or gathering in which the fabric is left to move freely and wrinkle, allows the resulting gathering of the fabric to flatten into pleats on the other side. Origami artist Chris Palmer has used this technique to create a wide array of tessellation designs, which he called "Shadowfolds," to be used as decorative textiles for interior spaces (Rutzky & Palmer, 2011). This presentation explores a special grafting technique that uses algorithms to create patterns for fabric origami. To graft a tessellation, one

starts by cutting along all edges figuratively and then creating a new tessellation by inserting rectangles, again, figuratively, along all the edges and polygons connecting the vertices. If a vertex in the original tessellation has a degree of three, the polygon connecting the now separated vertices must be a triangle. If a vertex in the original tessellation has a degree of four, the polygon connecting the new vertices must be a quadrangle. In general, for vertices that are n-degree, the inserting polygons must be n-gons. These inserting polygons are then used to produce the patterns for fabric origami. It is worth noting that not all tessellations can be grafted. So far, it has been demonstrated that any triangular tessellation, and its dual, the Voronoi tessellation, can be grafted for fabric origami (Wu, 2022). Since the patterns for sewing fabric origami can be very complicated and time-consuming to produce, an algorithm is used to facilitate the production of fabric origami sewing patterns. Given any triangular tessellation, the algorithm can graft the tessellation and output a sewing pattern. The sewing pattern is then imprinted onto the fabric, hand-sewn, and ironed. In addition, these fabric origami pieces are hand-painted in watercolors to create the desired aesthetic effects. In some cases, the fabric origami can be used either as a framed or an unframed art piece for interior walls. In other cases, the fabric origami can be used as an interior textile to be thrown on top of a sofa or a bed. In addition, fabric origami, with its unique patterns expressed in textures, provides a nice alternative experience for visually impaired users.

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Mass Timber, Small Format. Squall Stool prototype

Cory Olsen, University of Oregon
Linda Zimmer, University of Oregon

ABSTRACT

[Introduction] The Squall stool is a robotically milled stool on casters made from salvaged cross laminated timber (CLT) offcuts. [Material Opportunity] According to Architecture 2030, buildings generate nearly 50% of annual global CO2 emissions of which 20% is made up of embodied energy/carbon in materials and construction (Architecture 2030). Mass timber construction offers the potential for significant reductions in carbon emissions from the sequestration of carbon in the wood itself, avoided emissions (using wood in place of steel and concrete) and more efficient mechanized production techniques. As US building codes are updating, mass timber architecture is expanding rapidly in both construction and domestic fabrication (FastCompany). This stool prototype allows small-scale scraps generated from panel ends, door or window cutouts to be salvaged and upcycled as an aesthetic and functional furniture piece. In a lifecycle assessment of CLT led by CORRIM (Consortium for Research on Renewable Industrial Materials) they find that an approximate 11.6% of a CLT panel mass results in offcuts or off spec (CORRIM, table 3, p 17). This estimate is confirmed anecdotally in conversations with domestic mass timber producers who identify product scrap in panel sizing, aperture cutouts, or the nesting of odd shapes into the panel blank (visual example from Jones, figure 2 in appendix). In many operations these offcuts are downcycled to become cogen biomass fuel (Thinkwood, p 47-48), chipped into smaller particles for use in other industrial products, or sent to landfill if, for example, the adhesives used prevent downcycling by local regulations. Still, each of these options sacrifices the embodied energy that has already occurred to create the CLT panel. The Squall stool more sustainably preserves the CLT composition of the scrap material, developing it further into a value-add product that can be utilized to furnish a

project or be sold in a retail setting. [Material Property and Design Response] CLT is a layered composition of softwood timbers, typically Fir, Spruce or Pine. The thinnest assembly is 3-ply, which measures to approximately 4" in overall combined thickness in traditional panel specification (figure 1 in appendix). CLT density equates to approximately 35 pounds per cubic foot. The design response had to address both physical weight as well as visual/aesthetic weight. For the Squall the design team decided to laminate four layers of 3-ply CLT to accentuate the material mass, resulting in a 16" seat height. Six recessed casters bring the final height to 16.5" and enable the piece to be easily moved across a variety of flooring types. The final form features smooth undulating curvatures which help soften the coarseness of the timber. [Design and Fabrication] The design of the Squall Stool is one of Grasshopper scripted parametric serial difference, enabling each fabricated example to be uniquely different (appendix figure 3). The squall stool builds on a legacy of lathe-turned wood furniture, though the form was specifically designed with the manufacturing abilities of a robotic arm in mind- it can be milled rotationally, similarly to a lathe, but the variations in depth require the dynamic abilities of the CNC arm (fabrication process is shared in the submission appendix). Paired with these small variations in the form, the CLT material itself guarantees a broad range of visual differences as each laminated blank will have varying tones, grain densities, and board compositions. Following the CNC milling process, light post-processing in the form of sanding, caster installation, and applying finish bring the piece to completion.

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Nomadic Workbench: Harmonizing Historical and Contemporary Approaches for Furniture Design

David Matthews, University of Tennessee Knoxville

ABSTRACT

Nomadic Workbench is a design based on the synthesis and traditions of movable workbenches, nomadic furniture, contemporary production processes, and the diverse and robust needs of the present-day maker. The maker-user for this project desired a piece of furniture that is a combination workbench and desk with the following requirements: Heavy duty for robust "maker projects." It has the mass to respond as a solid feel while using hand tools. Supports ergonomic use of keyboards and display monitors while using a computer. Provides cable management for tools and computers. Movable within the home workspace environment. It is easily disassembled and transportable when relocating to new geographic locations. The design of the Nomadic Workbench responds to the above needs by synthesizing two precedent studies. The historic Moravian Workbench from Old Salem, Winston Salem, North Carolina, and the work of Hennessey and Papanek in Nomadic Furniture. The Moravian Workbench was designed to be implemented outside during favorable weather conditions and incorporated tusk tendons to make them easy to assemble and disassemble. They are prized workbenches and are copied by carpenters today. Originally used during the 18th and 19th centuries, it is speculated that they were constructed from recycled building materials. (Schwarz, 2012) The design of the Nomadic Workbench responds to the Moravian Workbench by: Proportions and structure of the tapered truss legs and the utility of the lower shelf. Robust mass to provide a solid feel while using hand tools. The ability to assemble and disassemble the Workbench with a wooden (or rubber) mallet. Nomadic Furnishings by Hennessey and Papanek is a seminal book that establishes the user agency and critical understanding of alternatives to market-driven furnishings. Their work responds to furnishing designed for geographic relocation, user construction, economic

resourcefulness, and adaptability to unique conditions. The Nomadic Workbench responds by: Use of dimensionally stable contemporary materials. Economical materials that are readable available. Furnishings that novice makers can construct. Contemporary processes and the emergent maker culture future establish the approach to the design of the Nomadic Workbench: The United States has over 2,000 maker spaces and Fab Labs to provide novice makers opportunities (Affordable Colleges, 2022) for an emerging market of furnishings based on delivering instructions and CNC files to construct furniture. These spaces allow makers to engage the world as "fluid and changeable" (Schoneboom, 2018), and the design of the Workbench engages this paradigm with its mobility. The design employs Garnica plywood with a density of 27-30 lbs/cubic foot, compared with Baltic Birch 42.5 27-30 lbs/cubic foot, and provides a lightweight dimensional stable construction material appropriate for mobility and sustainable/renewable resources. Materials and tools are easily accessible via internet ordering, including hardware from McMaster-Carr, glue, dowels, clamps, and finishes. The finish combines linseed oil, mineral spirits, and polyurethane to honor a synthesis of historical and contemporary durability and hand-rubbed application. The design process included hand sketches and three-dimensional digital modeling, resulting in a 1/3 scale prototype made of 1/4" thick plywood. The prototype tested the dog bone CNC corners, mortise, and tenon joints, angled housing joints, overall stability, and assembly and assembly and disassembly processes. The Nomadic Workbench provides a build beyond the typical "consumer" one-time driven assembly processes and includes disassembly, relocation, and potential heirloom longevity by engaging robust "thick" construction. The embedded methods engage a maker culture with local fabrication, dimensional customization by modification of digital files, and employing economic feasibility and viability of construction.

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Ruga Ribbons: A Permanent Installation for an Interior Site

Jiangmei Wu, Indiana University

ABSTRACT

In art and design, an installation often refers to the process of placing a work of art in a void of space, be it a gallery/museum or an interior environment, such as a library, an office, or a hotel. "To install"—the verb form of "installation"—is not a simple gesture of hanging or placing a work of art on the wall or on the floor, but the whole process of making art responds to the space (Suderburg, 2000). Therefore, installation art could refer to the whole space where art is installed, as the artist must consider the perimeter of the space and reconfigure the work to fit within the space. An interior spatial installation often reestablishes a new relationship between the temporal movements of the viewer, the space (its circulation, volume, spatial layering, etc.), and the work of art. Ruga Ribbons is a 14 feet tall permanent installation piece commissioned by Rowland Design for a privately-funded library in Indianapolis. The library's modern limestone architecture and abstract art display, which was designed by Rowland Design, provided the initial inspiration for the sculpture. Suspended in the void of the main stairwell, Ruga Ribbons fills the space with the ephemeral quality of its abstract forms that mimics the movement of fabric-like ribbons, creating an ever-changing visual experience for people who come to interact with it as they move up and down the staircase. The bright color of Ruga Ribbons, together with a 9 feet long cylindrical LED light, accentuates the surrounding interior elements, such as the long horizontal steps dividing the spatial zone, the lowered ceiling at the entry to the stairwell, and the stairwell itself. "Ruga" is the Latin word for making wrinkles, creases, pleats, and folds. Ruga Ribbons, as its name implies, was folded from flat sheets of corrugated plastic material that were ¼ inch in thickness. The entire sculpture was first digitally modeled using the building's CAD model as an entry point. Various digital views of the sculpture in the space were created to study the connection between the viewer, the artwork, and the space. In the initial digital model,

the folded panels didn't have thickness; however, when making Ruga Ribbons the material thickness had to be taken into consideration, even if it was only ¼ inch. To do that, Ruga Ribbon was divided into several dozens of small pieces with their thickness extruding on one side of the materials so that they could then be connected together again to represent the overall dimensions of the sculpture with 100 percent digital precision. These smaller pieces were pre-folded and pre-cut in the fabrication shop and then shipped to the site. Once they arrived at the site, they were painstakingly assembled and installed piece by piece. In creating and installing Ruga Ribbons, the art of installation was part of the artwork itself.

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The Ancestor Flowers: Interactive Installation of Oneness

Britta Bielak, Kent State University

ABSTRACT

"The Ancestor Flowers" is a site-specific, interactive installation commissioned by a restaurant group and permanently installed in one of their restaurants on the East Coast. This project positions itself at a delicate intersection of culture and capitalism while exploring the boundaries of body and space. The Mexican restaurant housing this installation presents a space to "Celebré la Vida" (celebrate life), a reference to Día de Los Muertos, the annual celebration originating in Mexico's traditional communities, during which the lives of those who have died are celebrated with traditions quite contrary to the dominant rituals of the ruling class in the United States. Garciagodoy (1998) speaks to the concept of oneness essential to these celebrations, "The physical body is not the private property of its owner with the array of rights to privacy and individualism and the independence from relations, friends, and neighbors the body of the typical "first worlder" claims. People are felt to be connected radically" (269). This concept of oneness across time, space, and form is critical to advocacy dialogue of social and environmental justice and can begin with the very fundamental awareness of our bodies in space. Robert's (n.d.) public, interactive design work collectively addresses justice, the body, and space. Similarly, Neto's (n.d.) provocative installations focus on the impact and merging of body and space by engaging the senses and investigating a body's interior/exterior boundaries. "The Ancestor Flowers" create an opportunity for a new narrative of research and respect, acknowledging our shared humanity through the sincere act of remembering and honoring those who left their bodies before us. Acknowledging the enduring use of the marigold, or cempoaxóchitl, was a critical starting point as the "flower of twenty petals," meaning "many," references our unanimity and multiplicity. Three giant, vibrant, fabric and steel marigolds, in various stages of bloom, are inverted and suspended from the ceiling by their stems leading you from the entry on

the main floor up to the rooftop deck. The largest, over 14' high and 7' wide, has unfurled enough to reveal 8 inner petals of over 300 handmade paper mâché maracas. Guests are invited to step inside the center of this flower and touch or 'play' the maracas as a private or shared act of calling forth, celebrating, or remembering one's ancestors. With a variety of sizes, tones, and amplification, guests can discover the maraca best suited to each soul they are honoring. For some, entering the flower may be seen as a communal, public altar; for others, a chance to acquaint oneself with pause and reflection on shared stories for the first time. A variety of internal experiences, all seek to amplify the new or familiar perspectives of life, death, body and community in more meaningful ways than the typology of the consumption-based environment might suggest. These moments of interaction also call into question whether the bodies inside the flowers are merging with the imposing form and the architectural space from which it sprouts, or perhaps emerging from the flower, a springing forth of the life being called. During the project, discussions with building code reviewers and the use of contract textiles and a steel armature without internal illumination were critical to the approval of "The Ancestor Flowers" by the building inspector. This process speaks to the fluid role of the artist and the interior designer and how interactive installations for the built environment thrive as cross-disciplinary pursuits – an adjacent discussion of connectedness. Future investigations of this installation would focus on research methods and installation approaches that directly address both environmental and social justice through more extensive material research, the development of mycelium-based composites, community engagement, and greater considerations of sensory needs of neurodiverse end-users.

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A Participatory Design-Build Binational Collaboration Chinatowns

Milagros Zingoni Phielipp, University of Tennessee

ABSTRACT

Interior Architecture is the field that designs for a future it cannot see, but what occurs when that future is the result of climate change, war, famine, or any number of life altering phenomena that plague the world today. Extreme environments are becoming more common for humanity. This thesis explores the question of how interiority can improve the human experience in extreme environments. The current structures being used do not represent the full spectrum of human needs. They allow for survival but lack the elements required for humanity to thrive. The goal of this study is to identify small practical changes that can be made to improve life in extreme structures to ensure humanities well-being in extreme conditions. The term extreme environment is identified by an area or event that causes great distress both mentally and physically. (Oarga, 2009, pp.5-7). This study includes environments such as ocean, desert, arctic, and space (Oarga, 2009, pp.5-7) and conditions such as natural disaster, human caused disaster, and the unknown (implying an unstable future in terms of the environment). From these seven conditions, three case studies for extreme structures were chosen for each: a fictional (fantastical ideation of extreme habitation), a reality (an actual structure that has been constructed), a hypothetical (a proposed project for extreme structures). Using Maslow's Hierarchy of Needs, WELL Building Standards, personal accounts, and overall impressions the case studies were analyzed. The analysis of the cases identified seven criteria that should always be considered when designing for extreme structures. Practicality: meaning the cost, material, and technology of a structure must be possible and accessible. Sleep: if society is to remain intact while humanity tries to solve globe level problems proper conditions for sleep must be achieved, such as lighting conditions, circadian rhythms, temperature, etc. Biophilia: according to the WELL Standards the criteria for biophilic design are nature interaction, pattern incorporation, and nature incorporation (WELL,

2016, p.140). Community: having a sound community gives people the courage and confidence to contribute to the development of that community (Aruma et al., 2017). Symbiotic Relations: by taking the notion of coevolutionary relationships designers can create multipurpose systems that benefits users in multiple ways as well as the environment. Independence: for the esteem tier in Maslow's hierarchy of needs independence is a large component (McLeod, 2020). To apply independence in a space it needs space management, stimuli management, orientation/ wayfinding, and accessibility. Identity: to reach the top tier of Maslow's pyramid one requires personal growth and a sense of self (McLeod, 2020). In design the structure needs adaptable spaces, territory, and a sense of self to give the user identity. This is not a perfect solution. Further research needs to be conducted and the theory needs to be tested. However, this brings to light that change is needed and the fact that simple actions can be taken to improve the lives of many. With the understanding that interiority is a crucial aspect for the well-being of those living in an extreme structure the concept of humanity will always be a priority.

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Craft As Code

Shai Yeshayahu, Toronto Metropolitan University

ABSTRACT

What happens when activities like learning to craft and crafting to learn are not exclusively human? Or when humans realize that computers are both tools that make and think? In the scope of customized design, the intellectual gap between humans and machines continuously shrinks. This progression has led some designers to innovatively adapt fabrication methods from ancient history (Laarmanlab, 2011), while others delve deeper into historical notations of handcrafters to post-rationalize the impact of descriptive geometries and parametric thinking in the 21st century. Their work supports the claim that robotic fabrication methods have already collapsed the logic of mechanical productions (Carpa, 2018). It underpins the imminence of parametricism and the rise of robotic agility. Within these spectra, revisiting intractable design objectives based on manufacturing constraints from the mechanical age provides opportunities to ask whether reprogrammable tools can generate plausible answers. For instance, in the 1930s, Gerrit Rietveld's idea to fabricate a chair with a single piece of material failed to materialize; then, the difficulties lay with the mechanical logic needed to bend and fold a continuous metal sheet. Hence, a programmable code informing a six-axis robotic arm to bend a continuously flat metal sheet into a zigzag shape is a computational challenge that does not mimic standardized functions. Instead, the approach looked to answer Rietveld's quest, using his notations and measurements as part of an iterative design procedure, including indicators such as radius, gauge, force momentum, and directionality. Here, numerous simulated-thinking processes detail how the robotic arm coupled with a custom end-effector allows the bending operations to occur. On thinking, each simulation provides options for infinite variations, subject to rapid revisions and expansive ways to adjust outputs more expeditiously than any traditional handcraft or mechanical logic could. In its essence, the ambit of computational literacy raises questions for how the application of machine logic as a tool to examine the history and validity of design ideas

over time informs spatial thinking. As such, this presentation, the supporting images, and accompanying text unfold fabrication methods from the mechanical production era to the era of digitized drawings, robotic performances, and fabrication outputs that led to the making of the zigzag shape. The digitized stills are instantaneous recordings framed from live simulations subject to specific tweaks and stagings. They show a 3-dimensional representation of a robotic performance necessary for the production of zigzags, including the cut-score pattern along the bending axes and the motions the machine and material enact. In conclusion, if the project once resided in asking _Can a robotic machine shape a chair from one continuous metal sheet? This research presents a proof of concept that provides alternate solutions for bending continuous metal sheets using a six-axis industrial robot. The outcome demonstrates the potential to introduce a coded sequence– an instruction set showing how the robotic bending technique can become helpful for spatial designers to grasp the realization of an interior intervention at the 1:1 scale. It is an opportunity to rethink the role of interior systems by using a robotic bending technique to explore novel venues to generate nearly infinite design possibilities using it.

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Handcraft as Instructional Methodology for Fabricating Large-Scale Textiles

Hannah Dewhirst, University of Kentucky

ABSTRACT

In the fields of interior design and architecture, designing and constructing – once done by the same person – are typically separated. In my own studio practice, a "tool-based" approach to designing highly experiential works is essential. Testing and manipulating materials and their qualities, tuning the output of tools and machines, and observing the effects of light and color are essential. Through the practice of rug-making, a craft that has roots in many cultures and locations, I have been able to study and develop expertise around making by hand, and then turn that handcraft into an instruction manual for manufacturing rugs and textiles at a much larger scale. The act of deep and direct understanding of a material through handcraft, translated into large scale textiles manufacturing, has led to a methodology of "soft" spatial fabrication techniques that can be highly attuned to the scale of human sensory contact with things like pattern and texture, and resulting in a much more experientially impactful product. The history of feminine handcraft (sewing, weaving, ceramics, etc) has traditionally been linked to the domestic sphere ("women's work"). However, male ownership of these processes came about during the industrial revolution, as materials manufacturing scaled up. The technology of the loom, for example, cited as one of the first computing tools, shifted into a tool of commercial gain, rather than a tool tied to handcraft and the domestic sphere. Through the introduction of industrial manufacturing, female labor, ingenuity, and contribution to the development of new forms of fabrication technology was often erased, giving credit to those who were given the opportunity to make capital gain through these technologies. "Weaving and fiber manipulation have often been dismissed as women's work, only to be industrialized as tools of power for commercial gain. … The omission of the gendered history of fiber winding and spinning has multiple implications: it preferences the historic value of industry over craft, and is symptomatic of the push for

interdisciplinary design research that aligns with engineering and science professions." (Doyle, Forehand) In contemporary design practice, male and female roles in our industry are pervasive. Not simply in the dominance of one gender over another, but in the history, valuation, and perception of who practices, why we practice, and what tools are used. Who owns technology, and why, is linked to a number of hierarchies enforced and upheld today, in the fields of education, manufacturing, interior design, and architecture. By examining the contributions to fabrication technology that domestic handcraft is tied to, and utilizing that as an instruction manual to scale up and experiment with digital fabrication today, practice can be strengthened to allow for a more full definition of tool-based experimentation, large-scale textiles can be produced much faster, and texture, pattern, and color can be tuned to the human body more accurately.

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Playful Learning Spaces in a Montessori Early Childhood Education Center

Ying Yan, Auburn University

ABSTRACT

Play is a critical component of learning, especially for Golden Age children ages three to six (Parten, 1932), but COVID-related school closures disrupted playful learning for the current Golden Age cohort and with devastating results. The loss of playful learning is an urgent issue. Disconnection from school-based services and daily routines have increased the risk of obesity, anxiety, and loneliness, negatively influencing health (Chaabane et al., 2021). Online learning has been linked to lower levels of motivation and engagement, resulting in poorer learning outcomes (Chaabane et al., 2021). Play is necessary for development. Play and playful learning help children focus on tasks, actively engage, regulate stress, and develop soft skills such as attentiveness, active listening, creativity, problem-solving, and collaboration (Yogman et al., 2018). The Golden Age (3-6 years old) is the essential period to develop running, jumping, throwing, and catching abilities and coordination through pulling, pushing, and squatting; these sensory-motor activities involve frequent use of hands, legs, and whole-body movements that are fundamental to physical development (Parten, 1932). Playing outdoors is better than playing indoors. Play and nature work together to support health; children who live in more natural environments have fewer diseases than those who live in spaces with less nature (Fisher et al., 2019) and Montessori's method establishes that play has an important role for children in discovering the beauty of nature (Bertolino & Filippa, 2021). The intentional cultivation of playful learning may be a key factor in getting children and schools back to normal. The built environment – especially interiors – will play a central role in supporting this goal. This poster presents the findings from a close reading of play spaces at a Montessori school serving children ages three to six. The results suggest opportunities for design interventions in indoor, outdoor, formal, and informal learning spaces. Recommendations for environmental features, furnishings,

materiality, and performance criteria will be described in relation to developmental level; free play in children (3-6 years old) varies at each stage of development, progressing through solitary, parallel, associative, and cooperative play (Parten, 1932). For example, recommendations include access to and control of natural light using colored filters and textured shadow-play. Moveable indoor-outdoor furnishings should be constructed using natural materials, fundamental to Montessori learning objectives. Movement in and around large-scale spatial components – partitions and tunnels – build hand-eye coordination and motor skill development and develop attentiveness, problem-solving, and collaboration skills through cooperative play. The close reading, part of a broader exploration of playful learning, was focused on documenting features of the physical environment that support playful learning and child development goals. Emergent findings were analyzed within the context of previous data to identify dominant patterns that may have broader implications. Still, this broader research project is ongoing and the limitations of the close reading approach and opportunities to triangulate data will be addressed as part of the poster, with anticipation that the research design, in addition to the findings, may spark discussion among conference attendees.

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The House of the Thief

Colin Ripley, Toronto Metropolitan University

ABSTRACT

How might we think queerness within interior design - that is, how can we do the impossible? The House of the Thief is a drawing project based loosely on a consideration of interior spaces found in the work of Jean Genet, and is the result of a multi-year SSHRC Insight grant. The project looked to address the following questions: How can we understand the role(s) of queerness in the design, construction and perception of interior spaces - and by extension, develop a theory of the interior that is inclusive of queerness (in other words, what makes a space queer)? Furthermore, how can we implicate a design and drawing practice in addressing this question (in other words, what makes a drawing queer)? The project resulted in some fifty images in addition to about two dozen physical models and six videos. A small sample of the images is included in the appendix. The work is organized in a number of series, beginning with abstract notions of design. Line begins by questioning the line, which is understood both as the most fundamental production of design and the origin of the violence of the binary. Enclosure addresses the moment when the line folds back on itself, becoming a noose, and producing the interior. Void, rooted in the work of Jacques Lacan, explores the fundamental unknowability of the interior. Screen examines the optical disciplinary effects of the surface, and asks what is the behind of the image. These abstract investigations are accompanied by a set of more familiar interiors drawn from Genet's work. Prisons presents a set of images of prisons that figure in Genet's novels, with a special focus on Cell 247 of La Santé prison in Paris, now demolished, where Genet wrote his first novel. Cemetery/Theatre, a setting for Genet's play The Screens in Montmartre Cemetery, is developed from Genet's essay "That Strange Word." Brothels presents images of a series of imagined historical and future brothels, developed from the limited documentary evidence that we were able to find. Un-houses is a loose collection of houses, or house-like spaces, encountered in the work of Genet, from the house of sheets and Divine's

garret in Our Lady of the Flowers to Hitler's bedroom from Funeral Rites, the house of mirrors in The Thief's Journal and Genet's house of dreams from his last novel, Prisoner of Love. The project is based theoretically on Deleuze's notion of taking from behind - that is, of using the tools of design to subvert design in a betrayal that is a necessary act of love. The project is understood as a work of counter-pedagogy, intended to counter the official pedagogies both of the institution and of the discipline of design, to queer design.

Equity in Action through Interior Design Education: Are We There Yet?

Tina Patel, Kent State University
Andrea Sosa Fontaine, Kent State University

ABSTRACT

Context: Traditional design education often focuses on the fundamentals of the built environment: creative, theoretical, pragmatic, and technical. Within this framework, young designers often graduate with too much focus on the building as an artifact, the aesthetics of taste, or the excitement of chasing awards and notoriety. However, as the social and political landscape has changed, it's important to remember that design is a practice, and we need to unlearn past practices to respond to new circumstances. Design should relate to broader efforts for collective liberation and ecological survival; it should go beyond recent calls, such as design for good, user-centered design, and employment diversity in the design professions (Costanza-Cook, 2020). To facilitate this, we need to begin with a design education that empowers students to understand and unpack the true concerns of a community, generating thoughtful design solutions. We have recently witnessed significant critique of Architectural practice and education from the design community, much of which began outside of the institution, and on social media platforms. The formation of collaboratives such as The Architecture Lobby, Design as Protest, Dark Matter University, and Architectural Workers United functions as spaces of generosity and mutual care through democratizing resources and developing new models of design practice and education. Although Interior Design is one of the major disciplines in the built environment, many of these newly formed collaboratives don't specifically include it within their manifestos. To better understand how Interior Design Education has changed in response to the contemporary challenges of design justice and social responsibility, we surveyed program leadership from the Council of Interior Design Accreditation approved programs. Method: A voluntary online survey, sent during the summer of 2022, consisted of four parts: 1)

Demographic information, 2) Engagement, to provide insight into how the program supports students in confronting issues of race, ethnicity, and culture, 3) Processes and Modes, to provide insight into processes, and paths programs utilize to support students' thinking and empathy about community-based projects and 4) Future Practices, how interior design curriculum should be modified so design justice becomes a foundational pedagogical value. The questions used a five-point Likert-type scale to record the participants' responses, using a scale of "1" as strongly disagree to "5" as strongly agree. At the end of each section, the educators were encouraged to leave any additional comments. The overall survey results were analyzed to calculate the mean of subjective, and statements were given numerical values of 1 to 5. Reflections: The goal of this presentation will be to discuss the survey results and present to our community of design educators the urgent need to examine the role of interior design education as a tool for equity in action through collaborative efforts across courses, institutions, and beyond. To our surprise, only 50% of institutions said that the strategies they implemented helped students develop a greater commitment to equity through design. Although the educators had already implemented various strategies to foster discussion around Diversity, Equity, and Inclusion (DEI), they noted a need for more innovative methods. Even though many institutions have acknowledged a recent commitment to DEI, the results of the survey indicated that current design education has been inadequate in response to the integration of contemporary social injustice issues. Our students must learn practices that can result in socially responsible design solutions within the classroom and beyond. This cannot happen in a vacuum; an opportunity exists to collaborate, reflect on practices, and consider limitations on how we can come together to advance the role of design education in the development of global citizens.

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Mean Girls: A Critical Look at Gender Bias in Interior Design Course Evaluations

Carl Matthews, University of Arkansas

ABSTRACT

As the head of an Interior Architecture and Design Department with 312 students, 94% of which are female, it is disheartening to read course evaluations when preparing annual faculty evaluations. Some of our female students are downright mean to female faculty members. Meanwhile, male faculty members have compliments and adulation heaped upon them. While it always catches me a bit off guard, the phenomenon is well documented in academic literature. "On average, female instructors received a score 37 percentage points lower than male instructors" (Fan, Shepherd, Slavich, Waters, Stone, Abel, & Johnston, 2019, p. 1). Literature documenting gender bias in course evaluations is extensive and began in the mid 1970's. While findings have varied, there is a preponderance of evidence that "women receive systematically lower teaching evaluations than their male colleagues" (Mengel, Sauermann, & Zolitz, 2018, p. 535). Studies also look at the how the gender of the student evaluator plays into the equation. "Female students are less likely to rate an instructor highly on an evaluation than a male student when it comes to teaching style and ability" (Carter and Carter, 2015). While my school is skewed greatly in our gender imbalance of students, the average of CIDA programs is still 89% female (accredit-id.org). Therefore, it is informative to investigate other female-dominated industries such as nursing. "Despite the lack of difference in ability or competence as measured by in-service examination scores and milestone evaluations, nurses evaluate female residents lower in their abilities and work ethic compared to male residents" (Brucker, Whitaker, Morgan, Pettit, Thinnes, Banta, & Palmer, 2019, p. 1266). The proposed presentation will use quantitative methods to analyze interior design course evaluation data from the past five years at my institution. For example, when cumulative data for the question "overall, I would rate this professor as: (Likert scale 5=Excellent to 1=Very Poor)" are summarized for twelve faculty in

my department, the five male faculty are ranked highest, and the seven female faculty are ranked lowest. The average for male faculty scores for all their courses ranges from 4.97 to 4.62. The average for female faculty scores for all their courses ranges from 4.55 to 3.05. The presentation will include qualitative methods to analyze written comments from students which highlight tone and content variances for male and female faculty. Examples of the quotes from students include (names changed): "Jane reminded me of Linda and I did not like Linda" and "we all love Tom. Tom is the best!" The student comments will underscore the research findings that "men have 1.25 times the odds of women getting higher scores from female students" (Fan, Shepherd, Slavich, Waters, Stone, Abel, & Johnston, 2019, p. 8). While the overall topic may be maddening to the mostly female IDEC conference attendees, it will also emphasize that Department Heads and Administrators are (or should be) aware of these biases as we complete faculty annual performance reviews. The topic is also relevant for schools that engage teaching assistants in the instructional team. A study by Khazan et.al. found that female students are more likely to give negative evaluations when their TA is female. All of the female students assigned to the fake male profile gave positive evaluation (Khazan, Borden, Johnson, & Greenhaw, 2020). Fundamentally, "it is impossible to say whether student evaluations reflect actual performance differences by faculty or only the perceptions of students" (Carter, & Carter, 2015, p. 35). Administrators must look beyond teaching evaluation scores at the actual work and learning produced under the direction of each professor. Therefore, teaching portfolios and other tools are critical in the process.

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Stories of virtual reality in the studio classroom: From nausea to self-esteem

Barbara Young, Purdue University
Kevin Woolley, Purdue University

ABSTRACT

The trend towards immersive learning with virtual reality (VR) devices and applications in interior design studio and practice is accelerating dramatically (Jin et al., 2022). Today, immersive technology is viewed as an attractive and increasingly necessary component for teaching students how to design. From the renaissance advent of perspectival and orthographic drawing to its appropriation for industrialized efficiency, using drawing tools as surrogates for physical space in planning and design has long been criticized for the loss of quality or atmosphere in the built environment (Pallasmaa, 2014; Pérez-Gómez & Pelletier, 1992). Virtual reality promises to provide a more experiential engagement with planned space, while further entrenching the perception of these tools as replicas of environments which have yet to be built, a concept that is at odds with phenomenological ideas of sense and perception. As a field which embraces experiential and human-centered processes, educators should consider how to foster these goals when implementing VR in the studio environment. Whether aimed at a reflective activity, mid-process critique, or pre-design experiential analysis, students are introduced to virtual worlds that inform the impact of their work. The potential of using VR for improved student outcomes is well documented, with less emphasis on its discomforts (Horvat et al., 2022; Merchant et al., 2014). Nausea is one well documented side effect of virtual environments, which our students have experienced in its mildest and most violent forms. This study looks at the use of VR for meeting diverse learners' needs. Through observation and engaging with students, the researchers were able to identify different characteristics of students' interactions with VR as it unfolded in the studio classrooms. This qualitative case study documented the learners' experiences. Opportunistic sampling was employed to take advantage of the VR phenomenon as

it unfolded in interior design studio classrooms across an accredited interior design program. Three different classes were observed. One of the researchers utilized VR in an introductory studio course that allowed students to virtually experience an interior space during the discovery phase of their design project. A second researcher engaged with VR during various stages of project development and critique in two advanced studio courses. Participatory observations and reflective discussions with students were documented and shared between the researchers. The collected data was organized and examined then coded to characterize details attributed to students' experiences using VR. Researchers cross-checked codes during analysis. Four main themes emerged concerning: impact, comfort, confidence, and novelty. Benefits such as heightened awareness of scale, increased confidence in the use of technology as well as design decisions, and a more experiential approach to spatial sequencing were observed along with reliance on the digital model. Comfort posed important concerns for students' experiences during the engagement. In particular, the diversity of student abilities, including mental and physical conditions, rendered participation in immersive virtual environments inaccessible to some students. From epilepsy to anxiety and varying degrees of blindness, the students were not able to equally participate in the use of immersive technologies, which makes us question its universal integration in education and practice.

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The BIPOC Birth Center: Promoting cultural sensitivity and inclusion in the interior design studio

Laura Cole, Colorado State University
Heather Carter, Johnson County Community College
Lakiesha Stanley, University of Missouri
Gresham Smith, University of Missouri
Joi Cottle, University of Missouri

ABSTRACT

Calls to decolonize interior design (ID) education challenge educators to address "systemic forces that reproduce inequality and marginalization" and address injustice through curriculum change (Hadjiyanni, 2020). Allies in architecture demonstrate efforts (Tayob and Hall, 2019), but architectural education is behind and ID even further (Travis, 2018). The design history sequence is a common starting point, with ostensible gaps in the histories of Black and Indigenous People of Color (BIPOC). However, students need to go beyond history books to apply knowledge to diverse clients and culturally sensitive designs. Here we share a convergent parallel mixed-methods research project (Creswell, 2014) that evaluated a junior-level ID studio at a Midwestern predominantly white institution (PWI). Students designed a birth center for a BIPOC community, a project that illuminated health disparities experienced by black women and invited students to design positive, inclusive, and safe birthing environments. Students engaged in reading, reflection, and sustained interaction with a community of black designers and midwives throughout the project. Our research adopts a largely phenomenological lens, exploring lived experiences of the students. The majority of enrolled students (n=12, 86%) permitted analysis of their coursework (reflections, designs), where seven of those students joined in-depth interviews post-semester. At the end of the semester, students across the program (including birth center studio students) took a survey (n=58, 21% response) adapted from Asojo (2011). The survey

included scale and open-ended questions on attitudes and perceptions about intercultural themes in design curricula. The research team includes the course instructor (Caucasian female who journaled extensively), an African American healthcare designer who co-conceptualized and supported the project, an African American student enrolled in the course, and a Caucasian design researcher with an objective stance toward the project. The survey did not reveal significant differences (p>0.05) in student attitudes, perceived competencies, or program evaluations relative to intercultural design between students in the birth center studio section and peers in other studios. Interview data, student reflections, final projects, and instructor memos reveal successes and challenges that occurred behind the scenes in the birth center studio. Students appreciated personal connections to proxy users. Considerations of culturally sensitive design occurred primarily at the beginning of the semester, but weakened as students entered design development. While several final solutions showed a high level of cultural sensitivity (Appendix), numerous final projects lost focus. Some students voiced concern about elevating BIPOC design sensibilities, showing a lack of understanding and respect for non-white design traditions. Other students morphed solutions toward all racial backgrounds instead of focusing on the given client. There were widespread errors on color decisions relative to culture and healthcare. Overall, we found: 1) students didn't have sufficient preparation on social justice themes prior to the studio, and 2) incorporating these themes added to the cognitive overload already faced by junior ID students as they learn design processes and software. If ID educators at PWIs will advance diversity, equity, and inclusion (DEI), as encouraged by shifts in CIDA standards, we need to figure out how to meet our students where they are. Given the lack of ID programs in Historically Black Colleges and Universities (HCBUs), and that CIDA-accredited programs are largely housed in PWIs, PWIs are pivotal in this conversation. Here we provide an overview of successful strategies and needed improvements in one DEI-themed ID studio. Results of the current study also point to the need to address design justice across the curriculum, and not only within the studio context.

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The Impact Of Built Environment On Chance Of Falls In Women During Pregnancy And Postpartum

Elnaz Nahirafee, South Dakota State University
Debajyoti Pati, Ph.D., Texas Tech University

ABSTRACT

World Health Organization (WHO) considers the issue of falls a significant public health issue that may induce chronic pain, disability, and even death. According to the Centers for Disease Control (CDC), 800,000 patients are hospitalized annually due to injuries from falls, and the outcomes of falls cost more than $50 billion in 2015. Also, falls are the third cause of accidental death across all ages. Based on a large epidemiological study, 26.8 % of women fall at least once during pregnancy and postpartum (one in four pregnant women fell), and one in ten fall more than twice. Among pregnant women hospitalized for falls, 23% delivered when they fell, and many fetuses and gravidas died at that time. Also, falls throughout pregnancy is linked to 17-39% of all traumatic injuries among pregnant women. The elevated chance of falls among pregnant women is due to several intrinsic risk factors like biomechanical, psychological, and hormonal alterations during pregnancy and postpartum. Besides, extrinsic risk factors like environmental circumstances also play a critical role in increasing this chance. This study aims to gain a deep understanding of the situation of falls among women during pregnancy and postpartum to identify and explore the built environment's elements that interact with other prominent intrinsic factors. Based on the literature review, the nature of the human movement is systematic. Any trouble in this system, like the event of falls, happens in a dynamic and unpredicted circumstance. As a result, understanding the influential physical environment features and attributes requires conducting a qualitative study that uses different data sources from observation and interviews to understand the situation. Also, as pregnant women spend most of their time in residential environments, the main goal of this study is to investigate the

built environment's circumstances that impact the chance of a fall. A pilot study was conducted to examine the methods of gaining a deeper understanding of fall situations in women during pregnancy and postpartum. Three pregnant women were recruited from the patient list of a gynecologist in West Texas. The required data was gathered through questionnaires, daily interviews, and daily observations and measurements (in case of falls or loss of balance) over two weeks. The identified built environment elements related to falls and loss of balance among women during pregnancy and postpartum in their home environment were a chair, bed, and toilet height, lack of grab bars in the bathroom, bathtub, stairs, cluttered spaces, rug, and carpet thresholds, and lack of lighting. Also, this pilot study validated the instruments for gathering information for using in the main study.

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The older I get: Implications of design choices on older adults in senior living communities

Shelby Ruiz, Washington State University
Julia K. Day, Washington State University

ABSTRACT

CONTEXT In 2017, nearly 15% (47.8 million people) of the U.S. population was over 65 years of age, which is growing by 1.6 million from the year prior (U.S.Census, 2017). The population of Americans over the age of 65 is expected to nearly double by 2060 to 95 million (Mather et al., 2015). As our population ages, the need for senior and assisted living facilities is also increasing. Many older adults face substantial changes in their bodies, mental and cognitive abilities, and the ways in which they live in and interact with their personal spaces. To support health, comfort, safety, and overall quality of life, it is critical that environments are design with their specific needs in mind. This presentation shares findings of a small-scale study of nine senior living communities in the greater Seattle area, which aimed to better understand how older adults use their buildings and adapt to changing environmental stimuli. The leading research question featured in this presentation focuses on changes that are needed to make these older adults more comfortable, safer, and more satisfied with their building environments through the lens of interior design, including perceptions of building materials, design, and space usability. METHOD This qualitative narrative research study employed one-on-one interviews, focus groups, observations, and tours of senior residential facilities to better understand human-building interactions, what is (and is not) working for older adults in these residential communities, and to seek opportunities for immediate and long-term improvement for the senior living industry. Participants of this study were full-time residents of senior living communities (independent or assisted living care), over the age of 65. Using the Kawakita (1982) and Haskins Lisle et al. (2020) models of establishing relevant themes and codes through the process of affinity diagramming, key topics were derived from the cleaned interview transcripts and

companion documents. The data were then analyzed using the Saldaña (2016) method of iterative coding to determine key themes and concepts. OUTCOMES Results revealed that while some well-intentioned design decisions were implemented in these care facilities, there is a long way to go for universally designing for seniors in this stage of life. Occupant complaints emerged surrounding acoustics, thermal conditions, visual comfort, accessibility, ergonomics, and more. For instance, due to the soundproofing between units, acoustic comfort was a non-issue within many residential apartments, but safety was a concern since residents worried they would not hear neighbors' alarms in the event of an emergency. In another instance, occupants were thermally uncomfortable simply because they could not see the numbers on the thermostat due to low contrast. These are just a few examples, but we found there was a wide range of abilities, preferences, and needs, which impacted how well these facilities supported users (or not). For example, some individuals had perfect hearing, while others were deaf; some had decent vision, while others were blind. This wide range of abilities highlighted how we, as designers, could do a better job designing for this population. It is difficult to understand how design choices might impact others, if we ourselves do not experience a particular ailment or disability. Simple choices, like the countertop finish, had huge impacts on everyday life. Ultimately, findings point to several opportunities to gracefully help seniors navigate the changing buildings around them, improve their overall occupant comfort in the places they spend the most time, improve access to equitably designed spaces, and steer future senior living developments for the next generation of older adults. Material selection, including seniors in the process of designing spaces for them, and providing a wide range of possible environmental conditions that meet their comfort needs are all recommended.

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An International School Building Inventory Study Examining the Influence on Educational Practices

Alana Pulay, Washington State University

ABSTRACT

Public education is a concern of most governments around the world. Regardless of location, public schools are typically created and designed around political and social movements occurring at the time. For example, a change to the United Kingdom government in 2003 resulted in a standardized redesign of all national public-school buildings. The Priority School Building Programme created spec buildings that could be adapted to the size and site of each location. These buildings were traditional with enclosed classrooms along corridors, used all right angles with no curves and certain wall to floor ratios (Woolner, Thomas & Chartaris, 2014). In the last 20 years, Iceland implemented new legislation that highlighted individualized learning, collaboration and teamwork which influenced the design of new school facilities. Iceland schools have shifted from a central corridor design with similar sized classrooms to a design that allows for flexibility, flow, openness, and teamwork. Classrooms are large with transparent or moveable boundaries that flow into the corridors (Sigurðardóttir and Hjartarson, 2011). These two countries differ from the United States where public school design, direction, and funding are controlled on a federal, state, and district level leading to various architectural styles and inequalities in school building design and infrastructure (Filardo, 2021). While we know that the built environment has a direct impact on student learning (Tanner,2008) few studies have examined the influence of the physical school space on educational policy and practices. Since there are multiple differences in pedagogical and school structure between countries, this initial study helps identify specific school building variables and how they might contribute to chain effects that moderate educational policy and practice. The aims of this exploratory study are twofold: firstly, to identify similar and contrasting design features between

international school buildings and second, to detect how these features might affect educational practices. During the summer of 2022, the research team visited 12 schools located in the United States (n = 4), Iceland (n=4), and United Kingdom (n=4). Data was obtained through observations, photographs, and interviews with school administrators. School building variable data was collected on the Learning Space Rating System (Educause, 2021). This tool examines structure and support of the school administration, teachers, parents, and students in addition to architectural and interior variables, such as number of windows, classroom size, classroom condition, interior lighting and the like. Data was analyzed utilizing the constant comparative method. Results indicated many of the design features such as finishes, materials, furniture and lighting between schools were similar, however, the classroom layout, overall building plan and architectural style differed in Iceland more than the other countries. This is due to their geographic location. Administrations' opinions and use of the school design features vastly differed depending upon pedagogy, building age, and location. Iceland schools utilized open classrooms and corridors more than the US and UK, yet all locations had outdoor recreation areas, even in Iceland given the winter weather. In sum, there were many similar yet different design variables between these schools in addition to varying pedagogy and infrastructure. Given the small sample size, no direct link can be made between building characteristics and educational policies, however, these initial efforts and preliminary data provide a foundation for the future understanding of the characteristics, training, roles and responsibilities, challenges and research interests of schools around the world. This study, and future research collaborations intend to help interior designers in creating more effective schools that increase educational practices.

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Design Practitioners' Perception on Biophilia and Biophilic Interior Design Matrix: A Cross-Cultural Comparison

Xu Jin, University of Florida
Dr. 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 on occupants in any indoor environment, from physical to behavioral (Totaforti, 2018). The 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). The 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, the current study was conducted to compare the cultural differences in the perception of biophilia and the BID-M between the US and Chinese design practitioners. 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 the BID-M using a pre- and post-questionnaire. The second section asked participants to evaluate an interior space using the BID-M by assessing the strength of the 54 design attributes in the space. Results: The findings show that both culture groups' perceptions of biophilia and the BID-M 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 when 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," may be removed. Both groups supported that the BID-M had good overall quality that 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 interior design procedure and future research implications. Design practitioners from both cultures also see that the BID-M could help them to enrich their knowledge of biophilic interior design and support the application of biophilic design in the entire interior design process. Practitioners' instinctive need to connect with nature might result in the overall similarities in their perceptions of the BID-M. Conducting this study also builds a theoretical foundation for future studies when testing the BID-M in other cultures.

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Interiority and Displacement: a multi-scalar study of refugee camps in Jordan

Rana Abudayyeh, The University of Tennessee, Knoxville

ABSTRACT

In recent years, population displacement, reflected by an unprecedented surge in refugee numbers, has emerged as a significant challenge affecting local, regional, and global narratives. Within the shifting parameters that population displacement engenders, it is crucial to evaluate the role of interior architecture. Interior spaces carry the code of everyday life and formulate the backdrop for spatial memories, which, in turn, play an integral role in foregrounding identity. Under the continual instability of displacement, interior patterns and their spatial memories have a proven fidelity that is particularly valuable when addressing the contextual shifts in a refugee's narrative. The resilience of interior spaces stems from their tactile nature, which is often tied to cultural practices and domestic habits. Building on the inherent agility that interior architecture possesses, this research examines displacement and forced migration in the Middle East, highlighting the role interiority plays in settings of instability and expanding this role to the global urban milieu. This study of the interior patterns in refugee settings is multi-scalar; it ranges from surveying several camps' overall planning, logistics, and growth patterns to understanding shelter clusters and the singular unit within them. The evolution of refugee encampments into cities relies on interior thinking to establish links between transposed settings. In its totality, this research postulates that the production of space and territory in refugee camps offers agile development patterns applicable to placemaking anywhere. Refugee camps are not vernacular constructs nor planned developments; they can be understood as rich and complex heterotopias. Their formal language does not replicate any pre-existing socio-spatial formula and thus represents new ways of making and experiencing place (Virilio et al., 2009). The research unfolds in two phases. In the first phase, it provides a multi-scale study of spatial, social, and economic parameters of migration in the context of the following camps: 1. Al-Azraq Refugee

Camp opened in April 2014, home to 35,752 Syrian refugees. Type: preplanned refugee community. 2. Al-Zaatari Refugee City opened in July 2012 and housed around 150,000 Syrian refugees, becoming the fourth-largest city in Jordan. Type: emergency encampment/makeshift city. 3. Al-Baqaa Camp-city, opened in 1967, home to 119,000 registered Palestine refugees. Type: protracted displacement camp-city. Through data-driven mapping and analysis aimed at creating original composite spatial visualizations that reflect the complex realities and logistics of refugee settings, this phase distills the findings into a set of spatial modalities that constitute fundamental placemaking in conditions where instability is a dominant force. The second phase of this research transitions into studying the local shelter cluster in the camp city and the single shelter unit. Based on these studies, the project derives design strategies and interventions that illustrate design's ethical and logistical imperatives in promoting cultural sensitivity, public dialogue, and seeding belonging even amidst the most pressing circumstances. Refugee camps often unfold amidst regional endemic migrations, limited resources, and ongoing political, environmental, and economic challenges. They subsist through robust social structures that transcend geographic location, rendering them dynamic landscapes between transience and resilience. Ultimately, a critical analysis of refugee camps offers a paradigm for our universal human condition, which is suspended in heightened states of mobility and unrest, despite our earnest bids for permanence and stability.

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Architecture Virtual Library Promotes K-12 Architecture Education and Engagement

Maria Delgado, Colorado State University

ABSTRACT

Problem: Virtual reality (VR) has become a solution for educating students on the architecture of buildings that are traditionally closed to the public or physically inaccessible (Freina & Ott, 2015). For example, with the COVID-19 pandemic, restrictions on travel rendered buildings inaccessible, and VR became a successful tool for teaching architecture remotely (Chan et al., 2022). As a response to COVID-19, an instructor created the Architecture Virtual Library (AVL) to promote architecture education by using Matterport technology, a 3D camera system, to showcase historical buildings across the state (Matterport, 2022). The university and community partners coselected the buildings. Then, AVL interns produced 3D scans of the buildings and embedded building facts in Mattertags—digital pop-ups that share educational content (Matterport, 2016), thus creating an interactive augmented experience for users. Objective: There were two project objectives. First, expand the AVL with new towns, and second, pilot educational material to enhance the VR user experience. Approach: During the summer of 2022, the AVL expanded. First, the AVL published two new towns in the AVL, one suburban and one rural. Additionally, both towns included a new Mattertag legend option (e.g., teal indicating videos). The teal Mattertags contained embedded educational videos meant to increase viewers' expert knowledge. Additionally, the AVL piloted educational materials. Examples of the assignments included AVL scavenger hunts and crossword puzzles (Figure 01). Each activity was linked to a specific AVL building. The AVL posted the activities on its website to promote open access and generated assignment legends for teachers. The AVL is now working with school districts to integrate the content into courses. Researchers have stated VR is changing K–12 students' learning (Adžgauskaitė et al., 2020). The AVL influence on K–12 education supports that claim. Additionally, an AVL pilot camp (PC) provided historically marginalized

rural students, who traditionally have little access to technology, with access to VR architecture education. The AVL PC introduced the students to foundational architecture topics using VR. The students tested the headset and walked through an AVL building. A total of 22 students participated in the PC. Out of the 22 students, a total of thirteen (60%) had not interacted with a VR headset prior to the PC. AVL hosted the PC in the real town's courthouse, which was selected because it was also the building that the students virtually experienced during the PC activities. Following the VR activities, a group discussion prompted student reflection on their experiences. When asked whether the VR experience increased their interest in learning more about architecture, 72% of the students answered, "yes." When asked to describe the experience, there was a consensus among the K–2 group that the VR experience was cool yet scary, though the students enjoyed being able to teleport and see the grid-binding constraints. In the second group, students from grades 3–5 compared the experience to that of video games such as Minecraft. These students were also more comfortable moving throughout various building levels. In the group with students from grades 6–8, there was a consensus that the experience was fun and awesome. This group was more adventurous with floor transitions, including jumping to the ground floor or exploring traditionally nonpublic building spaces. They also appreciated how accurately and realistically the experience mirrored the real building. Conclusion: We need to share advanced technologies with rural communities. The VR experience may encourage students to learn more about architecture or related fields. Significance of Presentation: This project is significant because increasing awareness of architecture in the younger rural generation may enhance their interest in interior architecture or other design-related fields.

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Avant Garde Fashion and the making of historic interiors: the pursuit of authenticity through handmaking processes

Chunyao Liu, Arizona State University
Erin Cunningham, University of Florida

ABSTRACT

Interior design scholarship has explored the convergence of fashion and interiors through an analysis of textiles, historic styles, cross-disciplinary work, and the expression of modern identity (Myzelev & Potvin, 2017; Fisher et al., 2013; Berry 2018). This paper builds on the existing literature through an examination of the celebration of handmaking in fashion and interiors. Specifically, this paper examines Haute Couture's focus on handmaking and how it manifests in the historic interiors that fashion companies preserve. It argues a possible migration of concepts from the field of fashion to historic preservation through the idea of making. To study this migration, this paper focuses on the fashion and interiors of Italian fashion house, Prada. Prada's well-received adaptive reuse projects across the globe make it a particularly relevant brand to study the connections between high-end fashion and historic interiors. Also, Prada published a series of promotional booklets that document their preservation work, providing rich resources for analysis. It has also initiated several fashion projects, such as the "Made In' line in 2010 and the Milano Handmade Collection in 2012, that demonstrate an emphasis on traditional craftsmanship. To study Prada's focus on handmaking, a thematic analysis of its promotional material, both visual and verbal, was conducted. The analysis focuses on two sites: Cà Corner della Regina in Italy and Rong Zhai in China. In order to analyze the promotional material this paper employs Victoria Clarke and Virginia Braun's (2016) well-established six steps of thematic analysis: 1) familiarizing oneself with the data, 2) creating initial codes, 3) looking for themes, 4) reviewing potential themes, 5) defining and naming themes, and 6) producing the report. Notably, this research adopts a deductive approach to

coding, starting with an initial set of codes that were based on the theory of authenticity. For the purposes of this paper authenticity is defined as associated with "genuineness and truth (Newman & Smith, 2016, 610)." Historically, handcraftsmanship connects to authenticity in both historic preservation and fashion. In historic preservation a connection between handcraftsmanship and authenticity is illustrated in the writing of foundational scholar John Ruskin (1819-1900). In fashion scholarship, an emphasis on handcraftsmanship can be traced back to Walter Benjamin's theory of "aura," which refers to a unique existence of the work of art that is harmed by mechanical reproductions (1968). Accordingly, authenticity serves as an apt theoretical foundation for the examination of handmaking in both historic interiors and high-end fashion. This research demonstrates that handmaking, and the authenticity it establishes, is central to Prada's branding and preservation of historic interiors. More broadly, it demonstrates the value of "making" to both fashion and historic interiors. The analysis reveals that in both these fields handcraftsmanship reflects an embrace of tradition, nostalgia, and exclusivity. By extending the "confluences between fashion and the interior" to an analysis of "making," this research deepens our understanding of the theoretical connections between fashion and interior design (Berry, 2018, 170).

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From Text to Space _ Artificial Intelligence and Interior Design

Clay Odom, The University of Texas

ABSTRACT

"All cultural forms lag behind processes of production" Timothy Morton, from: Ecology without Nature, p140 Today, something is happening in design that has the potential to revolutionize the processes and products of our work. The revolution is AI, more specifically text-to-image AI. We see the products of this technology proliferating out of platforms such as MidJourney , Dall-E, Stable Diffusion and a host of others that have become widely used in the last year. The immediacy and power of concept generation in text-to-image AI is astonishing, and we must begin to ask questions and probe this issue further if we are to understand, use and/or critically reframe it in Interior Design. Critical, design-based exploration is the formative platform for this research which seeks to define AI processes, identify emerging uses and examples of text-to-image AI, demonstrate the provocative power of AI imagery while proposing AI workflows and outputs that move beyond the image, and begin to theorize AI in the context of Interior Design. As Morton suggests, what are the effective implications of these new processes and what do they generate? We can see AI in the context of design as a collaborative relationship between human intelligence and Artificial Intelligence enable through computation. Producing novel interior images through relational, synthetic constructs afforded by AI generates new questions while illuminating existing disciplinary links. For example, one question, emerging from the author's early studies and a survey of current text-to-image AI outputs, is one of synthetic or relational aesthetics, and is therefore tied directly to interior design. Text references, or 'prompts', underlie text-to-image AI, and serve as directional markers pointing to vast visual databases. But this is no simple google image search. Instead, through the use of generative adversarial networks (GANS), new imagery is synthesized. This synthetic process relies on the text and its relations to inform computational processes. Therefore it is the text, whether it points to explicit references

such as a designer like 'Vladimir Kagan' or to less explicit conditions like 'atmosphere' or to material propositions such as 'wood', that is the primary scaffolding over which new images are formed. This is critical because it is the designer's training, ability to use and understand lateral thinking, historical and cultural referents, material propositions and atmospheric and experiential qualities which are foregrounded. Text-to-image AI requires and also rewards a designer's experience, in short the designer's eye. Choice is perhaps the key element. Choice is deployed in both the selection of words, phrases, references and qualifiers and in their placement relative to each other. This is content and relationship and in this sense is inherently disciplinary. Choice is also used to drive the image-machine forward. Deciding which images are of interest, which should be amplified by selection, re-worked by iteration, and detailed through scaling is the exact process used to create images in text-to-image platforms such as MidJourney. Evolutionary processes of selection and iteration have defined much of contemporary design pedagogy and theory, and certainly warrant consideration in regard to Interior Design. In the process of observing, probing, questioning and theorizing potentials of text-to-image AI, we may begin to both appreciate the historic underpinnings of interior design and develop new aesthetics and theories of the interior design process and products as resultants of human and artificial intelligence collaborations moving ahead. These new design ecologies offer an opportunity for what Donna Haraway describes as sympoeisis, or making with; making with other people, with nature and with technology, and the process moving beyond human centrism toward a new ontology and productive interior collaborations.

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Future of Workspace: Reimagining the Design of Technology Campuses Post-Pandemic

Taraneh Meshkani, Kent State University

ABSTRACT

The Covid pandemic has generated new modes of working. This transformation requires a novel redesigning of workspaces. This paper look into the historical evolution of office design in relation to the selected case studies of technology campuses such as Apple, Google, and Facebook headquarters. This research investigation will further analyze the post-pandemic adaptation of these corporate workspaces in order to reimagine new interior designs that can embody the future of work. The transition of office design has been happening throughout history. The way of work significantly impacted the interiority of office spaces. The modern workspaces of the 20th century were shaped by the systematization of workflow known as Taylorism (Guillen 2009). The result of Taylorism was the creation of narrow-plan interiors with rows of desks. After World War II, office spaces were organized based on tasks and were designed to accommodate clusters of workers. The advent of glass façades brought natural light to buildings that significantly impacted interiors. By the late 1960s, a new system of office design was introduced by a consulting firm in Germany called the Quickborner Group, known as Bürolandschaft, which introduced open-floor plans in order to eliminate hierarchy among workers. This model was followed by the cubicles of the 1970s due to the rise of white-collar work and city property prices. However, the knowledge economy has completely transformed the way offices are designed. This corporate model heightened in the design of many mega-tech campuses such as Apple Park, Google, and Facebook. These new corporate tech headquarters are miniature cities. They are typically closed off from their urban context and have their own energy, water, and transportation infrastructures. Moreover, these new office typologies have unique interiors. They are designed for a significant number of employees. For example, Apple Park can host approximately 12,000 employees. There are many services and perks in these

headquarters, such as fitness centers, multiple restaurants that serve a variety of meals at any time, game rooms, and bars, among others. These companies also provide different spaces for various modes of working, such as private workspaces, conference rooms in different sizes, collaboration spaces, and elements such as pods and room dividers in order to reshape the interior spaces. The research methodology of this paper focuses on the historical analysis of the workspaces in relation to the design of corporate tech campuses. Three case studies of Apple, Google, and Facebook campuses are selected. Each case is analyzed based on the design of the floor plans, programmatic elements, the relation of interiors and exteriors, materiality, and landscaping. Furthermore, interviews are conducted with 20 employees from each company that investigates how the use of these corporate tech offices has been changed post-pandemic. The findings of this research are categorized into four parts. The first highlights the historical evolution of the workplace concerning the emergence of new models of tech campuses. The second part qualitatively examines the design of the selected tech campuses based on the design elements and qualities mentioned above. The third set of findings focuses on the transformation of office usage post-pandemic based on the conducted interviews with the employees. The final set of findings concentrates on the result of a workshop that looks into the future of the interiority of the workplace and how new technologies of augmented, virtual and mixed realities can possibly create new ways of collective work and office design.

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I Don't Need These Slides Anymore: The Precarious Professorial Archive and Its Value to Design Historians

Mary Anne Beecher, The Ohio State University

ABSTRACT

How has the history of interior design education really been documented from an insiders' perspective, and in what ways has evidence of both pedagogical innovation and significant student outcomes been used to frame an understanding of the historical evolution of educational approaches and the values they represent, over time? It is the assertion of this presentation that the history of interior design education has typically been constructed from a range of sources that exist outside of the actual space of the classroom or studio, and because of this, key elements that explain how interior designers are created through an educational process have been overlooked to date. Scholars have pursued documentation of the history of interior design education from a variety of methodological vantage points, including analyzing the content of textbooks over time to demonstrate what matters in terms of curricular content (Temple and Potthoff 1995, 2013, 23-32). Others have documented the history of specific schools as case studies that represent how specific pedagogical approaches developed (Lucas 2018, 125-141). Others, still, have traced the history of particular pedagogical practices such as project-based learning or "the crit" (Popov 2007, 51-60). This paper contends that there is unique value in the contents of the professorial archives of educators who taught in the twentieth century (primarily), and that due to factors such as aging actors and diminishing access to formal archival preservation, these resources are extremely vulnerable to loss. By closely examining the personal archives of two emeritus professors from an established North American design program, it will demonstrate how a material culture approach to documenting the history of interior design education can offer a more nuanced (and perhaps accurate) understanding of its evolution over time. Design educators have typically been quite good about recording and documenting their

work in studios and classrooms historically. In the pre-digital era, film photography enabled the documentation of two- and three-dimensional work, and prior to the time when students began producing primarily digital work, design educators frequently captured images of students' projects in slide format so that they could be integrated easily into future presentations, and because they are relatively high-resolution, compact, and easy to store and share. The results of using a material culture approach to analyze the extensive contents of representative professorial archives provide insights about what such resources can tell us about the history of what happens in the design studio and what motivates curricular decision-making. For instance, course documents offer key insights into the culture of interior design education and its mechanics. The tone and content of syllabi and project briefs offer vivid insight into what educators valued at various points in time, while also providing a view of their approach to assessment and classroom management. Likewise, an analysis of an memos, minutes, and correspondence contained in the professorial archive provide insight into the consequence of curricular additions, along with identifying how content gets eliminated in the process. Lastly, because much of the professorial archive in interior design is comprised of documentation of student work (often as 35 mm slides), it is possible to examine the materiality of learning outcomes (or their photographic facsimile). From this, historians can gain insight into the roles that various approaches to design learning have played as the "work" of being a design student has evolved. Looking closely at what materials students used to construct their projects over time also reveals valuable information about issues of cost and the affordability of interior design education, which also encourages more serious consideration of its historically exclusionary tendencies.

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Luis Barragán and the sacralization of the domestic environment

Jose Bernardi, Arizona State University

ABSTRACT

In his acceptance speech for the 1980 Pritzker Architecture Prize, Barragán defined the values inspiring his work as an effort to contribute to dignifying human life and containing the waves of dehumanization and vulgarity in the contemporary world. This essay traces the evolving presence of the sacred in Barragán's domestic environments by looking at his personal reflections and letters, revealing the links between Barragán's personal circumstances and philosophical stances and the role of water and gardens as devices to infuse an atmosphere of sacredness in his domestic environments. The relationship between gardens and the interior are a constant presence in Barragán's mature work, reappearing as staged poetic reinterpretations of his experiences growing up on his family's ranch. He was unwilling to accept the larger premise of secularization advanced by modernity. Barragán's response was to construct secluded places "to banish anxiety and create illusion" (Federica Zanco 2001:103). Two constant themes reappear and evolve in Barragán. First is his understanding of gardens as homes, emphasizing the need for protection and seclusion. Second is his understanding of homes as gardens, as intimate places for tranquility and meditation. Barragán had spent long summers in the family's hacienda in Mazatmitla. Later, water, arriving to cisterns, pools and fountains, became an integral part of those reconstructed images. Raised in a conservative and provincial city, his first trip to Europe played a significant role shaping his design approach. The discovery of the elements of surprise and water as the protagonist in the Moorish gardens of Southern Spain, combined with the idea of the garden as a place of serenity found in two books by Ferdinad Bac, Les Colombières and Les Jardin Enchantés, were fundamental in shaping his first approach to the relationship between homes and gardens. (Álvarez 2007: 304). His understanding of the relationship between interiors and gardens become more defined by the late 1940s, during the time he was working in his house

and gardens in Mexico City. While adopting the language of modernism, his approach diverged significantly from the constituent facts of modern architecture, and contrary to the openness of the free plan, he explored compartmentalized yet layered, interconnected areas providing contemplative views of the garden. Barragán interpreted idleness and enchantment as the antidotes to the swell of aggressiveness in modern life brought by the secularization of the modern world. Increasingly, water became an important component in his design, contributing to create an architectural atmosphere divergent from the main features of the modern movement (Riggen 2000: 59). In Barragán's retreat from the secularization of the world, water contributed to stage protected places of tranquility, and contemplation. The works analyzed in this presentation are House Prieto Lopez, 1945-50 at El Pedregal, Mexcio City; the Barragán house of 1947, in Mexico City; the Egerstrom house, of 1964-69 and the Gilardi House from 1975-1977, considered the culmination of Barragán's explorations and the most daring work in terms of water interacting with color, light and nature. Conclusion A profoundly spiritual person, his work was in part a constant search for paradises on earth (Zanco: 103). In the Pritzker Prize speech Barragán completes the circle and links beauty and God. For him, beauty is "the expression of the divine on earth." Full of contradictions, Barragán oscillated between personal development and economic success, ardent religious fervor, quiet, yet entrenched ideological beliefs, and, above all, an acute sense of what had been lost. He heeded the silence that personal awareness of the past brings. By fusing gardens and water, his interiors were charged with an elusive and evocative sense of sacredness.

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Nonmonogamous Space(s)

Evan Pavka, Wayne State University

ABSTRACT

Consisting of deliberate, consensual and intimate activity outside of conventional fidelity, nonmonogamous relational structures — both homo- and heterosexual — have become increasingly commonplace as a way of forming connections beyond the nature of partnership. While encompassing many coupling structures (polyamory, polyfidelity, swinging and more), these forms of organizing and the corresponding social rituals inevitably pressure domestic space as the dominant frame for normative life (Levine et al., 2018). Such intimate connections are located "in the conjuncture of diverse normative and counter-normative discourses on sex and relationships" (Kleese 2006). If the home is intrinsically tied to the institution of marriage and support of the nuclear family, what are the implications of nonmonogamy on the design, arrangement and organization of domestic space? This paper examines a series of interiors that may reveal the potential of such intimate relations to profoundly shape spatial relations, where multiple ways of coupling can be seen to generate architectural echoes via philosopher Sara Ahmed's conception of sexual and spatial orientation (Ahmed, 2006). Beginning with an analysis of media representations of heterosexual nonmonogamy, Rudolph Schindler's Kings Road House and the complicated affections and allegiances it sheltered is taken as an entry point to addressing patterns of spatial repetition as inherent in negotiating unconventional romance within the composition of the domestic interior. The systems of reflection in the King's Road House plan are then contrasted with the approach to an interior renovation in London by Scott Whitby Studio for a throuple (a three-person relationship). While repetition and doubling define Schindler's domestic configuration, the interior renovation collapses programs, rituals, occupations and users. In this way, the project reveals the potential for the interior to make room for emerging forms of coupling to become spatial. With this in mind, architect Phyllis Birkby's speculative proposal for a fantasy city of monogamy domes, serial monogamy domes, and multiple relationship domes is revisited to reflect on what convening, sharing and coupling

beyond the confines of conventional partnership or the family structure may offer urban space (Vider 2021). Whether offering room for single families, couples or single, housing stock has largely shaped how specific communities generate greater enclaves in urban centers. Here, conditions inherent in the interior had specific urban ramifications. When considering this consequence alongside nonmonogamy, how can such forms of organizing move from the scale of the interior to the scale of architecture, the street, the neighbourhood and even the city? What are the potential relations in the city that stem from nonmonogamous relations with one another? The ultimate suggestion is that these social rituals can be reimagined as alternatives to dominant models to reorient how we negotiate resources, spaces and perhaps even ourselves.

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Political Theatre: How Donald J. Trump and Richard M. Nixon used the Oval Office to Communicate Autocracy

Darrin Brooks, Utah State University
Steven Camicia PhD, Utah State University

ABSTRACT

Globally, faith in liberal democracy among citizens is decreasing (Foa and Mounk, 2017). This provides opportunities for authoritarian leaders to increase their power. Leaders have utilized political stagecraft throughout history to communicate their power. For example, Louis XIV, King of France, understood the impact of decorative arts on conveying his power (see Figure 1). He utilized decorative arts as a backdrop to establish his authority and undermine the power of the aristocracy (Dampierre, 2006). The Oval Office may be the most recognizable interior in the world and, as a result, an ideal setting for understanding the parallels between décor and power. This study examines the question of what are the similarities of the two presidents' décor in the Oval Office regarding projections of authoritarian governance. It accomplishes this by analyzing how furniture, décor, and objects are utilized to display political power and, ultimately, the authoritarian rule of Nixon and Trump. President Richard M. Nixon 1969–1974 Updating the Oval Office was one of Nixon's first areas identified as a priority. In the fall of 1969, Nixon focused on changing the décor of Truman's 1952 pale green Oval Office utilized by Eisenhower, Kennedy, and Johnson. First, Lady Patricia Nixon and decorator Sarah Doyle Jackson oversaw the redecoration. Once installed, the new Nixon Oval Office décor, which had intense hues of yellow and blue, met the president's stamp of approval and became his center of power (see Figures 2, 3). The Oval Office was Nixon's ceremonial stage as he had a more practical working office in the Eisenhower Office Building (Phillip-Schrock, 2013). Nixon's office was the most emblematic, focusing on the presidential symbol and multiple flags. In addition, it was home to 15 eagles—on the ceiling, walls, flagpoles, and rug (Sidney, 1975). President Donald J. Trump

2017-2021 The Oval Office was transformed during the ceremonies of the Trump inauguration on January 20, 2017. The Obama décor was mostly expunged except for the wallcovering. Trump claimed he made all the new selections with no credit to a first lady or decorator. Reagan's rug was returned to the Oval Office. The window treatments were removed and replaced with Clinton's yellow drapery, originally installed twenty years earlier. Later in the day, Trump held his first ceremonial event when he signed multiple Presidential Orders with a giant sharpie marker at the Resolute Desk, surrounded by numerous flags, new decor, and a host of republican leaders and staff, all hallmarks of political power (see Figures 4,5). American politics and stagecraft have existed from the inception of democracy, but Trump utilized a self-obsessed spectacle more like reality television than traditional politics (Hodges, 2019). This study is significant because it demonstrates how the interior environment may become the focus of power, much like Louis XIV utilized decorative arts as a political spectacle. The Oval Office may be used to convey power, autocracy, and ultimately the erosion of democracy.

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The Evolving Integration of Design Concepts within the Design Process

Natalie Badenduck, Mount Royal University

ABSTRACT

Creativity is often associated with abrupt 'lightbulb' moments of inspiration but, in reality, creative thinking and problem solving are highly process-oriented activities. In interior design, 'the design process' is an encompassing term used to describe the various ways in which designers work and the stages they are recommended to progress through during each project. Although such processes can provide valuable frameworks for design development, they are regularly criticized for failing to address the individual, and at times chaotic, nature of creative pursuits. This is especially true when it comes to the integration of design concepts. Based on a literature review and findings from a mixed-method qualitative research study that was undertaken in five cities and within seven international institutions (including: Toronto Metropolitan University; Fashion Institute of Technology and The New School; Royal College of Art and London Metropolitan University; Berlin International University; and Glasgow School of Art) between September 2019 and March 2020, this presentation will outline the history and evolution of the design process and examine how it may support but also limit creativity by acknowledging that creative processes are considerably more varied than many existing frameworks lead us to believe. More specifically, discussions will center on the ways in which regimented processes may prevent a complete understanding of the multifarious, changeable and intertwined nature of design concepts throughout the lifespan of interiors projects. Existing design processes often demarcate a distinct stage for conceptual thinking, typically during the early phases of a project. This logic presumes that designers generate concepts at the beginning of a project that guide them through to completion, resulting in misleading assumptions that if concepts are not resolved by a certain point, there will be very little subsequent opportunity to do so. In interviews conducted with interior design educators and

practitioners, many voiced apprehensions about such linear approaches, especially in regard to the development of design concepts. In response to such feedback (and similar concerns outlined in design and creativity literature), this presentation will introduce new design process diagrams that offer a wider range of potential approaches to the generation and application of design concepts in an attempt to challenge previously held assumptions about both how and when they should be integrated into the design process. These diagrams deviate from traditional procedural models of 'double dips' or 'process spirals' to focus specifically on design concepts and the various ways they integrate within creative practices, enabling an exploration of the ways in which concepts are clearly expressed in direct processes, how they may evolve or emerge throughout the design process, or be combined and recoupled in countless ways through compound explorations. This presentation aims to shed light on the varied and complex interplay between 'the design process' and conceptual development and offer the perspective that design concepts can - and indeed must be allowed to - emerge and evolve in a variety of ways. For students, such ideas may serve as a reminder that there is no 'one size fits all' approach when it comes to honing their own ways of working and developing conceptual thinking skills. For educators, they may wish to reconsider their framing of processes and conceptual integration, especially in regards to course delivery and assignment expectations. It is hoped that the critical examination and discussion of such ideas may lead to a broader and more inclusive understanding of design concepts, design processes and the ways in which they shape the education and practice of interior design.

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The impact of real-time rendering software on the interior design process

Nathaniel Wagenaar, Mount Royal University

ABSTRACT

Throughout design history, how an interior space has been presented has been nearly as important as the design itself (Thomas, 2018). The process of learning through drawing is used to resolve design issues in practice, and is a cornerstone of interior design pedagogy (Travis, 2014). While methods of graphic presentation have evolved with advancing digital software, the focus on conceptual development has remained largely consistent with earlier analog techniques (Özker, 2014). However, a topical problem has developed; interior design practitioners and students have overly adopted the convenience of real-time rendering, thereby losing the conscientiousness and intentionality that the design process imparts. Within the pedagogical and professional contexts of interior design, the design process involves iterative sketching, technical resolution, and presentation (Özker 2014, 42). Real-time rendering software such as Enscape, V-Ray, and others, make it possible to achieve instantaneous life-like results (Akenine-Möller, Haines, 2018), thereby minimizing the perceived need for the iterative process (Travis, 2014). A shifting focus to the quality of the image of a design, rather than on the quality of the design itself, results in perceiving design as a picture, rather than as a representation of a real place (Basa, Gurel, 2004). To review the impact of real-time rendering, quantitative analysis was used to compare time spent in real-time rendering software versus a traditional design process and the correlation to the resolution of the final design. Qualitative methods, including document study, observation, and literature review, were undertaken to gauge the impact of prioritizing presentation quality against design resolution. The advancement of real-time rendering is circumventing the design process, thereby impacting the quality of interior design as the designer is increasingly removed from making conscious decisions (Basa, Gurel, 2004). This can be seen as the immediacy of real-time rendering leads designers to ignore the traditional design process

due to the seductive nature of the realistic result (Özker 2014); simply because a design looks realistic, it is interchangeably assumed to be well designed (Basa, Gurel, 2004). Further impact to design resolution includes a lack of sectional development owing to the plan orientated third-person perspective of real-time rendering programs, and absence of acknowledgement of joinery, seaming, and patterning in material consideration due to the "paint bucket" tool application within the software. In summary, advancing real-time graphic technologies are having an adverse impact on the interior design process as there is more focus on the quality of the final presentation image than on the strengths of the design itself (Basa, Gurel, 2004). While real-time realistic rendering can be an invaluable presentation tool (Akenine-Möller, Haines, 2018), it must be integrated into the design process and not as a replacement for iteration or design development (Travis, 2014). By acknowledging the facile output of real-time rendering, and refocusing on sequential and procedural approaches for graphic presentation, there exists the opportunity to reimagine how contemporary interior design is approached and presented (Özker 2014). Embracing individual style, creativity, and alternate presentation techniques such as collage and post digital visualization methodologies would benefit both interior design education and practice.

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The Oriental Ornament between Universal and Historical

Solmaz Kive, University of Oregon

ABSTRACT

Since the mid-nineteenth century, museum curators have used stylistic decorations to contextualize the objects on display. Although with good intentions, often such practices inadvertently imply otherness, as we can clearly see in the early examples. This paper discusses Owen Jones' decoration of the "Oriental Courts" at the South Kensington Museum (today's V&A). As part of a rearrangement and expansion process in the mid-1860s, the South Kensington Museum created its Oriental Courts to house objects from China, Japan, India, Persia, etc. The design of the Oriental Courts was commissioned to Owen Jones, the renowned author of the Grammar of Ornament, and well-known for his decoration of the Crystal Palace. Jones decorated the Oriental Courts with geometric patterns and other "Oriental" motives. Jones' work how two interconnected, yet distinct, approaches to gallery decoration: its art historical massage on the one hand, and its aesthetic values on the other. First, employing Indian, Persian, and Chinese decorative motives for the Oriental Courts can be seen as one instance of the nineteenth-century interest in historicizing the gallery interior. It was a popular idea to use distinct decoration in historical styles in order to identify different regions or periods, and thus help visitors contextualize the objects of each collection. On the other hand, attention to gallery decoration was also important in the context of the South Kensington Museum's emphasis on "the universal principles" of ornament. Given the perception of architecture as the mother of all ornaments, the museum building carried the weight of teaching the correct decoration by example. This double function of the Oriental Courts' decoration mirrored a broader tension in the South Kensington Museum between art history and design theory; that is, between the perception of ornament as an indication of its historical context on the one hand, and an instance of some universal principles on the other. This conflict specifically affected the Oriental objects,

whose presence in an art museum was only justified based on the perceived universality of design principles. Otherwise, in the nineteenth century, non-European objects primarily belonged to ethnographic exhibitions, not the realm of art. I use Jones' writings and designs as well as secondary sources to analyze his work in the context of his theories and the history of the South Kensington Museum and argue for the role of the Oriental Courts' decoration in framing (out) non-European objects. Beyond introducing this little-known work of one of the most influential theorists of ornament, this paper highlights some troubling effects of historicizing the gallery space, which remains popular, especially for non-Western collections. By exploring an important instance of its early phase, when intentions were discussed more explicitly, we can better appreciate the complexity of this practice and its potential dangers.

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The Women of the Architects Small House Service Bureau

Lisa Tucker, Virginia Tech

ABSTRACT

Recently scholars have highlighted the contributions of female designers to the better known careers of their male counterparts. In the early 20th century, male architects were often given credit for works created by females, particularly in the residential design sector. While some women were credited with home economics related design endeavors around household management, the contributions of women to architecture were not widely acknowledged. This research seeks to identify the women behind the Architects Small House Service Bureau (ASHSB). All widely-known board members and house designers who are credited are men. A more thorough exploration of the published materials of the ASHSB reveals that many of the design decisions were actually being made by women within the context of a male-dominated profession. The methods used for this work included a systematic literature review of the published resources of the ASHSB. This included seven years of the Small Home monthly publication and all of the plan books published by the ASHSB (five individual books with some additional reprinted variations). A grounded theory approach was used to identify the designers and authors and themes associated with published articles and house designs. The outcomes of the research show that women were involved in all aspects of the residential designs marketed and sold by the ASHSB to consumers. Women were featured in innovative designs for the interiors of the houses including kitchen designs, materials and furnishing selections and advice to homeowners. While the plans themselves were not signed by the designers, it is likely that female architects contributed to the design of the houses themselves which included substantial interior detailing of kitchens, builts ins and features which would be of use to the women of the day who ran these houses. Small Home articles reveal a bias towards designing for homemakers which was a commonly accepted paradigm during this time period. Articles written by males

were credited while significantly fewer received female attribution leaving the majority of articles and house design descriptions uncredited as were all designs. The history of architecture and design has long been filled with attributions to white men. This presentation will feature the works of seven women who contributed to the ASHSB between 1925 and 1934 (Harriet Flagg, Ruth Gerth, Mehetabel Thankful Amsdell, Charlotte Lilienthal, Marjorie Lawrence, Ellen Wagner and Mary Grosvenor). New initiatives around diversity, equity and inclusion challenge historians to take new views towards the past and illuminate the contributions of women and underrepresented populations to creations long attributed to men. This work seeks to do that for the residential designs of the ASHSB.

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Employee Health in Higher Education Environments: Sit-Stand Unit Use

Andrea Wade, Texas Tech University

ABSTRACT

INTRODUCTION The purpose of this study focused on the areas of sensory change and variability, human factors and ergonomics, and employee choice and engagement within a workplace environment. Depicted by environments promoting unhealthy food options and physical inactivity, employees are obesogenic due to inactivity (Sallis & Glanz, 2009). Many full-time employed adults spend large portions of their day seated, engaged in sedentary activities. Too much sitting is negatively associated with several poor health outcomes, specifically when accumulated in sustained, unbroken bouts. Designers are now faced with intentionally designing built environments to promote physical and mental health (Jackson, 2003). If the office is void of sensory stimulation and variability, employees can become bored or passive, leading to worker dissatisfaction (Stringer, 2013). The success of great workplace design is essential in providing employees with the healthiest environment possible. Active design strategies implemented into office designs are the result of current culture and social awareness towards wellbeing. Three components have catalyzed this movement: sustainability, individual awareness, and employee choice over where they work, given the mobility of our society. Productivity and the workplace are related. Building design could certainly expand employee ability by empowering control, comfortable surroundings, and reduction of health and safety risks. Motivators that could influence person to building interactions are positive function, psychological engagement and personal control. Buildings can provide opportunities for equal access to amenities and function in ways that reduce health and safety risks. Providing a positive impact for workplace settings, design elements need to support the work to be completed. Maybe these new techniques should be a considered approach by designers for future solutions (Stringer, 2013). The design of a space that meets the needs of the occupants outweighs the importance of technological integration (Herman Miller, 2014). METHODS This study was

exploratory in nature and focused on the motivations for use of a sit-stand desk unit within the office of female administrative employees at an institution of higher learning. In addition, this study sought to determine if autonomy over their personal work space may encourage use of the sit-stand use. The human-centered research framework of the Analysis Grid for Environments Linked to Obesity (ANGELO) provided a foundation for constructing better solutions and strategies for the practicing design community (Roth, 1999). This tool is a useful in ranking environmental features that could be researched and used as interventions (Swinburn, et al., 1999). A mixed method approach to data gathering was used to gather data via 1) participant groups, 2) office observations, 3) interviews and 4) surveys. Twelve female higher education employees participated. FINDINGS Several prominent themes emerged during the analysis of the interview responses regarding work place perceptions and realities and workplace motivations for change to process and work place environments. The data gathered was analyzed and coded into the two theme categories: Perception – sensory change, process change/adaptation, control/comfort and variability; Motivation – choice/personal freedoms, affirmation and gained knowledge. The findings of this research begin to provide understanding why individuals would engage in utilizing a sit/stand unit to enable them postural change at chosen intervals throughout their workday. The presentation will discuss and explain factors that encourage design changes needed in the workplace, employee expectations, activity inclusion in a workplace and the variety of equipment options available for accommodations to employees. Information shared would be useful for design professionals, facilities management teams, furniture and equipment manufacturers and employers.

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Reflections on Identity: Vernacular Design as Perceived by Design Practitioners

Adrian Del Monte, University of San Carlos
Dr. Nam-Kyu Park, University of Florida

ABSTRACT

The practice of vernacular design is unceasing in the Philippines. It has gone through several versions brought on by history and need (Cabalfin, 2006). Its underlying philosophy is the synergy with the environment and understanding of the necessities of its inhabitants and the whole ecology (Klassen, 2010). The Filipino vernacular, in general, is a synthesis of beliefs and behaviors, which define and support a culture that has become an element of the identity of the Filipino people (Lico, 2008). In recent years, the rebirth of vernacular dwellings that refers to autochthonous origin, steered a neo-vernacular movement in the Philippines. The movement highlighted the contributions of the ethnic communities reverberating their local wisdom, innovation, and skills (Cabalfin, 2016). The appreciation of Filipino indigenous culture inspired the use of the vernacular concept of space utilization and material manipulation and assert the Filipino identity in a contemporary period. The caveat, a number of the built structures showcasing Philippine vernacular designs were done in an exaggerated proportion, at times mediocre. The designs were criticized as superficial addition to a modern building and merely applying traditional ornaments. As a developing country, Filipino design practitioners are confronted daily with the dual challenges of, modernization and globalization, and the other, preserving their heritage. In addition, the discordance or adherence to local and foreign designs has its toll on understanding the vernacular design. In the words of Francisco Mañosa (2003), "we must be aware of what we have. Therefore, Filipino designers must be aware of the forms, spaces, symbols, and materials – how they have been used in the past, how they are being used today, and the technologies that can be applied to these materials to make them responsive to our needs today". Filipino design practitioners' dexterous tasks could shape and facilitate the continual quest for Filipino design identity. Looking into the interior design practice in the

Philippines, the research was conducted to understand the current practices and attitudes towards Filipino style and Filipino vernacular design. The data were collected among 216 Filipino design practitioners through a convergent parallel mixed-method study. The self-administered survey and individual interviews focused on the ambivalence in defining the Filipino style and the Filipino vernacular design in conjunction with design practice, educational foundation, exposure to local and foreign influences, and the degree of design acculturation. The analysis of the resulting data identified that (1) the current interior design practice in the Philippines provided ambiguity in understanding Filipino vernacular design and Filipino style and should be understood through varying psychosocial and sociocultural factors; (2) Understanding how interior design facilitates cultural behaviors and identity, contemporary interpretations can bridge the discordance between foreign influence and local design characters, thereby permitting Filipino design practitioners to sustain their design practice while moving into the world of contemporary design; and (3) that Filipino vernacular design is a dynamic interpretation and re-interpretation of the building traditions of the past, authentic or otherwise, adapted in modern spaces. Like the quest for Filipino design identity, Filipino design practice is a continual process as it is evolving and changing. Drawing on practitioners' knowledge, preference, and practice, this presentation redounds how Filipino design practice could be viewed and understood, and reiterates the relevance of learning Filipino vernacular design to continue to thrive and for the new generation of designers to grasp the development of Philippine architectural designs.

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Understanding Faculty Profile: A case study of the Interior Design Educators in the Philippines

Adrian Del Monte, University of San Carlos
Mary Grace Sabadisto, University of San Agustine

ABSTRACT

The professional practice of interior design in the Philippines continues to be reinvented to catch up with the global design practice (Oliveros, E., & Florendo, R., 2013). Bridging the gap between practice and academia resonates with pressure among faculty. With the increasing diversity of students, the challenges of technologies, and the shifting characteristics of educators necessitate faculty profiling to understand the growing demand of the profession (Gappa, J.M., Austin, A.E., & Trice, A.G., 2007). As an academic organization for interior design, its mandate is to institute a system that elevates the standard of interior design instruction, curricular programs, and facilities, and to generate programs relevant to interior design educators and students for schools, and institutions offering interior design programs in the Philippines. As a gatekeeper of the interior design profession, little is published about the characteristics of Filipino Interior Design Educators. In 2022, the installation of its New Board of Directors created an opportunity for the organization to further its agenda – understand its educators' concerns and interests, to facilitate policy-driven changes in interior design education and practice. The Board's emphasis is on establishing evidence-based, data-driven decisions that will generate a faculty development plan for interior design educators based on their profiles and qualifications; examine how institutions offering interior design support teaching, learning, and assessment, and provide interventions on how the organization could support, improve, and promote standardized teaching, learning, and assessment of the interior design program. Aimed to understand the profile of Filipino Interior Design Educators, this study utilized Ernest Boyer's model of Scholarship. Boyer (1997) emphasized "the need for a more inclusive view of what it means to be a scholar – a recognition that knowledge is acquired through research, through synthesis, through practice, and through teaching." This descriptive research employed

instruments that include a multi-scale self-assessed online survey, and focus group discussions among interior design educators and program owners. The thematic analysis explored the key indicators including background, institutional perspective, assessment, facilitation, research and scholarship, community extension, administration, and mentoring. The data were collected from 143 educators within 22 institutions offering the Interior Design Program in the Philippines. The initial findings confirmed some commonly held assumptions, including the need for teacher training, further studies, and scholarship opportunities. An important consideration based on these findings is identifying interior design educators' concerns and interests that could help the organization to make much clearer sets of schema for faculty development programs in improving teaching and learning. This presentation will delve into the scope of planned faculty profiling that extends beyond the disciple of interior design, including management and leadership abilities, teaching and learning assessment, and community engagement.

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Applying fractals in interior spaces: Psychological response to spatial fractals

Joori Suh, University of Cincinnati
Assaf Harel, Wright State University
Steen Pedersen, Wright State University

ABSTRACT

The recent Covid pandemic has led to growing concerns about inflation, supply chain issues, and global uncertainty, all of which have been identified as significant sources of stress today (American Psychological Association, 2022). Indeed more than two thirds of people experience stress affecting their physical and mental health (American Institute of Stress). This raises an urgent need for a design approach that can serve to reduce stress and promote wellbeing. One such approach is biophilic hypothesis, which addresses humans' innate desire to connect with nature (Wilson, 1984), in line with observations made by Attention Restoration Theory highlighting nature's regenerative power from stress and mental fatigue (Kaplan & Kaplan, 1989). One area of biophilic design research focuses on the effect of specific principles found in nature on wellbeing. One key principle is fractal complexity, which refers to self-similar organic or geometric patterns that repeat at varying scales. The mid-range of fractal complexity has been shown to have stress-dampening effects (Hagerhall et al., 2015; Taylor, 2021). How can designers apply such fractal patterns in real-world settings? Despite the psychological benefits of fractals, most of the fractal related research on fractals and their application of fractal patterns in the real world have been limited to 2D graphics, where the fractals lose their volumetric essence. As the original fractals found in nature are primarily three-dimensional, determining the role that spatial depth plays when applying fractals becomes essential for successful design. To achieve this goal, the current study investigated how spatial depth application of fractals impacts people's psychological response to fractals of varying complexity. We applied various fractals including geometric, organic, and abstract patterns to enclosures of 12'x12'x12' spaces to create simulated prototype models as stimuli. A total of 270 three-dimensional spatial prototype models were created spanning two dimensions: (1) application of spatial depth (shallow: fractal patterns were

applied to surface; medium: fractal patterns were applied as three-dimensional elements at the perimeter; deep: fractal patterns were integrated within the field of space three-dimensionally) and (2) fractal complexity (Fractal Dimension (FD) or D-value: low, medium, and high); calculated using a box counting method programmed in Python). The resulting stimuli were divided into two equivalent sets (A and B), and 164 college students were recruited and randomly assigned to either set A or B. The participants were asked to view and rate each space on six psychological dimensions (ugly- beautiful; boring- interesting; bad-good; stressful-relaxing; leave-enter; ignore-explore) using the 7-point Likert scale. Preliminary analyses reveal that not only fractal complexity but also application depth both have a significant impact on behavioral ratings of built spaces. Notably, however, the impact of application of depth was qualified by the fractal complexity of the presented space. Significant effects of the application depth of fractals were observed primarily for "boring-interesting", "ignore-explore", and "leave-enter" dimensions, and were manifest within the medium and high FD spaces. These results imply that the spatial depth in which the fractal spaces are embedded has a direct impact on people's interactions within fractal spaces, with depth of application making the spaces more engaging than surface deep applications. Together, our findings point to the contribution of the spatial depth dimension to designing more interesting fractal-inspired spaces and suggests the importance of spatial designers' creative role of applying fractals in real world everyday space design. It is our hope that the study inspires designers and manufacturers to proactively apply three-dimensional spatial fractals in order to ultimately enhance people's psychological wellbeing.

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Compact Housing: Perceptions and Preferences of Gen Z

Seunghae Lee, Wentworth Institute of Technology
Hae Sun Paik, Korea Land and Housing Corporation

ABSTRACT

Due to the increase of nuclear families, which is one of the phenomena in an industrialized society, U.S. households have decreased in size from 1960 to present. In addition to that, there has been the steady increase of one-person households since the 1960s (U.S. Census Bureau, 2016 a). Based on the 2016 census data, one- or two-person households made up 62.13% of the total households in the U.S. (U.S. Census Bureau, 2016 b). This change in household size caused an increase in the total number of households and led to greater demands in housing units. However, the existing housing stock contains more traditional family type housing that fits household sizes of greater than two persons. Another important aspect in the housing market is that the housing cost is much higher in cities with many young households whose income level tends to be low (McKee, 2012). Thus, it is important for developers and designers of compact housing to understand perceptions and preferences of potential residents in order to provide housing environments that meet future residents' expectations and needs. This study focused on individuals ages 18-27 living in urban areas with annual salaries of less than $50,000. The survey asked questions regarding demographic information, current housing status, employment, future intention to live in compact housing, perception with space saving furniture, perception with compact housing, perceptions with support for activities in compact housing unit, and perceptions with amenities support in compact housing complex. It included descriptions and diagrams to describe compact housing and showed a floor plan of compact housing individual unit of 12' x 13' size with a twin size bed for scale comparison. It also included some images to show space saving furniture. The total of 193 responses were analyzed. The snowballing method has been used for recruitment and data collection. For statistical analysis, general descriptive analysis was conducted all variables first. Correlational analysis and Chi square tests were

conducted as well. There were slightly more female respondent (54.9 %) than male respondents (45.1%); age showed a normal distribution with 20 and 21 at the highest, 21.2 and 22.3 percent respectively. They were mostly students (78 %) living in urban areas with populations of 150 thousand or more (77%). Descriptive statistics showed that 67.1 % of respondents plan to leave alone in the near future while 32.9% do not. The activities they thought the highest importance to be supported were rest (30.6%), hygiene such as shower (18.2%), and then clothes store and organization (9.8%) followed by work and study (9.3%) and food prep, storing and cooking (8.3%). For furniture, bed was the highest (56%) followed by desk (17.6%) and clothes storage (9.3%) in the rank. For amenities in the complex, laundry (21.8%), living room (20.7%), kitchen (15.5%), and gym (11.4%) were the highest. Results from correlational study showed that when they liked compact housing concept more, they liked the saving space furniture more (.519, $p<.001$) and were interested in living there (.689, $p<.001$). Chi Square tests revealed interesting aspects for some relationships; although demographic variables did not show much of statistically significant relationships with preferences toward different activities to support, furniture, or amenities. However, it showed that more women wanted to have private office as an amenity option than men did ($p=.042$) and as such, people who plan to live alone did as well ($p=.009$). The findings from this study will provide some significant insights on current young generation's perception and preferences toward some services and major furniture and activity supports. In addition, it is important to understand that there are some gender differences about private office provision as an amenity option as privacy and safety are important aspects in housing for women who live alone (Kim, 2013).

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Exploring the Roles of Entertainment and Usefulness via Phygital Design in Consumer Brand Attitude in Luxury Retail

Natalie Verdiguel, Cornell University
So-Yeon Yoon, Cornell University

ABSTRACT

With the rise in online shopping, retailers need to find novel and exciting ways to draw customers in store. Phygital design, defined as the incorporation of digital elements in the physical environment in this study, has emerged as an increasingly popular way of doing so. Luxury retail flagship stores, e.g., Burberry, Chanel, and Armani, have been leading adopters of phygital design such as interactive mirrors and digital display walls. Luxury consumers have higher expectations for the physical retail environment than non-luxury shoppers (Klein et al., 2016). With the high-involvement nature of luxury purchases, consumers spend a significant amount of time using digital outlets to collect product information before making a purchase (Hyun et al., 2022). Phygital design elements in the retail environment can provide consumers with opportunities to collect product information while reinforcing positive brand perceptions through an innovative shopping experience. Although recent studies in marketing and retailing have focused on the effects of phygital elements on customer perceptions in luxury retail (Hyun et al., 2022; Lawry, 2021; Pangarkar et al., 2022), controlled experimental studies on phygital interactions are scarce. This study aims to fill this gap by simulating a phygital shopping experience using virtual reality (VR) technology to examine the perceived usefulness and entertainment of phygital design and how phygital design influences attitude toward the brand. Interactive 3D luxury fashion retail stores were created in three conditions: No phygital (control), low phygital, and high phygital interaction. The low phygital condition contains one phygital element ("lift-and-learn" display), and the high phygital condition contains multiple phygital elements throughout the store ("lift-and-learn" display, interactive mirror, interactive digital display wall, etc.). Manipulation checks were conducted with three retail design experts to verify the luxurious appearance of the virtual store. Twenty-six college students participated in the

experiment. In the pre-task survey, participants completed a questionnaire for demographic information, Luxury Consumption Tendency (2018), Hedonic/Utilitarian Shopping Motivation (Arnold & Reynolds, 2003), and the Technology Readiness Index (Parasuraman, 2000). In the experiment, all participants experienced the three environments in a randomized order. After each environment, the participants completed a brand attitude scale (Park et al., 2010) and modified versions of the Perceived Usefulness and Entertainment scales (Sheng & Teo, 2012) to suit phygital experiences. From the analysis results, significant interaction effects of three phygital levels of simulated luxury store experience and individual traits (e.g., shopping motivation and luxury consumption tendency, gender and technology readiness) on brand attachment were observed. In the presentation, we will discuss findings and insights from this exploratory study. Results from this study should support designers and retailers in making informed decisions about when and how to incorporate phygital design elements tailored to the target consumer population of specific brands to create a more satisfying shopping experience.

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How Empirical Research Informs Design Process: Learning from Wayfinding Design Projects Implementing Eye Tracking

Jain Kwon, Colorado State University

ABSTRACT

Problem: This study synthesizes two exploratory studies that implemented eye tracking to examine individuals' gaze behaviors and the 'why' factors in navigating unfamiliar environments. Eye tracking (ET) is a popular tool used in studying visuoperceptual processes. It can measure eye movements—how, what, and where people look at—with high precision providing insights into cognitive processes and attentional states. ET studies often take the eye-mind hypothesis (Just & Carpenter, 1980) as a strong validation for adopting ET, which claims that people tend to pay attention to and think about what they are seeing. However, in spatial perception, the hypothesis could lead to overgeneralization or oversimplification, undermining the qualitative aspects (Kwon & Kim, 2021; Schindler & Lilienthal, 2019). Method The quasi-experimental ET studies adopted mixed methods, including in-situ ET experiments, concurrent think-aloud, and retrospective dialogue, to better understand the covert meanings of gaze behaviors. A convenience sample of 13 females, ranging 20-22 of age, was used in Study 1 and a sample of 25 in Study 2. Both samples consisted of 3rd-year interior design students who were unfamiliar with the building interiors used in the studies. The two sample sizes were different because the studies were conducted for two wayfinding design projects for different client stakeholders, which used our Participatory Neurodesign Model (Figure 1). A wearable eye tracker, Tobii Pro Glasses 2 (sampling rate 50 Hz), was used for in-situ ET. In each experiment, the subject was asked, without time constraint, to navigate (non-stop) through the physical or virtual interior space (Figure 2). The gaze data analysis focused on fixations: what participants looked at as they entered and while they navigated the building; how often they looked at them. Schematic mapping was used to generate heatmaps for visualization of the fixation data. This

process is essential and most reliable for the analysis of in-situ gaze data. Participants' concurrent think-aloud and retrospective dialogues following ET were transcribed and analyzed to find the shared themes in the participants' responses while comparing them with corresponding gaze data. The results were interpreted to determine attention points and the types of information individuals would look for in wayfinding. Areas of interest were not applied in data analysis due to the significant lack of visual information and interior elements in the building used. We synthesized the two studies to find shared patterns in the ET and evaluate the methodological approach for continuous application. Findings A few findings align with Lynch's elements of cognitive maps (1960), e.g., edges and nodes: gaze fixations were significant on or around wall corners, door frames, and side of partition walls. Lacking sense of nodes and edges seemed to challenge subjects in orienting themselves during wayfinding. Null data were heavily found —gaze points shifting too fast and randomly—where had no sign, change of material, or other people for the subject to interact with. Subjects' think-aloud revealed meaningful responses: e.g., gaze fixations did not always indicate visual attention. The subjects often did not notice what they gazed at or remember the content (Figure 4). Gaze fixations appeared to indicate not only positive but also negative attention implying oddness, unfit, or confusion. Colors seemed to play a less role in subjects' wayfinding in both studies. The research findings, along with the stakeholders' input (Figure 3), were applied in two environmental graphic design projects (Figure 5). The design outcomes were evaluated using video walkthroughs and VR simulations (Figure 6). The final design outcomes will be applied in the renovated interior space (Figure 7). The research and EBD application showed eye tracking could be an effective tool for empirical approaches that can provide tangible data for wayfinding design.

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Improving Thermal Comfort by Integration Courtyards in Assisted Living Facilities Towards Energy-efficient Buildings

Nasrin Golshany, University of Oregon
Hessam Ghamari, California State University, Northridge
Negin Nazemi, Shahid Beheshti University

ABSTRACT

Past studies have revealed the health effects of heat waves, causing an increase in heat-induced mortality, especially in individuals over 65 years of age. Moreover, humans are sensitive to temperature and also had certain chronic medical conditions such as cardiovascular diseases, diabetes, respiratory and renal diseases, Parkinson's disease, Alzheimer's disease, and epilepsy. The findings show that at temperatures below 16°C there is an increased risk of respiratory disorders and that significant blood pressure rises have been observed. While air conditioning is a solution to provide thermal comfort in some countries, alternative passive solutions could be preferable through low-energy options. The integration of a courtyard, as a passive cooling/heating strategy for climate control in providing indoor thermal comfort, minimizes global trends in increasing the energy demand for active systems of climate control which has serious negative impacts on the natural environment. While there is an increasing body of research on the impact of well-designed supportive outdoor environments on enhancing the quality of life and wellbeing for patients living in residential facilities, there have been very limited studies on how to improve indoor thermal comfort, as a non-pharmacological strategy, by a well-designed courtyard in a healthcare facility. In response to this critical gap, this project's scope is focused on studying the thermal performance and comfort in assisted living facilities to design these facilities to support the elderly using natural passive strategies. The project aims to investigate the concept of courtyards within assisted living facilities as a passive cooling/heating strategy for improving indoor thermal comfort in Tehran, Iran. The research method consists of evaluating various geometries and materials for open and enclosed spaces of courtyards as well

as natural elements through computational fluid dynamics analysis. In the first step, a comprehensive literature review was conducted to identify the most influential attributes of the courtyard in providing thermal comfort for the residents. Next, six different types of courtyards were simulated according to the most effective attributes (2 types of geometry, 2 types of materials, and courtyard with and without natural environment) in the IES-VE software to compare the newly designed model with the typical design of assisted living facilities. The findings of this study will assist to compile a series of design recommendations that elaborate the energy efficiency strategies by integrating the courtyard in assisted living facilities. The environmentally sustainable proposed design model can be used in assisted living facilities to mitigate the negative impact of thermal discomfort and minimize energy consumption. The design implications of this study aim to improve assisted living facility design that supports enhanced human health, life-lengthening, and reduction in illness. This study can pave the way for future studies where longitudinal studies are conducted to measure the impact of the integration of courtyards in assisted living facilities on health and well-being outcomes. The post-occupancy evaluations after the integration of the courtyard in assisted living facilities will demonstrate the impact of design intervention in these facilities.

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Industry Trends of AR, VR, MR: Current Practices and Forecast

Hoa Vo, Georgia State University
Dr. Kevin Hsieh, Georgia State University
Peter Huesemann, Georgia State University

ABSTRACT

Current literature shows the increasing use of virtual simulations, such as augmented reality (AR) and virtual reality (VR), to study the built environment without a physically constructed environment. For example, prototyping renovation projects to reduce construction costs (Ding et al., 2019) and perceiving indoor lighting with greater accuracy (Krupiński, 2020). While research applications of virtual simulations are profound, there are few discussions on how practitioners utilize said technology advancements in the industry. Virtual simulations in experiments were chosen to fit the control and research questions of the researchers. In other words, they do not necessarily reflect real-life applications derived from interactions between professionals, clients, and other stakeholders. Given the lack of discussions on industry applications of said technologies and the emergence of mixed reality (MR) (DeVito & Ngalamou, 2021), it is critical to ask professionals about their uses of virtual simulations to prepare interior design students for an ever-changing job market. This survey research, hence, explored the current practices and forecast future usages of AR, VR, and MR in Interior Design by answering the following questions: What are the applications of AR, VR, and MR in the ID industry? What software and equipment are needed for using AR, VR, and MR in the ID industry? What are the perceived benefits and limitations of using AR, VR, and MR in the ID industry? Survey results provide an overview of current industry practices and forecast future usages of AR, VR, and MR in Interior Design. Educators can use these insights as references to develop new pedagogies that benefit students in the dynamic landscape of virtual simulations. The Qualtrics-administered survey of 26 questions covering: (a) demographics and (b) current industry practices and future usages of AR, VR, and MR in Interior Design (ID). For face validity, all questions resulted from an

extensive literature review and were reviewed by two industry experts and a data specialist. Data was collected in 2022 with the survey link posted to professional channels such as LinkedIn, official community groups of professionals using virtual technologies, and Twitter profiles of professionals (with their agreements). Fifty-eight professionals consented to the survey, but only 50 completed all the questions. Among the respondents (n=50), 74% were male, 22% were female, 2% indicated as trans, and 2% preferred not to disclose. The majority were in the age groups of 25 to 34 years old (38%) and 35 to 44 years old (32%) with Bachelor's (46%) and Advanced degrees (47%). Most resided in the United States of America (66%) with more than ten years of experience in Interior Design (49%) and understood AR, VR, and MR very well (44%). Respondents' workplace sizes ranged from 1 to 9 employees (30%) to over 1000 employees (8%), with the following sectors: commercial (24%), residential (18%), mixed-use (16%), institutional (11%), and others. (i) Industry applications of AR, VR, and MR ranged from three-dimensional (3-D) models and visualization, presenting designs to stakeholders for better understanding to visualizing Building Information Modeling (BIM) design to evaluate the utility and detect assembly issues, among others. (ii) Software and equipment for AR, VR, and MR were Enscape, Unreal Engine, Twinmotion, and Unity, which run on Oculus Rift/Rift S, Meta Quest 2, and HTC Vive. (iii) Perceived benefits of using AR, VR, and MR included (but not limited to) enabling knowledge stakeholders to assess design ideas virtually and analyze data in a new format, helping users to visualize plans, and walkthrough designs, reduce errors, and shorten design time, allowing earlier detection of design flaws, and encouraging collaboration and communication. This presentation will elaborate on said results and discuss pedagogical implications for Interior Design education.

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Investigating Art + Design Incubators as Places of Co-creation

Newton Dsouza, Florida International University
Asha Kutty, University of North Carolina- Greensboro
Tania Torrado, Florida International University

ABSTRACT

Current demands for places of collaboration have generated a variety of new place types that facilitate free exchange of ideas, learning of new skills, and innovation. One such facility, Art+ Design incubators, have emerged to foster a culture of co-creation between artists, designers and entrepreneurs. Using a case study at Miami, Florida, the research sought to investigate the extent to which the incubator facility afforded co-creation and specific interior design elements or systems that were correlated to co-creation. A research design of mixed methods was used consisting of journal documentation, activity mapping and focus groups. The goal of activity mapping was to capture locations and movement patterns within the incubator spaces associated with creative activity. The activities were captured using cameras that were installed in strategic locations within the incubator to record the location and movement activities. Participants were also asked to document their activities through a journal to get more in-depth insights into their creative process. In these journals, participants were instructed to document their specific activities, the time within which these activities were completed, and the extent to which these activities were rated as "high creative activity," "medium creative activity" and "low creative activity." While the activity mapping documented the activities and patterns of movements of users, the journaling exercise documented creative events that were used to check association between creative activities and the incubator space usage. Finally, a focus group was conducted to get general insights into creative activities within the incubator such as the most and least conducive spaces for creative work, and the extent which digital technology played a role in the physical functioning of incubator space. The study of Arts + Design incubators points out to some interesting implications to the workplaces of tomorrow. It shows that design features play

an important role in materializing the aspirational goals of an organizational work culture. Openness of spaces was considered both as an asset and a liability. One one hand, "openness" afforded seamless interaction, variety of furniture configuration, and access to unobstructed daylighting. It also allowed an autonomy of walkability, in case someone needed to interact with others and facilitated long distance conversations without having to move closer to their peers. On the other hand, the "openness" of space created a sense of "being watched or on display." Reservations were expressed on how openness could create intellectual property issues when a product is still in the process of being created and be seen or emulated by others. Informal gathering spaces and threshold spaces such hallways, foyer, and kitchen were found to be as important as assigned formal spaces. Lack of dedicated spaces created a lack of ownership and overtly curated spaces were considered disruptive to the "messy" nature of creative thinking. Environment-behavior attributes such as autonomy and control, adaptability, image, identity and flexibility were important considerations as much as acoustical comfort and access to space. The incubator was in general required to be an inspirational space that projected optimism.

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Investigation of Visual Attributes of Wayfinding in Residents with Alzheimer's Disease in Memory-Care Facilities

Hessam Ghamari, California State University Northridge
Nasrin Golshany, University of Oregon

ABSTRACT

Alzheimer's Disease (AD) is a devastating condition for those afflicted and affects family members and caregivers. Approximately 5.2 million Americans had been diagnosed with AD in 2015. The Center for Disease Control and Prevention (CDC) ranked AD as the sixth leading cause of death in the US and the fifth leading cause of death for those aged 65 and older. Challenging behaviors associated with cognitive deficits in residents with Alzheimer's Disease (AD) often turn unmanageable at home and become a danger to the individual and/or others. With the therapeutic environmental design, environments can be created with consideration of the limited capabilities of individuals with dementia, and design elements can be included to assist residents in adapting to their environment, increasing their well-being and daily functionality. There is an increasing body of research on the impact of the architectural designs of supportive environments and increasing the quality of life for residents with AD living in residential facilities. However, there have been very limited studies on improving wayfinding and the ability to learn and remember a route through the environment with the overall goal of being able to relocate from one space to another in large-scale spaces in healthcare facilities and other indoor environments. In the absence of empirical data in this area, the present project would serve as an attempt to examine eye-fixations of residents with AD during their navigation of nursing home facilities. This research will identify the most determinative and influential elements of the designed nursing home environments that attract eye fixation during wayfinding, by objectively tracking eye movements and fixation as residents with AD navigate through a nursing home facility in which they live in. A purposive sampling strategy (based on the

inclusion criteria of the subjects) was used to identify and recruit twenty- four individuals with AD residing in care facilities in two assisted living facilities. Subject recruitment for this study was facilitated by the administrators of care- facilities. As part of the screening process, the Mini-Mental State Examination (MMSE) tool was used to assess the mental status of the potential subjects. Residents with AD were recruited from mild to moderate stages of AD. Analyses of navigation behavior (i.e., number of errors, number of hesitations, etc.) were used to cross-validate the reports of care staff regarding participants' ability to independently reach their destination. Eye movements were tracked using EyeGuide®Mobile Tracker. The Eye-Guide analysis software was used to combine eye-tracking information with the video displays on the computer monitor as people navigate. The findings of this research project showed that architectural features and directional signs were the most influential environmental attributes that impact wayfinding for residents in care-facilities. These results showed differences between AD patient and people without AD in regards with wayfinding behavior. The findings of the study will be helpful in providing non-pharmacological strategies and interventions including recommendations for creating therapeutic environments in the memory-cares and senior living facilities that facilitate wayfinding for residents dealing with AD.

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Reimagining healthy academic libraries for a post-pandemic future

Jae Hwa Lee, Iowa State University

ABSTRACT

The COVID-19 pandemic has made distance learning more normalized, and hybrid learning formats are a necessary option. As several campus spaces end up underutilized during this time, college and university facility planning may need to reevaluate the real-time desires of their students and inclusive long-term uses of their physical assets. In the meantime, colleges and universities are highly concerned about students' health-related issues due to their routine shifts more than ever. Examining the actual changes in preferences and behaviors of students would help colleges and universities expand their resources and improve the quality of life for students and the community. This study investigated the changed uses of one academic library over the pandemic. The case study in one of the public universities in the Midwest United States contained physical walkthroughs, multiple sets of behavior mapping, and student surveys and interviews. The survey results (N=981) indicated statistically significant differences in using the main campus library after the effects of the pandemic: less frequent visits ($x2=65.821$, $p<.001$), less time spent ($x2=9.796$, $p=.044$), and lower satisfaction with environmental quality ($F=2.107$, $p<.001$). Meanwhile, the behavior mapping data released that the library was a social hub where students could work in groups and share tutoring in 2019 and a secluded study pod in 2021 as they involved substantial remote learning. Specific needs and solutions from the analysis have been discussed in four themes: Control, Flexibility, Connection, and Integration. Comparing preferences and behaviors before and during the pandemic implies academic libraries' changing roles to more inclusive and accessible, accommodating diverse students with physical/mental challenges and social needs in a digital context. Now can be a perfect time to reimagine future campus planning toward healthier student/community lives in physical, mental, and social dimensions.

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Reintegrating Time as a Fundamental of Interior Design

William Furman, Queens Univeristy of Charlotte

ABSTRACT

People move through space in time. Space and time are ever related to our human experience. While several noted books on the fundamentals of design and architecture include the mention of time, time seems to not be explicitly discussed and covered as a fundamental of interior design. For example, conference proceedings and accreditation standards reflect a history of thinking critically about other aspects of design such as materiality, color perception, and "principles and elements of design", but with little indication, that time plays a central role. Time, like many elements, seems only present when we make ourselves conscious of it. Time is often referenced as a secondary or tertiary element only in relation to other factors we place as more important, such as aesthetics, form, spatial organization, spatial transitions, configurations of pathways, floor plans, collisions of geometry; or during the generation of visuals, such as generating frontal, oblique, and spiral approaches to form, or when generating a series of sections, perspectives, or a "walk-through". Additionally, principles of design refer to rhythm, repetition, and progression, suggesting a strong relationship to time, but are not the properties of time. And the properties of light and color are often characterized in relation to each other, but what about their change with the passing of time? While some spaces change over time, how does our own perception of space change with the passing of time? How do ritualistic practices from the intentional to the mundane relate to temporal relationships in time and space? What are the difference between instance, duration, and tempo, and how can these properties of time help us design? How can we engage students to design effective and memorable interior experiences and not take into consideration that time as a critical element of design? These statements and questions suggest that time is often an overlooked and forgotten element of design and an untapped lens through which we can better view interior design. This presentation is composed

of the various philosophical, historical, scientific, cultural, and practical approaches to time, from those embedded in historical literacy, and how we treat time, and past experiences, artifacts, and events over time, to reexamining how design is often compared to compositional time-based arrangements found in music, moving image media (film), poetry, and narratives, where pauses in time, or the organization of frame, shot, and sequence are a fundamental outlet of innovation. It includes examples of student assignments generated around the central topic of time and is aimed to inform, suggest, recommend, and provide various references in the context of teaching interior design through the lens of time. We live in a time where we seem to value time exponentially, thus interior design can further explore time-based theories and their properties in addition to space, light, color, material, and texture. The presentation argues that time is a fundamental element of interior design that educators should actively incorporate to help students understand the human experience.

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Spatial Perception: Exploring Interior Design Students' Sense of Spaciousness Using Eye Tracking and VR Tools

Alp Tural, Virginia Tech

ABSTRACT

The aim of the study is to examine the effect of space defining elements on interior design students' judgements of spaciousness perception. Building on the literature on impressions of spaciousness and the associated environmental perception factors, relationship between one's sense of spaciousness and degrees of brightness, color and boundary design are studied. Former research has adopted theories of stimulation, attention restoration and affordances to assess users' sense of spaciousness and discussed spaciousness as a factor of enclosure. Their findings suggest a strong correlation between sense of spaciousness and surface area, ceiling height, overall brightness (amount of light), furniture layout and density, and surface colors (Stamps 2009, 2010, 2011; Imamoglu, 1986; Inui and Miyata, 1973; Al-Zamil, 2017; Moscoso et. al., 2015; Castell et. al., 2014). Those variables were primarily studied by presenting static stimuli (print, projection or screen-based) to research participants. Their visual attention or gaze were not investigated. More research was deemed necessary specifically to study permeability considering aperture design and their position on vertical surfaces (Stamps, 2007). Virtual reality (VR) has a great potential to study those variables in immersive 3D interior settings where space defining aspects can be manipulated easily. The use of virtual reality as a test bed to explore human behavior in the environmental design and environment behavior research fields is not new. User experiences, their spatial perceptions and, psychological and physiological responses to various stimuli within the digital environments were studied in several design domains. The findings were compared and contrasted with experiments conducted in real settings to explore VR as an alternative experimental protocol considering the potentials in manipulating studied variables and their degree of dependencies with better control (Abd-Alhamid et al., 2019; Banaei

et al.,2020; Birenboim et al., 2019; Bishop & Rohrmann, 2003; Heydarian et al., 2015a; 2015b; Higuera-Turijillo et al. 2017; Katy et al. n.d.; Hong et al., 2019). Still, research shows realism and immersion in VR and attained user response are context dependent (Toet, et al., 2009; Wilson and Soranzo, 2015), especially when representation of nature is of concern (Newman, et al., 2022). This two-phase study incorporated eye tracking data collection method and also used VR as a data collection protocol. Fifteen interior design students participated in the study. In the first phase, participants viewed digitally rendered spaces on the computer screen. Their gaze data were collected by using screen-based eye tracking hardware. In the second phase, they perceived the same spaces in virtual reality using a head mounted display. During the sessions they were asked to rate their sense of spaciousness on a seven scale Likert. First phase data and participants' rate of spaciousness were analyzed statistically using descriptive statistics and also utilizing Mann-Whitney U test to test the hypotheses: H1: Brighter environments will be perceived more spacious regardless of: H1.1 Boundary design H1.2 Surface color H1.3 Surface texture The ratings for the screen-based stimuli are also correlated with participants gaze data using the created areas of interest (AOIs) and gaze-based statistical values. In addition to sense of spaciousness ratings, second phase data included two additional questions to examine participants sense of immersiveness and presence and comfort level and experiences while using the head mounted VR display. The study contributes to the interior design research field by exploring spatial perception, spaciousness and space defining variables using VR and eye tracking tools. Expanding on the second phase of the study, future data collection protocol will include eye tracking within the VR environment, too.

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Tech-driven Immersive Art Experience and Brand Perception in Experiential Retail Design

Jhovanna Perez, Cornell University
So-Yeon Yoon, Cornell University

ABSTRACT

As technology has offered consumers new purchasing outlets, the purpose of retail stores has been rapidly changing. Consumers' expectations of retail stores have increasingly shifted toward seeking enriched retail environments and brand experiences that are not available via online shopping. Experiential design offers novel design elements as a form of marketing and branding strategy in which services and products are introduced in a spatial narrative with creative, and immersive motifs. The emergence of the novel tech-driven immersive art exhibits has proposed a promising potential to the retail industry to draw customers back to the physical stores (Baek et al., 2015; Solanki, 2022). Projection mapping is an immersive video technique that uses color, light and imagery such as geometric patterns displayed on surfaces transformed into 3D optical illusions (Jung & Lee, 2015); a popular exhibit that has used this technique is L'Atelier des Lumière museum in Paris. Another relevant tech-driven technique is generative-art which is an artistic medium using computer generated imagery; relevant work in retail is seen by artist Rafik Anadol at Bvlgari flagship store in Milan (Boden & Edmonds, 2009; Bvlgary, 2021). Research in consumer behavior and fashion marketing show the use of creative visual merchandising in thematic stores allow customers to sense a robust brand presence, and have a strong positive perception to experiential cues. (Baek et al., 2015, Jahn et al., 2018). In this experimental study, we proposed the use of generative art imagery and projection mapping to create an immersive experience on a large feature wall in a retail environment to explore the practical effect of this immersive technique. This tech-driven feature was used to evaluate customer's experience via VR mockups and self reports. The purpose of the study is to investigate the impacts of immersive art elements in retail environments on customer's brand perception, brand experience and behavioral intention. Interactive 3D environments were created in two conditions: static

experience - control (brand related graphics) vs dynamic experience (tech-driven immersive experience). A total of forty five volunteers were recruited to participate in the study conducted in a Metaverse platform, Spatil.io. Each individual participant was asked to join the virtual 3D environment and walk around the store. After experiencing the store, they were asked to complete a survey comprising of question items from Brand Attitude (Spears & Singh, 2004), Brand Experience (Brakus et al., 2009), and Behavioral Intention Scales (Cronin, et al., 2000) as well as demographic information, shopper characteristics (Choi & Koo, 2007), Product Involvement (Michaelidou & Dibb, 2006), and Positive Affect (Watson, et al., 1988). Results showed that tech-driven immersive experience has a significant effect on brand perception and brand experience. Additionally, a significant effect of shopper motivation on positive affect and brand experience was observed. Findings of the study should provide retailers, designers, and researchers with useful information to understand the implications and benefits of the new tech-driven art experiences in retail environments as a branding strategy.n the presentation we will discuss the findings in detail and further directions of the innovative approach to enhancing customer experience in retail environments.

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Visual Comfort Simulations of a Designed Responsive Façade for Indoor Environments

Zhina Rashidzadeh, University of Oklahoma

ABSTRACT

Human beings spend most of their time in indoor spaces, and the quality of their occupied space is of utmost importance. Metrics like glare and illuminance impact occupants' functionality and health. Moreover, improving visual characteristics in interior spaces, including glare and illuminance, adjusts occupants' circadian system and mitigates the need for artificial lighting. This study uses photochromic glass modules whose color changes according to the light intensity. The enhancement is generated not only by the modules' movements but also by the modules' color changes. This study aims to improve the occupant's long-term health related to light intensity inside an educational building and decrease lighting energy consumption to achieve sustainability in design. The designed system's module is inspired by the ornaments on the skin of a sample educational building. The diamond-shaped modules are made of different colored photochromic glasses resembling a chameleon's skin. The system included five vertical strings containing these modules and four horizontal strings, which are photosensitive. It rotates accordingly to provide the ideal light intensity for the occupants. Modules are hybrid colored by photochromic dyes simulated for an educational classroom in a hot climate. The daylight glare probability (DGP) is a visual comfort metric that predicts discomfort for a human in an assigned position and orientation in the environment. Also, useful daylight illuminance (UDI) is another metric that indicates the percentage of available useful illuminance in operating hours for occupants. Initially, DGP and UDI simulations are run in the Rhino software using the Grasshopper Honeybee-Legacy plugin for regular window glass. Then the glass was replaced with different photochromic window colors, and DGP and UDI simulations were run for them. Finally, the designed hybrid modules are applied, and the same simulations are conducted for the designed system. The results reveal that the proposed responsive façade design is highly

effective regarding DGP efficiency. The findings illustrated a considerable improvement of 20% for photochromic glass and a 45% enhancement for designed hybrid modules in DGP simulations compared to the regular window. Moreover, the UDI improvement for the photochromic glass was 10%, and for the hybrid modules was 25% compared to the consistent glass window. This study simulates the occupants' comfort metrics using a hybrid responsive façade to evaluate the building's indoor comfort. These findings enable interior and lighting designers to design building envelopes according to the occupants' comfort in the building's indoor environments.

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Exploring the effect of the opportunity for students to monitor their design progress on their motivation level

Jinoh Park, University of Arkansas

ABSTRACT

This study investigates whether students' motivation levels may be maintained by providing them with the opportunity to track their design progress throughout the semester. It is the second-year study of a research project addressing the topic of increasing students' motivation level during the semester. The first-year study looked at changes in the level of motivation for students to successfully complete the semester when they were provided 2-3 incentives based on their achievements after the semester had ended (XXX, 2021). The first-year study found that after-semester incentives were effective for motivating voluntarily motivated students, but not for motivating students who had lost motivation during the semester. Regardless of motivation levels, the research participants agreed that the joy of designing was the greatest motivator. Specifically, one individual stated that the greatest motivation is the joy of seeing the project that one is designing being realized and completed, which was the reason for choosing this interior architecture and design program. As a result, it is necessary to explore how the joy of design can be utilized. There is a study addressing how tracking and visualizing students' efforts affect students' achievement and attitudes toward learning. The research explained that there were direct benefits of tracking and visualizing students' efforts to their motivation as well as the encouragement of a growth mindset (Nagy, R. P., 2016, 187). By combining the previous two research, this research asks "Does providing students with the opportunity to monitor their design progress help to maintain their motivation?" It aims to increase motivation and prevent students from losing motivation throughout the semester. This research conducts an exploratory case study (Yin, R., 2017), using the sequential exploratory mixed-method framework (Plano Clark, V. L. & Creswell, J. W.,2017). The study's research population is a section of third-year

design studio students in a CIDA accredited interior design program. Aside from the incentive opportunities provided in the first-year study, this research also provides an opportunity for design progress monitoring. A call for research participants is made by this researcher on the first day of the semester. As soon as the research participants are recruited, the researcher 1) compiles their design process, 2) visualizes their efforts, and 3) shares the visualized outcomes with them to track their progress in accordance with the curriculum schedule. After individually sharing each visualized effort with the research participants, the author collects responses to students' motivation levels through the Likert scale questionnaires. Using the questionnaire, the author collects and analyzes quantitative data and observes the changes in motivation levels of the participants. At the end of the semester, the author conducts semi-constructive interviews with the research participants individually. Through the interview, the author will collect qualitative data addressing the quantitative data as measured by the Likert scale questionnaires. By synthesizing the quantitative and qualitative data, the author will address the effect of the provided monitoring opportunity on students' motivation levels. Additionally, it will be able to evaluate the impact of existing incentive opportunities (since the first-year study) and the new opportunity (this second-year study) to monitor the progress of the designs on students' motivation. Consequently, in order to improve student motivation, this research proposes a model of providing a design progress monitoring opportunity in an interior design studio.

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Faking It: The Often-Overlooked Part of Problem-Solving

Kevin Woolley, Purdue University

ABSTRACT

Students are exposed to methods of addressing problems from their first design studio course. However, do students fully embrace the process of learning? Or do they fake the problem-solving process to satisfy a teacher and earn a high grade? "Faking it" presents an interesting paradox for teachers. How should we respond? This research examines the reasons students give for faking it and how it impacts their range of learning experiences. Teachers are rarely in the position to identify, teach, and evaluate all possibilities for solving design problems (Wang, 2010). But, all students look to their teachers for contextual knowledge and how to use it to solve design problems effectively. This creates a paradox. Students feel obligated to either accept one teacher's preferred design process over another or fake it and provide evidence of process work that is not entirely their own. Gradually the desire for a better design outcome or grade overrules adhering to the instructor's preferred process means. Process work becomes more genuine as the student alters the problem-solving method into something more organic and meaningful. The research approach for the study was qualitative, descriptive, exploratory, and ethnographic in nature (Flyvbjerg, 2011). It is descriptive because it describes what is happening. It is exploratory because it is studying new knowledge. It is ethnographic because it is an observation of people and what naturally occurs in a design studio setting. The qualitative approach was used because it comprises more detail, richness, and variance than other types of analysis. Four themes came to light after analyzing group discussions from two classes of 4th-year interior design students. Follow-up Q&A sessions clarified individual opinions that were underdeveloped or less understood. (Theme 1) Process Conformity: The student will meet teacher expectations whether they understand or not. (Theme 2) Process Diversity: The student's process is determined by ideas, hypotheticals, and educated guesses, not an imposed system of prescribed

stages and tasks. (Theme 3) Process Adaptation: The student is unable to produce their best work when following the teacher. The student experiments and tries to make the best of the situation. (Theme 4) Process Integration: The process changes with experience and is distinguished by students taking charge of their own learning. Such findings resonate with Chickering and Gamson's 'Seven Principles of Good Practice' (Ankerson & Pable, 2008, pp.46-47). Educators must recognize that learning opportunities are often spontaneous and directed towards answering a question or problem of the moment. Learning goals can be unified under an umbrella of differentiated problem-solving activities. Studio problems that are too controlled rob students of valuable experience that allow them to interact with problems and integrate them into their development. Grappling with problems helps students discover new insights and pathways that lead to solutions. In this way, knowledge can flow freely between teacher and student, so both become productive problem solvers. Faking it is determined by pedagogy: i.e., learning activities focused on a single process or structured around the student. The thrust of this study does not assume that there is no need for teachers to teach the design process nor that problem-solving is an arbitrary act of individual preference. The problem-solving process can be viewed as a strategic choice instead of a checklist. In this way, teachers can incorporate both structured and self-selected elements that help students become independent problem-solvers.

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Understanding the Evolution of Online Design Knowledge-Building: A Case Study on Learning Materiality

Kutay Guler, Kansas State University

ABSTRACT

Even though the foundation of online design learning has been laid three decades ago (Kvan, 2001), this last decade has been an outstanding stage for leaps and strides in technological advances with regard to the internet, corresponding technologies, and modes of interaction. As a consequence of this pent-up potential, the impact of COVID-19 acted as a significant catalyst to inspire a paradigm shift in the way online design learning is perceived by the students as well as the educators. The shortage of research on online design education has been pointed out multiple times (Jones et al., 2020). Furthermore, within this shortage, there's a disproportional focus on online design studios. Other components of the design curriculum, specifically lecture courses focusing on design knowledge-building are often overlooked. One such lecture course is materiality in the interior design curricula. All of Section 13 of the Council for Interior Design Accreditation (CIDA) guidebook is dedicated to this particular subject, though actual course content goes beyond covering many other issues such as sustainability, health, safety, specification, etc. Materiality is unique among interior design courses, as course competencies extend beyond building a theoretical knowledge base, and necessitate experiencing and experimenting with materials, thinking about application and possible alternatives in different design scenarios. This study presents the findings of a 4-year long case study on learning materiality, investigating the learning experiences of interior design students (n=87) enrolled in an online materials course between 2019 and 2022. Data was collected through a 63-item survey via a semantic differential scale response method. Each installment of the course was delivered through Canvas over the course of 8 weeks. The course components included text/image/video module content, module quizzes, discussion boards, spatial materiality analysis, pre-recorded

representative presentations, and material board development assignments. Below some descriptive data are interpreted. Results of exploratory factor analysis will also be presented (Fabrigar et al., 1999). Students found the online delivery method to be efficient (M=3.90, SD=1.02), and course load distribution to be towards uniform (M=3.54, SD=1.18). At this point, online learning is very familiar with the modality as they had to adjust their learning approach and habits slightly (M=2.60, SD=1.17) and they had a general sense of independence (M=3.55, SD=1.17). One interesting finding is that there is only slight variability between responses over the years, suggesting pandemic-era changes didn't create a meaningful difference in student perception. A big issue in online learning is self-regulation (Rollag, 2010). Students responded very positively to course objectives and expectations being made clear from the beginning (M=4.39, SD=0.96), as well as they thought they had a clear trajectory (M=4.46, SD=0.98). Even though a visual calendar with suggested dates is provided, the lack of concrete deadlines was only perceived as partially positive, with high variability (M=3.41, SD=1.25). Students appreciated the regularly provided guidance on navigating the course (M=4.09, SD=0.95). Creating a sense of community and establishing engagement is another significant problem (Garrison et al., 2010). Even though students found observing others' participation beneficial (M=3.81, SD=0.93), and interactions to be a positive component (M=3.58, SD=0.95), they didn't particularly think that their own participation mattered as much (M=2.98, SD=0.99). It is expected that the findings presented will help clarify the picture of student experience and anticipate the trajectory of the evolution of online design knowledge-base building, determining which course components work and which ones require a transformation and in which direction.

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Virtual Reality 3D Modeling for Creative Thinking. A Pilot Study Using VR-Sketch

Luis Mejia-Puig, University of Florida
Aishah Aldhaferi, University of Florida

ABSTRACT

The use of CAD tools in design education and practice has been around for many years, but since their introduction, much has changed. From basic vectorial software to developing floor plans and schematic drawings, digital tools nowadays offer immersive visualizations or interactive digital environments. Within the design discipline, virtual reality (VR) has gained terrain as an effective digital tool for human behavior assessment (Li, & Xie, 2022; Pickersgill, 2021). VR enables designers and stakeholders to make design decisions before anything has come to exist. It allows variable manipulation, foreseeing spatial characteristics, and exploring human interactions. Overall, VR benefits open new venues for digital modeling software (Tran, et al., 2021). Digital modeling software is frequently used in design practice and educational scenarios. Through it, designers can manipulate planes, solids, and lines to construct digital models for visualization purposes, photorealistic renderings, or human interaction through multiple plugins. Nonetheless, the way designers interact with this software to develop their models is frequently overlooked. The most common interface between man and machine is through conventional mouse-screen interaction. However, software developers have realized the benefits of immersive VR interfaces to creative thinking (Freeman et al., 2018). Examples of digital sketching VR tools are Tilt Brush or Gravity Sketch. In these, individuals are immersed in a VR environment in which they can draw in thin air. A modeling software frequently used in design practice that can have a similar interaction is Sketchup. Designers can use the VR-Sketch plugin to model architectural and interior design solutions while immersed inside those models. This interface allows designers to manipulate their scaled digital model and have the property to teleport inside the model and keep modeling. It opens new opportunities for design exploration. This pilot study delved into two conditions of digital modeling in Sketchup. The first condition used the

traditional human-computer interface of mouse and screen for digital modeling. The second condition used VR through a six-degrees of freedom head-mounted display (HMD). Inside VR, designers used the VR-Sketch plugin to develop their digital model in Sketchup. Participants were given a design brief constrained to a digital dorm-like space that they were required to complete by adding furniture-like basic geometries. The rationale behind this brief was to develop a virtual dwelling environment for the Metaverse. To assess differences between conditions, this study looked at cognitive load (CL) and creativity of the designed outcome. Cognitive load was deemed relevant to determine interface differences between conditions. Cognitive Load Theory (CLT) supports how the working memory oversees problem-solving. Still, it is limited and affected by three types of CL: intrinsic (the problem to be solved), extraneous (external factors while solving the problem), and germane (building knowledge to store in the long-term memory). Psychometric and psychophysiological instruments were used for data collection and analysis. Pre- and post-experiment questionnaires included questions to assess the experience, CL, and simulation sickness. A functional near-infrared spectroscopy (fNIR) device was used to expand on CL by registering physiological changes in the brain's frontal lobes. Finally, the participants' designed outcomes were assessed by external evaluators to explore which condition elicited more creative outcomes. Preliminary findings of this pilot study suggest that immersive VR modeling can elicit more creative designed outcomes and positively affect participant engagement but can negatively influence CL. Moreover, this study explored new digital tools for design practice that can be incorporated into enhancing design education.

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"Can I see myself working with this person?" Practitioner insight of highly sought after behaviors in design teams

Terry Londy, Florida State University

ABSTRACT

Introduction Hiring is a costly and meticulous process that requires extensive time to advertise, communicate with candidates, and review resumes and portfolios, in order to determine if someone will fit in well with an existing team (Bowen et al., 1991). The thought, "Can I see myself working with this person" is often the crux of the final decision for the person/team conducting the hire. When hiring a future designer, teams will review portfolios at length in search of a skill set that will complement their team dynamic, but skills can be taught whereas behaviors are more difficult to train on the job. The portfolio will hopefully earn the candidate an interview, where teams will discover how the personality and behavior will connect with a design team. Every recent graduate wants to know what the practitioners are looking for in a team member. A well-executed interview strategy for both the interviewer and the interviewee will address the critical interaction of behaviors on the design team and how the new hire will fit in. By leveraging working relationships in the design industry, the researcher analyzed the hiring process to understand the highly prized behaviors that practitioners are looking for in their new team members emerging from education. This study was framed by the following questions: 1. What behaviors exhibited before and during an interview are highly sought after by design practitioners? a. Are they looking for differing behaviors based on design discipline, or could there be a common thread with several design disciplines? 2. What are the highly sought-after behaviors that make new hires stand out as high performers? Methodology & Findings The research project was funded by an internal university grant and occurred in two phases, a survey and follow-up interviews. 80 design professionals from the disciplines of Interior Design & Architecture, Graphic Design, Industrial Design, Experiential Design, and Design strategy were

invited to participate in the survey and 40 completed it (50% RR). Of these 40, 25 professionals engaged in the interview phase (31% RR). This mixed methods approach yielded informative statistical data from the survey and the interview phase captured rich data from open-ended questions. In the interview, scripted questions on the hiring process and what behaviors warranted prospective job candidates to stick out among the rest. When coding and reviewing interview & survey data three highly sought-after behaviors emerged from the practitioner's insight. Percentages are based on survey answers rating behaviors experienced in the interview/ early hire process. • Effective Communication/ Presents work well (79%) • Motivated (Self Starter) (73%) • Positive Mindset (The clubhouse hire) (71%) Design practitioners felt these three behaviors translate well to recent hires' ability to acclimate on the job. Effective communication provides benefits within team dynamics, via internal communication and presenting a design solution to the team. This skill can also be fostered in client relationship building, gaining new business, and presenting designs externally to clients. Second, motivation was valued by respondents in terms of self-starting behaviors: high-performing new hires would take on tasks with minimal direction; evidence of an entrepreneurial attitude emerged when the new hires were challenged in new complex situations. The third behavior teams value is a positive mindset, commonly called the "clubhouse hire", a baseball reference for the team member that may not produce the most but keeps the team together. Team leaders felt that having a team member with a good attitude elevates the team culture, and encourages collaboration & accountability with one another, further strengthening the team bond. In this presentation, the researcher will touch upon additional behaviors valued by the respondents that follow these top three.

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Design Factors Affecting Millennial New Employees' Job Stress in Workplace: A mixed method Study

HUILI WANG, South Dakota State University
Michelle Pearson, Texas Tech University
Kristi Gaines, Texas Tech University

ABSTRACT

Background Millennials are the largest generation in the U.S. workforce today and they are thought to have significantly different working preferences compared to previous generations (Pew Research Center, 2018). Previous research has documented increased rates of turnover among millennials, with most turnover occurring in new employees who work less than two years (Kuron, 2015). Studies also found turnover intention positively relates to job stress (Arshadi, N., & Damiri, H., 2013). Job stress is defined as the physical and emotional harmful effect on employees when job requirements fail to match needs or resources and may cause turnover. Most studies in job stress have focused on psychosocial influences but pay little attention to physical features of the work environment. Sadatsafavi (2015) found that new hires are more sensitive to the way a facility is designed than employees with longer tenure. Therefore, this study focus on investigating whether workplace design factors will affect millennial new hirers' job stress level. Methodology A mixed methods study was conducted to answer the research question: What physical work environment factors affect millennial new employees' job stress? The qualitative research is motivated by the need to deeply understand how millennial 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. The data used in the analysis of the focus group discussion

included the audio and video recordings, online chat, verbatim transcripts, and the assistant moderator's notes. The transcripts were reviewed several times to gain an overall understanding of the data and then analyzed in NVivo. 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 stress. 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 variables were job stress. In total, 252 responses were collected for this survey. Results After open coding, axial coding and selective coding, five physical stressors were identified which are affecting millennial new employees' job stress. They are 1) undesirable lighting, 2) distraction and noise, 3) uncomfortable temperature and lack of control, 4) unorganized messy office, 4) uninspiring aesthetics. 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 stress. The results of the regression indicated that the model was a significant predictor of millennial new employees' job stress, $F_{(9,242)} = 2.80$, $p = .004$. The nine predictors explained 9.4% of variance in job stress. Using the enter method it was found that satisfaction with FF&E (β = -.29, p=.013), privacy (β = -.19, p = .045) significantly decreased job stress, and nature and window views (β =.265, p =.002) significantly increased job stress.

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Design Practitioner Perspective: Highly sought-after Skills exhibited in a portfolio that can get our students hired

Terry Londy, Florida State University

ABSTRACT

Introduction "The portfolio needs to show evidence of problem-solving, there is a need to understand how the designer thinks and how they construct their own design process." (Bender, 2017) As designers graduate from highly competitive design programs, they begin a potentially grueling search for the "perfect" employment position. Newly graduated designers have two assets they can use to secure an interview: the CV/resume (a detailed list of skills and accomplishments) and a portfolio (evidence of design skill and ability). The resume and portfolio introduce the designer, provide insight into their skillsets, and expose their creative process. Wanting to better prepare students for the hiring process and professional practice, the researcher developed a study to gain practitioner insight on the hiring process. Twelve portfolio publications were analyzed to find that the portfolio textbook market is saturated with volumes that are relatively homogenous in their coverage of portfolio content but provide little direction on the hierarchy of importance of those portfolio pieces. In reviewing these publications, several more themes are clear: 1. Graphic design publications are the majority, with Interior Design as a distant second, and other disciplines (Industrial Design & EGD) possess little reference. 2. While all publications reviewed define the portfolio, with most giving instructions on what content to include, only a few discuss Professional Practice and Marketing & Strategy. These references instead emphasize defining the portfolio and assembly, and very little on what to do once it is assembled, let alone using it as a tool to acquire an interview or apply for a graduate program. Based upon the problem outlined above, this study was framed by the following questions: 1. What are design practitioners looking for in portfolios that set the job candidates apart from one another? a. Are they looking for differing elements based on design discipline? 2. With design

and technology ever-changing, are the portfolio instructional textbooks evolving to fit these changing needs? Methodology & Findings The research project was funded by an internal university grant and occurred in two phases, a survey and follow-up interviews. 80 design professionals from the disciplines of Interior Design & Architecture, Graphic Design, Industrial Design, EGD, and Design Strategy were invited to participate in the survey and 40 completed it (50% RR). From these 40, 25 professionals engaged in the interview phase (31% RR). This mixed methods approach yielded informative statistical data from the survey and the interview phase captured rich data from open-ended questions. In the interview, scripted questions on the hiring process and a photo elicitation exercise combined to create informative conversations on the success and failures of the portfolio images shared. The survey data showed that problem solving (88%), & storytelling (67%) were the most highly sought-after skills by hiring professionals. As these two themes emerged, the practitioners stressed the importance of problem-solving in design and how this will become even more complex, solving real-world issues for communities, interaction, and how we engage with one another. Storytelling's value was discussed as a well-developed cohesive message that gives rationale to the problem's "why." The preferred approach with this skill saw higher value using concise creative descriptions (which could be identified as high-impact headlines) tying key design ideas together instead of lengthy narratives. Successful exhibition of these skills may confirm one's value to a future team, as well as elevate the portfolio content giving it depth and proving the value of taking a strategic approach. Technical skills (50%), Branding (48%), & software abilities (41%) were rated much lower by hiring professionals and were thought of as skills that can be reinforced on the job, and can be outsourced to other entities.

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From Research to Strategy: Co-Designing a Center for Entrepreneurship

Rebekah Matheny, The Ohio State University

ABSTRACT

CONTEXT: Like with workplace design, higher education's physical places are shifting due to the Covid-19 pandemic and the convergence of multiple forces. While places use to be clearly defined as either social, learning, working, or living (Wyckoff, 2014), today place is at the intersection. A workplace study showed most office workers don't want to make a binary choice between the office or home, instead choosing a hybrid model (McLaurin, 2021). Another study shows that 90% of students feel significantly less connected to others and what they're learning while working from home (Gensler, 2020). These studies emphasize the necessity to examine students' changing behaviors and future needs for their learning spaces. The University's president identified entrepreneurship as our future, creating The Center for Entrepreneurship which works to foster a culture of innovation and incubate student startups. To achieve this, The Center embarked on creating a new physical space to foster this culture. Recognizing a need for evidence-based design, an interior design professor whose research and teaching focus on learning spaces was taped as the primary investigatory (PI). Utilizing the student founder ecosystem, this cross-disciplinary research project applied co-design methods, bringing the users into the design process to imagine their future experiences (Sanders and Stappers, 2012). In this spirit, the PI employed a team of interior, industrial, and graphic design students to assist in developing the methods and co-creation toolkit. METHODS: To create a student-centric design that advances their learning capacity, innovation, creativity, and productivity the research project consisted of three phases: a university survey, a pre-workshop interview, and a co-design workshop (Fig.1). The survey provided a broad understanding of learning behaviors and a foundation for the subsequent phases. Focusing on the users, student founders were interviewed on their working/learning behaviors, resulting in five user personas and seven design areas

(Fig.2). The co-design workshop entailed a journey mapping exercise and a six-question visioning session. Documenting their current daily journey through campus, participants recorded key touchpoints (physical, digital, human), positive moments, and pain points. Participants then revised this journey, inserting the new building for The Center, noting how their journey and behaviors would shift revealing eight strategic design areas to be addressed (Fig.3). Next, the workshop explored the six research questions through visioning sessions (Fig.4). Participants created a vision board for each question utilizing images from the ten categories. Analyzing the 36 vision boards per question, a summary vision board and key insights were generated (Fig.5). Examining the 216 total vision boards, an overall vision and design strategies for The Center were created (Fig.6). These insights and strategies are applicable to the university at large, similar universities, and any center for innovative entrepreneurship. OUTCOMES: In order to create future-oriented learning spaces, it is critical to engage students and study the ways in which they interact with physical space. Applying the strategies, the PI and architect of record designed a space to meet the student's functional and psychological needs to advance the outcomes of the student founders (Fig.7&8). The Center has been designed as a living lab for continued research and opportunities to modify and adapt based on outcomes. Studying the impact of design on students' outcomes, phase two research will commence post-construction and include occupancy sensor data collection, behavioral observations, and interviews (Fig.9). This continued research plan, supported by the university president, illustrates the necessity of collaborations – across fields of study and departments – to better equip institutions to tackle complex challenges operationally and academically.

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How can Virtual Reality Art as a Positive Distraction in Healthcare Environments?

Michelle Pearson, Texas Tech University

ABSTRACT

It is generally accepted that the process of hospitalization can be a stressful experience, and the built environment can directly impact the experience of the patient (Patterson et al., 2022). The Theory of Supportive Design (Ulrich, 1991) states that supportive healthcare environments should provide access to physical features that can have stress-reducing effects, including access to positive distractions. When hospitals fail to provide patients with access to positive distractions, patients may have more focus and awareness of the pain they are experiencing and increased instances of worrying or stressful thoughts. Historically, the term positive distraction within healthcare environments refers to artwork, window views, or televisions. However, within the last decade, a new form of positive distraction, virtual reality, has been utilized in healthcare environments. This presentation will explore the following research questions: 1) how can VR technology impact a patient? 2) how can VR be used as a positive distraction in various healthcare environments? and 3) what impact does this have on healthcare design? To answer these questions, the researcher conducted a systematic literature review on related topics including healthcare design, virtual restoration, positive distractions, and virtual environments. Because VR is a rapidly evolving technology, only articles published between 2010 and 2022 were included in the search to ensure they represented the current information. Various databases, including Google Scholar, PubMed, and EBSCO, were used to gather literature meeting the criteria. Immersive virtual reality usually isolates patients from the "real world", which in the context of this research is the healthcare environment. The headset that is used to deliver VR blocks the patients' view of the hospital environment and provides some form of a virtual environment to view instead. This allows the patient to "perceptually escape into a pleasant alternative 3D world" (Hoffman et al., 2011, p. 184). The subject and location of the

virtual reality, however, can vary. The logic for the integration of VR as a positive distraction is as follows. Pain requires attention (Eccleston & Crombez, 2000, Eccleston, 2016), and humans have limited attentional capacity (Kahneman, 1973). Interacting with virtual reality uses a substantial amount of the patient's limited controlled attentional resources. Consequently, when in VR, the patient has less attention available to process incoming signals. Research indicates that VR can be used as a powerful tool for positive distraction in healthcare environments. For example, researchers (Patterson et al., 2022) found that during wound debridement, participants reported significantly less pain intensity when distracted with VR than in standard wound care without distraction. Another study (Anderson et al., 2017) exposed adult patients to VR-presented natural settings and control scenes. Researchers found that participants who viewed the nature scenes had a more improved mood and perception of scene quality (Anderson et al, 2017) than those that viewed the control. VR has also been linked to positive impacts on the physiological and psychological processes of patients including blood pressure, heart rate, and mood (Vincent et al., 2010). The physical space that is required for VR and how it may impact the delivery of care. is a consideration that may impact healthcare designers. These findings, among others, will be discussed throughout the presentation. While VR is a common tool in architecture and interior design, it will likely continue to become an increasingly effective tool for positive distractions within healthcare environments. This poses a unique challenge and opportunity for healthcare designers to be leaders in this field. This research provides context and understanding of how VR can positively impact the patient experience and healthcare environments.

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Relationships between Balance, Accessibility Features, and Home Design

Jennifer Webb, University of Arkansas
Arna Nishita Mithila, University of Arkansas
Dr. Suman Mitra, University of Arkansas
Dr. Michelle Gray, University of Arkansas
Dr. Alisha Ferguson, University of Arkansas

ABSTRACT

This collaborative project explores housing accessibility, confidence of balance, and impact of home and neighborhood design on independent living. A meta-review of findings revealed nine domains of quality of life (QoL), of which one specifically addresses 'feeling secure at home and living in a pleasant and accessible neighbourhood' (van Leeuwen, 2019). An earlier study revealed that, while respondents believed their health would change as they aged, they did not believe that the design of home and neighborhood would impact their future independence (Webb, Smith, & Williams, 2006). The authors found that 'experience of a visual or mobility impairment within the respondent's household is related to the belief that home or neighborhood design may not facilitate independent living." This suggests that older adults experiencing loss of balance may be more cognizant of the potential weaknesses in their current home environment. Specific objectives for this presentation include: 1) the relationship of confidence of balance and the presence of housing accessibility features; 2) the relationship of confidence of balance and the perceived impact of home design and neighborhood design on future independence; and 3) the relationship between the presence of home accessibility features and current and future independence. For this study, an Arkansas-wide survey was utilized with distribution occurring between April and September, 2022. The instrument included demographic data, information about current living conditions and accessibility, and previously developed survey tools addressing quality of life and balance for older adults. The surveys were administered online (n = 183) and through the mail (n = 824, response rate of 13.73%). Rural areas of the state were

oversampled by mail to increase the diversity of the respondents and participation was incentivized through gift cards. Respondents were required to be 60 years of age or older and the average age was 72.3 years with 57% of the respondents identified as males and 43% as females. The sample reflects little diversity regarding race with 84% identifying as white, 12% as Black or African American, and 2% as Hispanic or Latino. Additional information regarding demographic variables can be seen in the attached summary. Preliminary analysis using descriptive statistics reveals some important trends. These analyses can be seen in the attached summary. Significant to interior designers, more than 92% of the respondents indicated that the design of their home would impact their ability to live independently. This very large number suggests there is a good awareness of their home's unique strengths and weaknesses and the potential need for renovations or relocations. In contrast, 67% of the respondents indicated that their neighborhood design would impact their ability to live independently. This may reflect a lack of experience in accessing community resources and amenities such as grocery stores other than by car. Individuals and their families, design professionals, and service agencies may benefit from these findings, anticipating and planning for interventions or changes in residential environments. A more complete analysis will contribute to our understanding of the differences in housing between rural, suburban, and urban settings in Arkansas. Additionally, a better understanding of the differences in balance and accessibility features will contribute the types of renovations necessary for older adults. Analysis is underway and a full discussion of the findings will be available.

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Student Design Competitions: Practitioner Perceptions on Hiring and Working with Recent Graduates

Steven Webber, Florida State University
Christina Birkentall, University of Louisiana Lafayette
Cheri Jacobs, Arizona State University
Laura Kimball, Radford University
Miranda Anderson, University of Idaho
Seyeon Lee, Syracuse University

ABSTRACT

Many interior design educators would agree that student design competitions (SDC) provide many benefits to interior design students in the advanced stages of education, but little empirical evidence exists to support this within the discipline. By contrast, engineering educators have investigated the topic thoroughly, establishing the many benefits for students which include the translation of finite knowledge to application, and the development of skills in conflict resolution, interpersonal relationships, and leadership when competitions are team-based (Gadola & Chindamo, 2019). Each of these learning outcomes are experiential, rooted in application. Experiential learning theory is based upon a cyclical model embracing four steps: Concrete Experience, Reflective Observation, Abstract Conceptualization, and Active Experimentation (Kolb A, Kolb D, 2005). Concrete Experience is embedded in SDC through student participation and Active Experimentation can be integrated if the SDC is structured to reward such behavior. If the student engages in Reflective Observation following the SDC it can lead to Abstract Conceptualization. This can benefit their future endeavors by translating lessons learned into personal traits that can contribute to future success. The Cognitive Process Dimension proposed in A Taxonomy for Learning, Teaching, and Assessing: A Revision of Bloom's Taxonomy of Educational Objectives (Anderson & Krathwohl, 2001), offers six goal categories for learning/teaching/assessing: Remember, Understand, Apply, Analyze, Evaluate, and Create.

CIDA standards language parallels the Taxonomy language: Awareness vs. Remember; both utilize Understand; CIDA's Ability vs. Taxonomy's Apply, Analyze, Evaluate, and Create. In some situations, CIDAs Understand could also embrace the Taxonomy's Analyze and Evaluate, but the emphasis upon application remains paramount. Methodology & Findings In this context, the perceptions of practitioners are very valuable in gauging the value/impact of SDC on student development. Therefore, this research sought answers to the following questions: 1. How do design practitioners view the value of SDC during the hiring process? 2. What traits do practitioners notice in recent graduates that have participated in or won/placed in SDC? To answer these questions, the researchers crafted an online survey and invited 257 practitioners to participate. Participants were asked questions about their involvement in the hiring process and working involvement with recent graduates. 52 total responses were received (20% RR) where 32 are involved in the hiring process and 37 work alongside new graduates in practice (some overlap). Those involved in the hiring process observed the following: 1. Rank evidence of SDC in portfolios with high to moderate importance in context with the applicant's overall body of experience (very high: 3.1%; high-moderate: 59.4%; moderate-low: 37.5%; very low: 0%) 2. Rank demonstration of winning/placing in SDC with high to moderate value when evaluating one job applicant in comparison to another (very high: 18.8%; high-moderate: 53.1%; moderate-low: 28.1%; no value: 0%) Those who work closely with recent graduates observe the following: 1. Those who participate in a SDC may possess certain traits (Yes: 62.1%; No: 24.3%; I do not know: 13.5%) which can include passion, commitment, self-discipline, and attention to detail (write-in responses) 2. Those who win/place in SDC can possess certain traits (Yes: 65.7%; No: 20%; I do not know: 14.3%) which can include driven to succeed, critical thinking, and dedication (write-in responses) This presentation will go into further detail on participant write-in responses, warnings about attitudes that can accompany SDC winners, and the types of SDC they value most. In summary, interior design educators will be provided with much to consider on the long-term impact of SDC for students' careers and regarding the pedagogical underpinnings supporting SDC.

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The Shopping Experience of the Future: Tapping into Customer Brand Experience in Technology-Enhanced Retail Environments

Kyra Kozin, Cornell University
Sylvie Lane, Cornell University
So-Yeon Yoon, Cornell University

ABSTRACT

In the last decade, many brands have been aiming to modernize the customer experience within retail spaces. Integrating phygital elements within stores has grown increasingly more popular as companies attempt to engage their customers and create unique in-store experiences. This is often through incorporating phygital elements, which are technological elements meant to provide interactive experiences to customers and serve as a bridge between the digital and physical worlds. According to a study on retail impression and identity, in retail environments "many techniques have been used to create a pleasant and unique consumer's experience with the ultimate goal to motivate a customer's buying behavior," (Tantanatewin & Inkarojrit, 2016). Researchers have investigated the impact of implementing phygital retail elements on customer satisfaction and entertainment. Several studies have found that consumer experiences are associated with fun, delight, and enjoyment (Bilgihan, Kandampully, & Zhang, 2016; Sheng & Teo, 2012). Another factor that has been considered in phygital retail spaces is aesthetics of the setting in terms of hardware and interior design, which is important to advance customer experiences and serve the competitive market (Postrel, 2002). Entertainment and amusement has also been measured in phygital spaces as people seek amusement to escape the social environment in which they live (Vorderer et al., 2004). This study intends to build upon the existing research in the phygital retail space by examining the effect of phygital elements on brand experience. Brand experience will be conceptualized as subjective, internal consumer responses (sensations, feelings, and cognitions) and behavioral responses evoked by brand-related stimuli in the environment (Brakus, Schmitt, & Zarantonello, 2009). Based on the

literature review, we formulated the hypothesis that the phygital retail elements' effects on customer experience will differ depending on the industry of the brand. To narrow down the focus of the study, we viewed the effects of phygital elements on retail spaces within the beauty and sports industries. To simulate the shopping experience, we built digital models of two retail stores (a beauty retail store and a sports retail store) with and without selected phygital elements using a 2x2 within subjects design and conducted testing on 34 users. We guided the study by having participants engage in an experimental store that contained multiple phygital elements and a control store that lacked any phygital elements. After engaging in the store experience, participants answered a survey that measured their perceptions of the store, brand experience, technology literacy, purchase intent, and approach/avoidance intention. Results from this survey indicated that phygital elements in store improved customers' brand experiences across both industries; however, there was a stronger correlation between presence of digital elements and customer experience in the beauty retail environment. In the presentation, we will discuss this correlation in detail. A future study could provide insight into the retail spaces of other prominent industries and the effect of phygital elements in such industries. Additional industries we would explore include fashion apparel, furniture and home goods, and electronics stores. This would demonstrate a rationale as to why consumers in certain industries respond more positively to phygital elements than others.

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Students' Perceptions of Wellbeing in Campus Buildings: A study of university classrooms and lounges

Amanda Gale, University of North Carolina Greensboro

ABSTRACT

Wellbeing is subjective, difficult to assess, and dependent upon predictors of life satisfaction, health, social relationships, and access to basic resources (CDC, 2018). Levels of stress, anxiety, and depression are key measurements of student wellbeing (Larcombe, et al., 2016). Each of these measurements have increased among students (ACHA, 2021). The university environment and culture, defined as student spaces, facilities, and sense of community has been identified by students at an Australian University as an area that could improve their wellbeing (Baik, 2018). Most college students spend at least 11-15 hours attending class and 15 hours preparing for classes each week (NSSE, 2020), it is safe to assume that students spend a fair amount of time in campus buildings. Therefore, the purpose of this study was to understand how students perceive wellbeing to be reflected within university classrooms and lounges. More specifically, how university students define wellbeing and what interior features were perceived as important and most representative of wellbeing. Eleven variables (access to water, daylight, views of nature, and healthy food; opportunities for social interaction and physical activity; presence of indoor plant life, supporting or inclusive messaging, and a variety of seating options; use of color and natural materials) have been identified in literature as factors contributing to student wellbeing (Gale and Marshall-Baker, 2019). However, limited research exists about how physical spaces impact students' wellbeing. As wellbeing continues to be a critical issue on university campuses, there is a need to better understand what design features students identify as impacting their wellbeing. The study included a convenience sample of 39 undergraduate students at a mid-sized university. The questionnaire consisted of 37 items with three sections and was administered online with tablets at the university Student Union. The first section asked participants to provide

their definition of wellbeing. The second section asked participants to identify aspects of seven spaces that represented wellbeing using heat mapping questions. An open-ended question was provided for each space requesting the participants describe what they selected within the image and why. Four classrooms and three student lounges were designed to include varying degrees of the variables contributing to wellbeing. Multiple views of each space were included within the questionnaire. The last section asked participants to rate the importance of the 11 attributes identified in literature using a five-point Likert-type scale ranging from not at all important (1) to extremely important (5). Most participants (40.5%) described wellbeing in a holistic manner encompassing both mental and physical health. The spaces rated by the participants as most representative of wellbeing were those that encompassed the most variables (figures 1 & 2). Participants consistently identified people (e.g., scale figures) and furniture as the top features within the images as most influential to their rating of the spaces. Open-ended responses echoed variables identified in literature, confirming the validity of the study's findings. Lastly, participants rated access to daylight, views of nature, and a variety of seating options as the most important features concerning their wellbeing in both classrooms and lounges. A primary value of this study is the validation of the previous qualitative study by Gale and Marshall-Baker (2019) creating a list of variables which can be used for future research. An unexpected finding is the level to which scale figures influenced the results, indicating that non-designers imagined themselves as the "people" within space. Future studies should focus on facilitating the human elements as contributing to factors of well-being.

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10% Better A Design Guideline for Humanity in Extreme Environments

Erin Ganserer, University of Tennessee

ABSTRACT

The last decade has been a stage for leaps and strides in technological developments. The pent-up potential was released when COVID-19 struck in early 2020, also sparking a paradigm shift in design education. However, most of the emerging research focused on studio learning as this modality has been widely regarded as the signature delivery method in design education (Crowther, 2013), ultimately leaving the knowledge base development (so-called lecture courses) generally unresearched (Guler, 2022). Lighting and materiality are two unique and essential components of the interior design curriculum, as evidenced by the criteria developed by the Council of Interior Design Accreditation (CIDA, 2021). Due to the extensive theoretical basis, they are appropriate for adopting established online learning evidence from across disciplines, however, the complex visual and haptic nature of both subjects also create unique limitations. The dynamic nature of light and materials' visual and non-visual sensory qualities necessitates incorporating physical laboratory environments for robust learning. On the other hand, such lab environments may fall short in communicating how these spatial elements interact with each other within the larger context and how the overall spatial atmosphere is affected by discrete design decisions pointing to the importance of technology adoption. Many interior design departments across the country and the world developed an online curricula for lighting and materiality courses, and there is a growing need to understand the strengths and weaknesses surrounding each of the different learning modalities as well as suitable technologies available and how the physical and the virtual learning tools can best complement each other, as aforementioned course content continues to evolve and there's a need for uncovering best practices for curriculum integration. In order to develop an understanding of prevailing trends and themes as well as gaps in the existing interior design research, published abstracts from

EDRA and IDEC between the years 2015 and 2021 were examined in detail in this exploratory study. The initial analysis results indicate that there's very limited research on Materiality and Lighting over these 7 years, a total of 82 presented at IDEC and 40 at EDRA. There is significantly more research on Lighting compared to Materiality in this time frame (77 vs. 45). Lighting research averaged 5.5 abstracts per year peaking in 2019 at 16 and 3.2 abstracts for materiality peaking in 2020 at 10. In comparison with other research topics, these average numbers out of hundreds upon hundreds of research presented every year indicate an urgent need to bring focus to these areas. Online learning and virtual reality were identified as two topics that are gaining prominence that can provide relevant findings to enhance lighting and materiality teaching. There appears to be little interest in online learning until 2021, with only a total of 5 papers presented at IDEC and none at EDRA, though 23 papers were presented across both venues in 2021. On the other hand, VR research shows a steady increase over the years with an average of 7.14 abstracts per year, peaking in 2021 at 15. In order to deepen understanding of the content, iterative thematic analysis will be utilized to uncover prevalent themes throughout the identified research (Braun & Clarke, 2006; 2012), revealing important overlaps and gaps, as well as overarching trends and prominent areas of focus. Even though initial findings suggest great possibilities for enhancing teaching and learning of materiality and lighting, the reality appears to be a significant lack of research as well as very limited growth in research. Providing transparency should help interior design educators to assess the current landscape surrounding lighting and materiality, also to develop strategies for future studies.

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Biomimicry in the Built Environment: Occupants' Experience in Virtual Environment of a Novel Biomimetic Window System

Juntae Jake Son, Ball State University

ABSTRACT

As most of the occupants spend approximately 90% of their time indoors (Klepeis et al., 2001), especially because of the COVID-19 pandemic (Lee et al., 2020), they expect more satisfaction in the indoor environment. Due to the limited daylight available in indoor spaces, however, their satisfaction is not high enough. Especially, students are dissatisfied when they study in a classroom without daylight, and many studies have examined that students have better learning skills in classrooms with daylight through windows (Hathaway, 1992; Heschong, 1999). Therefore, daylight and biomimicry are the most critical factors for occupants' satisfaction in an indoor educational environment. According to a previous study (Son, 2020), a novel strategy has been proposed to bring daylight into non-window spaces using biomimetic solutions inspired by polar bears' hair. The purpose of this study was to examine the enhancement of occupants' satisfaction in virtual reality (VR) environment with the proposed novel biomimetic window system in a university library. Furthermore, since the proposed biomimetic window system is not an existing system, a VR experiment was conducted to see how the satisfaction of the students changed. This study created six different VR environments and used a VR headset for the participants to experience the built virtual environments. A 360-degree panoramic camera captured open space and enclosed space at the university library, and three conditions were given to each space: 1) Condition with no window, 2) Condition with biomimetic window and allowed daylight into the space, and 3) Condition with biomimetic window and allowed daylight and nature view. Before conducting the VR experiments, the study calculated RGB and Kelvin values of each condition to minimize bias by the color of light in each virtual space. The study also created a questionnaire using a five-point Likert scale. The 56 participants were asked about

their impressions, daylighting impact, and seating preference in each environment. In addition, the survey asked about their feeling and the number of hours they could study in each space. At the end of the survey, students were asked about their age, gender, and average hours they usually spend for study. The results showed how students' preferences changed when the biomimetic window system was installed. Students were more satisfied with the room where the daylight entered through the biomimetic window system than where the window did not exist. It also showed a slightly positive perception when the daylight and the view were seen together than when only the daylight entered the room. The study also found the students' preferred space when the biomimetic window system was installed. When the biomimetic window system was installed, students preferred the enclosed space over the open space. However, the results indicated that the preference of each space according to students' average study time was not correlated. The study adopted one of the biomimicry strategies and tested students' satisfaction with daylight in an educational environment using a VR system. The results showed that the daylighting brought by the novel biomimetic window system helped students increase their satisfaction.

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Community by Design: Using informal social spaces to support middle school students

Alana Houston, Florida State University

ABSTRACT

Despite efforts, evidence suggests adolescent mental health continues to decline. The CDC's Youth Risk Behavior Data Summary & Trends Report showed a rise in persistent feelings of sadness or hopelessness amongst adolescents from 2009-2019 (Center for Disease Control and Prevention, 2021). Similarly, the percentage of adolescents having suicidal ideations, plans, and attempts has also increased (Center for Disease Control and Prevention, 2021). Adolescents spend a significant amount of time inside a school building, making this environment integral to improving adolescent mental health. According to Jacquelynne Eccles and co-authors (1993), many school environments do not support the developmental needs of adolescents. They hypothesized that a mismatch between adolescent needs and the opportunities to meet said needs in school environments is a cause of negative psychological effects, such as poor mental resilience (Eccles et al., 1993). To address this need, this study explores how informal social spaces in middle schools, i.e., unstructured, non-instructional, and relatively unsupervised spaces, can be designed to better support adolescents' developmental needs. Adolescence, the developmental years between childhood and adulthood, is often a difficult time for many. Early adolescence (ages 10-15) is the liminal stage of these developmental years and is marked by the onset of momentous biological, psychological, and social changes (Arain et al., 2013). During this time, adolescents attempt to find their place in society, resulting in an increased need for belonging and autonomy (Wang & Hofkens, 2020). Many middle schools lack the infrastructure and programming to support adolescent needs for exploration and self-management. Further, the lack of interactions and opportunities for building relationships can prevent students from satisfying their increased need for a sense of belonging (Wang & Hofkens, 2020). Informal social spaces, such as libraries, cafeterias, and circulation spaces may be a solution for schools

helping adolescents meet their developmental needs since these spaces offer students the opportunity to be themselves and interact with each other freely (Wang & Hofkens, 2020). When intentionally designed, informal social spaces have the potential to increase adolescents' mental resilience and overall mental health by giving them the opportunity to receive genuine support from one another (Vieno et al., 2007). This presentation summarizes findings from a mixed method study and its application to informal learning spaces in a Title 1 middle school facility. The study's first phase asked 7th and 8th grade students to complete a survey with questions about where they interact most with others in their school and why they select these environments to do so. The survey was followed by interviews with students to triangulate survey findings. The analyzed data were used to develop design considerations for informal social spaces in middle schools. Understanding the social landscape of middle schools is integral to creating spaces that best support the social and emotional needs of early adolescents. The findings of this research can be used by educators, designers, and school planners to create informal social spaces with student wellbeing at the forefront of the design.

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Do They Mean What They Say? Exploring Occupant Perception of Space via Virtual Reality and Think-Aloud Protocol

Hoa Vo, Georgia State University
Dr. Kevin Hsieh, Georgia State University
Dr. Martin Van Boekel, University of Minnesota
Peter Huesemann, Georgia State University

ABSTRACT

Occupants who experience interior spaces first-hand, provide insights on the extent to which the built environment promotes human physical and psychological well-being. Evaluating the occupants' level of comfort and satisfaction with perceptual attributes of spaces (e.g., appearance, daylight) is the prevalent approach to comprehending such experiences (Graham et al., 2020). Caveats, however, exist in this approach. First, the current perceptual attributes are insufficient to reflect occupant perception of spaces (Hassanain et al., 2021). According to Relph (1997), "sense of place" means assigning meaning and emotions to space by experiencing its physical characteristics and partaking in activities within it. Hence, occupants perceive spaces via a complex combination of thoughts, emotions, and actions. Occupancy evaluations need additional attributes to assess such complexity. Second, when collecting retrospective data through survey items, occupancy evaluations are subjected to memory failure bias (Young, 2005). This inherent bias explains the discrepancies between the high ratings on Likert scales and the negative perceptions reported in open-ended questions found in occupancy evaluations (Bavaresco et al., 2019). This pilot study seeks to address said caveats via two research questions: RQ 1. What additional attributes constitute a more comprehensive occupant perception of space? RQ 2. What explains the discrepancies between item ratings and reported perceptions in the survey-based approach to evaluating occupant perception of space? The authors proposed a novel method to investigate these questions using Virtual Reality (VR) and

the think-aloud protocol. VR enables time- and cost-efficient simulations of interior design spaces and occupant interactions, which are fundamental for piloting additional attributes (i.e., RQ 1). The think-aloud protocol captures the thought processes underlying occupant emotions and actions in real-time, providing data that may explain any discrepancies in the retrospective survey-based one (i.e., RQ 2). Participants (n=10) each attended a 45-minute VR session, which included 10 minutes of training, 20 minutes of exploring the VR space and conducting the thinking aloud protocol, and 15 minutes of completing a follow-up questionnaire. This pilot study utilized a publicly accessible 360-degree captured environment from the Matterport website. We did not interact with them during the VR space exploration, except for a reminder after 15 seconds of silence. We captured all VR sessions using the headsets worn by participants as they explored the virtual environment. The follow-up questionnaire included 12 questions covering (a) demographics and (b) occupant emotions and actions of space following Relph's "sense of place" (1997). Our results are still preliminary. However, our think-aloud data suggests the need for a more comprehensive occupant perception of space (i.e., RQ 1), emphasizing the following categories: (i) artifact – object in space, (ii) environment – physical aspects of space, (iii) eye level – relative heights of occupants in space, (iv) language – signages in space, (v) prior knowledge – sociological background of occupants, and (vi) emotion – affects related to space. Our comparison of results between the think-aloud protocol and the standard questionnaire (i.e., RQ 2) indicated that participants prioritized different aspects of space, thus, might result in discrepancies between their item ratings and reported perceptions. Participants' (iv) language and (v) prior knowledge influenced these distinct priorities (e.g., favoring artifacts over lighting, expecting signages in multiple languages). Also, participants' perceptions of space varied the most in acoustics (SD = 1.16) and the least in circulation (SD = 0.47). Prior experience with VR showed no significant effect. This presentation will elaborate on said results and discuss implications for current occupancy evaluation research.

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Evidence-Based Residential Design for Maternal Mental Health in the Postpartum Period

Kelly Martin, Auburn University
Lindsay Tan, Auburn University

ABSTRACT

Mental health disorders such as postpartum depression have been linked to the national maternal mortality crisis in the United States as a leading cause of preventable pregnancy-related deaths (Trost et al., 2021). Residential environments, whether private family homes, apartments, multi-family dwelling units, or mobile homes, are the primary space for continued healing and recovery for most mothers in the postpartum period after discharge from the hospital. Although residential spaces may have an impact on maternal mental health, there is a major lack of empirical evidence for this pathway. Scott (2014) conducted interviews with stay-at-home mothers, presenting a conceptual model of home design features that may enhance or hinder maternal wellbeing; however, to date, this model has not been empirically tested. Additionally, Huntsman and Bulaj (2022) posited a conceptual model of the home as a space to complement therapeutic self-care, suggesting that biophilic design elements and interior design features which could support self-care may help with management of chronic conditions such as depression. This presentation will discuss the results of an interior design doctoral dissertation focused on the potential impact of residential interior design elements on maternal mental health in the postpartum period. A sample of 400 mothers with a child between the age of 1-2 years old reflected upon their perceptions of interior design features in their home environment in the first six weeks after giving birth, with survey items derived largely from recommendations of Scott (2014) and Huntsman and Bulaj (2022). Respondents indicated their feelings of wellbeing at home in the first six weeks after giving birth and whether they were diagnosed with postpartum depression in the year following birth. This study also investigated the potential moderating effect of maternal morbidity (pregnancy-related disability). Results of the dissertation will be

discussed including a proposed framework for residential interior design features that may support maternal mental health and wellbeing in the postpartum period with a goal of informing residential design policy to combat the national maternal mortality crisis.

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Exploration of Opportunities for a Student Lead Initiative to Assist Persons Moving to Permanent Housing

Denise McAllister, Southeast Missouri State University
Ashley Wilthong, Southeast Missouri State University

ABSTRACT

Persons graduating from a treatment program, a recovering addict or survivor of domestic violence, are likely challenged moving into permanent housing. The study explored the feasibility of an interior design student led initiative to assist persons graduating from treatment programs into permanent homes. Persons interviewed oversaw placement of survivors of domestic violence and those recovering from drug and alcohol addiction. Goals were to determine need for assistance, identify concerns of the populations, and explore how interior design students from a midsize, midwestern university might provide support. Determined by interviews with those working to provide housing assistance to these populations, avoiding homelessness was of primary concern (Missouri Homeless Statistics, 2022). While many programs address chronic homelessness, members of these populations do not meet established guidelines. This study was conceived as a result of a brainstorming session between interior design students in studio and their professor. Students had direct experience with survivors and had recently viewed the Netflix show "Maid" (David Bianculli, 2021). The brainstorming session employed design thinking strategies introduced by Stanford University's d school (Stanford, 2022). Empathy was easily employed as the students were close to the age of the heroin in the Netflix show. The group was able to define the problem faced by survivors of addiction and domestic violence and began to iterate various solutions based on resources available in their communities. Prototyping and testing solutions depended on a summer research grant, which the led the lead investigator to write for and be awarded a grant which funded this investigation. Qualitative, grounded theory, methodology was used to explore initial research

questions. The primary investigator and undergraduate research assistant conducted in depth interviews with ten (n=10) professionals from six organizations. After receiving Institutional Review Board approval, the study proceeded. Persons interviewed were professionals providing housing support for persons graduating from treatment programs. The interview subjects were provided with a list of open-ended initial research questions prior to their interviews and were encouraged to move beyond if they desired. Findings indicate interior design educators and students have the skill set required to fulfil the needs of those persons transitioning into permanent housing. Themes emerged regarding availability of affordable housing, reluctance of property owners to rent to vulnerable persons, the need for survivors of domestic violence to be housed a distance away from their abuser, and relapse rates among those recovering from addiction. Victims of domestic violence were found to be the most likely candidates for the proposed program. Persons recovering from drug and alcohol addiction have a significant risk of relapse; housing support might be more appropriate after they have stabilized in their recovery efforts for a year or more. For both populations, challenges exist in securing a place, paying necessary deposits, and equipping the home with furniture and other domestic products. Concluding data indicates a need for support, both in planning and in securing domestic products. Thrift stores are doing an amazing job of soliciting and securing appropriate donations. Rather than duplicating their efforts by organizing a similar program, future intention is to facilitate partnerships. Implications are believed to be widespread. While products are available, particularly in local thrift stores, the ability to plan and implement a safe, healthy, and comfortable environment lies within the skillset of interior design students.

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Heritage, health, and the interior

Bryan Orthel, Indiana University Bloomington

ABSTRACT

RELEVANCE / PROBLEM: Our understanding and use of history and heritage is driven by individual perceptions of what has happened and the value of those events to the present day. Heritage comprises the way we use the past to define identities and motivate present-day actions. Interior spaces are often integral to heritage (as markers of understanding and identity; Hollis 2014). Systematically evaluating heritage requires us to consider the myriad, obscured ways heritage intersects with social, economic, ecological, and other structures. Heritage professionals, designers, and everyday individuals must understand these systematic interactions to be preprepared for the decisions they make about how to use, alter, and value historic spaces. Existing preservation guidelines are insufficient to match our responsibilities of care and evolving heritage. This presentation outlines a first systematic analysis of heritage, health, and the interior to reframe decisions about use, change, and culture of interior environments. CONTEXT: Few human experiences are finite. Systems models reveal how "events accumulate into dynamic patterns of behavior" (Meadows 2008, p. 88). Heritage and preservation professionals have avoided contextualizing heritage work within a broader understanding of social, economic, and environmental factors, but would benefit from such in-depth analysis (Hutchings & Casser, 2006). A systems thinking approach is required to understand the structures and interconnections that contextualize and engage heritage values and behaviors (Fouseki & Bobrova 2018). The decisions that must be made about history and heritage are not simple or unbiased (Rogers, 2019). Specifically for heritage and interiors, these decisions have profound, compounding implications for our physiological, cognitive, and social health, as well as ecological and public health ramifications. METHOD: The presentation uses the Heritage Ecology systems model (under publication review) to analyze the interior of a 1910s-era midwestern US house. The model guides topical discussion with focus on core areas of

resources, tangible and intangible aspects of heritage, individual and community experiences, and the flows and actions that underpin change. The analysis identifies responsibilities and consequences to consider in decision making. The analysis relies on interdisciplinary scholarship on topics as varied as microbiomes, energy policy, material culture, and social customs. OUTCOMES: The outcomes are presented as a taxonomy of questions to guide future decisions related to heritage, health, and interiors. These questions include: How does this interior protect me? How does this interior hurt me? How does this interior reflect me? And, how must I adapt to this interior? ADVANCEMENT OF DESIGN KNOWLEDGE: Interior environments embody personal identity and social position. Interior environments also promote health, safety, wellbeing, and ecological support for human living. While historic interiors are regularly studied, the implications of heritage, historic and non-historic interior environments, and health have not been previously reviewed. This presentation demonstrates the use of a systems model and reveals core questions to guide future heritage work. The questions prompt reconsiderations and recognition of new values. Systems models guide analysis by revealing structural relationships that may be otherwise obscured by disciplinary frames and personal experience. For heritage professionals and designers, this analysis using the Heritage Ecology systems model reshapes the scope and depth of questions that must be asked about the health characteristics of historic and heritage interiors.

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Sustainable Healthcare High Contact Surfaces: A Comprehensive Review of Performance Efficacy and Cost Effectiveness

Xiaoyu Chen, University of Florida

ABSTRACT

Over the past two decades, sustainability has developed into one of the most critical and progressive trends in interior and architectural design (Genkov et al., 2015). In addition, sustainability has contributed to developing new policies, technological advances, transformative industrial practices, and growth in social awareness for sustainable built environments. With the updating of materials assessment tools, the requirements for material sustainability are becoming more stringent. Comprehensive sustainability assessment techniques are needed to assess a surface's sustainability performance. The selection of high-contact surfaces for healthcare facilities may require consideration of multiple factors, including safety, visible wear, durability, maintenance, and cost. Early work by Park et al. (2017) identified material sustainability factors and categorized them under environmental, economic, and social categories, providing a general framework for assessing material sustainability. However, the limited studies investigated sustainable high-contact surfaces (i.e., frequently touched) used in healthcare settings. Thus, the following research questions need to be addressed to better understand sustainable strategies for high-contact surfaces: (1) What are the main factors associated with the sustainability of high-contact surfaces in ambulatory healthcare? (2) How does this component relate to the cost of quality of high-contact surfaces? The aim is to identify, analyze, and discuss sustainable high-contact surfaces used in healthcare settings and the main factors which were associated with performance efficacy, cost-effectiveness, and workplace safety. Three high-contact surface materials commonly used in healthcare and the selection criteria based on the literature review results were identified for this preliminary study. To operationalize this study, a systematic review, a scientometric analysis, and a summative content analysis of the literature, (Cooke et

al., 2012; Garfield, 2009; Hsiu-Fang Hsieh and Sarah E. Shannon, 2005) on literature pertaining to high-contact surface materials currently used in healthcare settings was performed. This study included peer-reviewed literature and articles published after 2005 in accordance with its design. For the scientometric analysis specifically, with the help of the analytical tool VOSviewer, the most author-defined keywords and convergences based on the shared knowledge were identified. The criteria applied for their sustainability selection were identified and parsed into identifier categories for matrix development. The results of the scientomoteric analysis contributed to the manifesting of themes related to materiality sustainability including 'technology', "community", "infection", "quality", "efficiency", "patient", "surface", "performance", "survey", "space", and "contact." Fourteen selection criteria that influence the choice of sustainable high-contact surfaces in healthcare settings were identified and evaluated for their applicability to general healthcare material selection categories. As a result of the thematic analysis , flooring, countertops, and wall surfaces were the high-contact surfaces classifications were designated as the most appropriate context for healthcare high contact surface category types. This allows for further analysis regarding maintenance costs, durability, and infection control to be conducted using a matrixed approach that is specific to context of material, application, and use patterns. It is expected that the results of this preliminary study will assist interior designers, building owners, facility managers, and architects in the development of materiality design decision support frameworks. This proposed approach will be useful in guiding design for healthcare environments in the selection of high-contact surfaces based on technical performance requirements dependent on context of use.

A transatlantic partnership – Decolonizing curricula through memorial design

Tasoulla Hadjiyanni, University of Minnesota
Deb Lawton, University of Minnesota

ABSTRACT

Decolonizing has now been embraced as core to many institutions around the country, albeit one that is fraught with tensions and challenges. 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, 2019, p.3). Unpacking systems of exclusion however, should not be restricted by geographical boundaries--efforts to decolonize design education are often centered on US-based experiences. This focus risks stories of trauma and exclusion from other parts of the globe being lost opportunities for nurturing students' global citizenship. Embracing a global decolonizing vision brings forward the question of how design educators can cultivate and identify partnerships that could be enmeshed into design curricula. Delving deeper into this question can shed light on ways that interior design programs can amplify decolonization processes at a time when racial and social justice are at the forefront of their missions and scope. This paper draws on an interdisciplinary and transatlantic partnership between an interior design faculty [author] and a graphic design course. The author has been leading the development of a design proposal for Kontea's memorial for murdered and missing in Cyprus. It has been 48 years since the Turkish invasion that divided the island of Cyprus in 1974 and resulted in thousands killed or missing. Nine of those individuals come from the author's now occupied village of Kontea. The proposed memorial aims to honor these nine people and help survivors come to terms with a traumatic past, while acknowledging the present, and looking toward the future (Lowenthal, 1985). The two-year long participatory design process included a review of memorials from around the world; a collection of written materials, photographs, and archives to better understand each of

the nine persons' stories; as well as dialogues with among others the families of those murdered and missing, the village's administration and fund-raising committee, and the Committee on Memorials from the Cyprus Ministry of Education, Culture, Sport, and Youth. The resulting proposal is titled "Learn their stories" and includes sculptures from 10 local artists that pay tribute to each of the murdered and missing. The Graphic Design program at the [name of university to be inserted after blind review] was invited to join this effort for two reasons: a) help spearhead the memorial's graphic identity and strengthen fundraising efforts, and b) expose students to the traumatic remnants of colonialism and their present ramifications. Along with the author, three representatives from Kontea attended studio presentations and critiques virtually. The paper examines the semester's process, pedagogies, and outcomes through questions such as: What does it mean for international faculty to tie their home countries' histories into the curriculum? How do faculty committed to global partnerships navigate what can often be divergent perspectives and experiences? In what ways can the global community partners be engaged and their stories of exclusion honored and recognized? And how are the students' interpretations and approaches critiqued constructively? By shifting focus to a global (non US-centric) decolonizing of design education, this paper points to two areas of potential interventions: a) capitalizing on international faculty connections, and b) infusing space and time for cross-disciplinary learning innovations. Pedagogical implications for interior design education spell out where and how to prepare both faculty and students for the emotional journeys of decolonizing.

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Can the Interior Design Studio be a Catalyst for Activism?

Tina Patel, Kent State University
Jennifer Meakins, Kent State University

ABSTRACT

Context: Activist education is a purposeful process in which participants engage in guided learning activities that help to see themselves as capable of making a difference in the world. In the past decade, activist movements have come together to act on racism, inequity, and climate change (Niblett, 2017). These groups bring attention to social issues and demonstrate that citizen participation is vital for reformist solutions. Design education should adapt to the complex social context to equip students to respond to these disparities. The complete integration of social responsibility into the university design curriculum has been slower in response to contemporary societal issues (Jones, 2002). This calls for educators to explore design education as a tool to understand the world and project all voices (Zingoni, 2019). The question becomes, how can we move beyond prescriptive thinking and empower students with the necessary resources to take action to respond to the complexities of an ever-changing world? Pedagogical Model: This presentation focuses on how two instructors from different disciplines used design activism methods to generate positive alternatives to the status quo to educate students about the role designers play in bringing about change. In the first interior design senior studio, the students studied the region's sociopolitical, economic, and cultural contexts throughout a semester-long project. They identified the social issue of interest and met with the non-profits, activists, and community leaders working on this issue to gain further insight and developed a project proposal. The proposal's objective was to educate communities, bridge social divisions, reimagine local economies in our urban environment, and attract new audiences. Through multiple perspectives, debates, and empathy studies, the students learned to develop informed

opinions that resulted in socially responsible interior design solutions. Incubator, pipeline, or shelter spaces are among the types of design solutions proposed by the students for these communities. Despite the broad urban theme, the second architectural studio focused on the size of programming and interiority through adaptive reuse. The intention was to introduce students to the role of local research, community engagement, and the use of existing architecture in creating places of equity. Students were involved in the development of the studio brief throughout the semester, which shifts the typical power balance in the design studio, encouraging more thoughtful, and empowered student designers (Rashdan et al., 2017). The students focused on creating a counter-narrative to generate improvements relative to pre-development conditions and balancing positive social, institutional, and/or economic impacts. The students proposed uses for the former school building; these ranged from a community art center to a non-profit incubator. Reflections: Students wrote reflection statements on what they learned through this studio. Comprehension of many ideas and cultures, awareness of diversity, and tolerance of ambiguity were rated highly by students. Reflecting on the process and project result, the instructors believe that each stage of the project provided students with a new skill, an understanding of the issue, and an empathetic design thinking strategy across disciplines. To summarize, these projects illustrate vulnerable interiority, produce more inclusive placed-based experiences, and incorporate a theoretical framework that addresses issues of equity, culture, and belonging through its process. It exposed the students to design beyond aesthetics. This is just the beginning as they encourage educators to take advantage of the current and ongoing global and local turmoil to reposition interior design education through critical pedagogies and processes. It also advances our discipline and prepares our students to be compassionate thinkers and community stewards.

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Designing for a century old life

Nerea Feliz, The University of Texas at Austin

ABSTRACT

TOPIC The lengthening of human life during the last decades is unprecedented. Half of the population in their twenties now will live to be over 100 years old. Our public interior spaces are not ready for this demographic shift. An interior design studio taught in Spring 2022, asked students to design for their future selves. The course was offered to a total of 14 upper-level undergraduate and graduate students from the Interior Design Program. RESEARCH QUESTIONS Most design research on the later life has focused on residential design regarding ageing in place or institutional care facilities. Loneliness is a common problem among the elderly, retirement from work and limited mobility can contribute to social isolation. Research shows that being and active member in the community and connecting across generations is key to successful ageing. This studio asked students to envision a later life that is longer, fuller and active beyond the boundaries of the domestic environment and institutional care. Students were asked to reconsider public interior space in the city with an emphasis in accessibility, social connectivity, and inclusivity. CONTEXT & METHODOLOGY Inspired by Sara Hendren's text "All Technology Is Assistive: Six Design Rules on Disability" students were asked to think about all physical layers of the interior as assistive technologies. First students conducted research on the most common impacts of ageing in the body such as: hearing loss, sight loss, arthritis, osteoporosis, lung disease, depression, dementia, frailty, urinary incontinence, and balance deterioration among others. For each of the conditions, students studied the most common spatial (ie: ramp) and wearable (ie: glasses, cane) associated technologies. As a next step, students evaluated these technologies under Sara Hendren's six design rules: 1) Invisibility is overrated, 2) Rethink the default bodily experience, 3) Consider fine gradation and qualitative change, 4) Uncouple medical technologies from their diagnostic context, 5) Design for one, 6)

Let the tools you make ask questions, not just solve problems. Finally, students embarked a series of weekly assignments which asked them to design a layer of the interior as an assistive technology: first furniture, then surface, and last, a spatial component. These studies, helped inform the final design for a public gathering space that was truly intergenerational. The final program of this public venue, was at the discretion of the students. CONCLUSION Readings such as Hendren's, "The 100 year Life" and "The New Old" were critical in inspiring students to look at their later life as an opportunity full of potential, to challenge conventional prejudices about ageing and to reimagine innovative spaces for the future that enhance the experience of an increasingly long life. Despite an original reluctance to engage with illness, disability and accessibility, students were able to find design opportunity in rethinking the layers of the interior as assistive technologies. In fact, a creative and enhanced multisensory design awareness emerged from the process of considering how the loss of some senses can can be compensated by other senses. By addressing the design of the specific and the particular, students not only discovered new aesthetics, but also contributed to the reconsideration of the universal.

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Diversity, Equity, Inclusion and Belonging: A Multimedia, Flipped Classroom Approach

William Riehm, University of Louisiana at Lafayette
Collette Cosminski, University of Louisiana at Lafayette

ABSTRACT

The academy has heard a call to action to build more diversity into our approaches to education and educational content. We hear it from higher education institutions across the country (Lewis 2022), and we have heard it in our own interior design discipline (Zingoni 2019). This case study investigates an assignment where senior interior design students "figured out, showed, and taught" what diversity equity, inclusion, and belonging (DEIB) meant to them. (The group included seventeen students, 94% female and 18% persons of color.) This assignment, assigned to students in groups of three or four, was in three parts. The first part was a traditional annotated bibliography on the topic of DEIB in design. The second part called upon students to express what they felt DEIB in design (inclusive design) meant through the production of a video. Students chose their video presentation technique, ranging from PowerPoint voice over to live action social media style video. The third part of this exercise was to design a learning activity that these students would use to "teach" other students about DEIB – creating a flipped classroom. ¶ The reasoning for this multimedia flipped classroom was strategic in two ways. First, students use their own voice, and their own perspective. Secondly, it removes many of the structural political barriers that the academy is confronting when presenting ideas that often polarize communities (Bass, Fulford, Finley 2021). Multimedia expression also serves to improve diverse expression and empowers students, specifically though video communication, to personalize the story they tell in their coursework (Stenhouse and Schafer 2019). ¶ The analysis of the videos created by students (five group projects in this case study) all had a comedic tone. Some mocked what the students thought was ignorance of the topic with one group going as far

as interviewing people "on the streets" of campus. This framework of ignorance allowed the students to then demonstrate their understanding of DEIB in design in contrast. The humor also allowed the students to make a comfortable connection to their generational world view. Many chose contemporary musical art as background and broke down into slang and normal parlance. These are all ways that this video assignment allowed students to personally express their understanding of diversity, and importantly, their own individuality. ¶ In both the videos and learning activities, one thing noted was that students avoided issues of race and culture. Each of the learning activities focused on the physical concepts of universal design as they nest into inclusivity broadly. The learning activities, which ranged from scavenger hunts to graphic mind maps, did empower students to conversationally explore their own perceptions of DEIB. While some student's videos dealt with issues of family structure and mental health, these were presented in the most comedic ways. Many videos addressed the issues of discrimination toward those that are pregnant or breastfeeding, thus showing their relative comfort in discussing this topic, while all groups blanketly avoided addressing race. ¶ In conclusion, this assignment sheds light on the way this group of students understand DEIB in their world as opposed to the structure of traditional lecture-based assignments. It also raises the question of how comfortable or uncomfortable students are with the broader concepts of culture and race. The case study shows that multimedia and flipped classroom approaches to DEIB exploration allow educators to move towards the root of DEIB issues from a student's perspective. This study also shows that there are gaps in willingness or ability to address many of the complex issues embedded in diversity, equity, inclusion and belonging in design.

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Inclusivity and Awareness: Designing Neurodiverse Housing for Adults with Intellectual and Developmental Disabilities

Emily McLaughlin, Indiana University-Purdue University Indianapolis

ABSTRACT

An intellectual or developmental disability, also called IDD, may include a variety of severe or chronic disorders which are present at birth and uniquely affect the trajectory of an individual's physical, intellectual, and or emotional development (Awaad, Badran, & Abulazm, 2020). Often, these conditions affect multiple body parts or systems, and are characterized by complications related to intellectual functioning or intelligence, including the ability to learn, reason, problem solve, and adapt behavior to realize conventional social and life skills. It is estimated that 6.2 million people in the United States are living with IDD and are in need of long term services and support (Awaad, Badran, & Abulazm, 2020). As we strive to understand the unique needs of this population, it is critical that interior design students embrace and appreciate the methods used to design independent living homes for these remarkable individuals. Recently, a junior-level undergraduate studio course in a CIDA accredited program in the Midwest partnered with a non-profit organization which provides enrichment through educational and social opportunities for adults with IDD so that they may enjoy fulfilling and meaningful lives in their communities. The organization has begun conceptualizing a pocket neighborhood of small homes which embody independence, choice, and security for adults with IDD, and invited the students to assist them in the design of one, two, and three-bedroom homes which support this mission. Through personal interview, site observation, and deep programming, the interior design students learned a great deal about the families, cultures, challenges, and needs that exist among this unique community in order to deliver floor plans, detail drawings, and renderings which might be used by the

organization for a first of its kind housing development. The observed results of this exploratory study are significant. Critique of the student design solutions by the client as well as local design professionals suggests that valuable proficiencies were gained through mapping IDD environmental concerns to practical design solutions. Instead of haphazardly proposing design ideas which might address the symptoms of individuals living with IDD, students were instead able to contemplate those solutions which function equally well for multiple affected habitants by using this method. Student realized that the deinstitutionalization of individuals with IDD from high-density environments which can be large, congregate, barren, and unstimulating to community-based houses that are smaller, more appealing, and equipped with furnishings and domestic items associated with an average household has proven to enhance quality of care and lifestyle (Casson, Hamdani, Dobranowski, McMorris, Gonzales, & Balogh, 2021). In addition, exposing students directly to individuals with IDD was reported as extremely enlightening by the junior-level students. Strong feelings of empathy as well as a willingness to excel in order to help the client indicates robust validation for exposing scholars to clients who retain special needs. Through personal reflection, several students expressed feeling a renewed inspiration in the discipline related to the future clientele that they hope to encounter as professionals. Overall, this approach should resonate with design educators, as the byproduct of such activities is students who realize the collective impact of their decisions and master the inquiry techniques used to create successful solutions for unique populations.

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Mental health in design education – Infusing empathy and cross-disciplinarity

Tasoulla Hadjiyanni, University of Minnesota
Kira Davies, University of Minnesota
Resha Tejpaul, University of Minnesota
Quynh Akers, University of Minnesota

ABSTRACT

Many of the compulsions associated with Obsessive-Compulsive Disorder (OCD), such as obsessions about germs and cleaning as well as repeating and ordering rituals, involve elements of interiors. OCD is a debilitating anxiety disorder that ranks as the fourth most common mental disorder in the U.S. - it is experienced by around 1.0% of the U.S. population (impacting nearly 2.2 million people) (ADAA, n.d.). As OCD frequently begins during childhood, early diagnosis and treatment can have life-transforming outcomes. The challenge to design education and research is how to infuse such complex problems with transformative societal implications into the curriculum in ways that are both sensitive to students as well as empowering. This paper charts a direction for what it would take to embark on such an endeavor: empathy and cross-disciplinarity. Empathy has been shown to increase innovation by revealing user experiences and needs to designers (Woodcock, et al, 2017). By helping designers understand both the benefits and limitations of a design, empathy can be used to a positive effect, allowing designers to create products that are truly valuable to users (Suri, 2003). Empathy can be cultivated in a variety of ways, including viewing or listening to recorded information such as videos (Heyinghen & Dong, 2019). In Spring 2022, a cross-disciplinary pedagogical partnership between interior design, computer science, and product design at [name of university to be inserted after blind review] tackled the question of introducing designing for mental health in a product design studio. This partnership followed an earlier interdisciplinary collaboration between interior design, psychiatry, and computer science that explored how aspects of interiors relate to

behaviors tied to OCD. Video recordings of experiments allowed for a direct glimpse into the multiple ways the condition manifests itself in patients' lives, exposing the nuances of how the built environment is seen and perceived by diverse users. In particular, during the handwashing experiment, youth with OCD were significantly more likely than controls to exhibit ''other'' behaviors (e.g., cleaning or drying the sink, inspecting the sink, touching and tapping the sink, and rubbing the countertop) (Reference to be added after blind review). Three goals guided the studio planning: a) using videos recorded during the handwashing experiment as a way to cultivate empathy in students; b) strengthening how design education relates to questions around mental health; and c) developing a prototype for a sink design that can be used in practice for diagnosis and treatment. Methodologies used to assess the relevance of videos to cultivating empathy included a "before" and "after" scenario, where students were asked to reflect on their knowledge of mental health and OCD prior to and after watching the videos. The paper also delves into the ways the team navigated student anxiety about proper understanding of the challenges associated with OCD, the fear of eventually producing something that does not contribute to the treatment and instead does more harm, and the concern of how a single product could serve individuals with vastly different experiences. In closing, the paper summarizes how empathy in design teaching can be a powerful tool to raise awareness and build commitment, characteristics needed in using design to help alleviate the mental health crisis. At the same time, harnessing the opportunities tied to empathy must be approached holistically. Students would benefit from access to actual users who could test the prototypes, including patients and therapists.

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Beyond the Project: Augmenting Global Learning in the Studio

Jeanne Mercer-Ballard, Appalachian State University

ABSTRACT

How do you incorporate global context into the classroom? From the author's experience as a Council for Interior Design Accreditation (CIDA) site visitor, she often sees programs approach CIDA Standard 4: Global Context with only one studio project where either the client or site is foreign. The hope is that this challenges the student to learn at least the basics of that culture in order to consider cultural differences and preferences in their studio project. Programs are often better at covering the "geographic," "political," "social," "environmental," and "economic," aspects of Standard 4, while "cultural" issues are often minimal. As the Intercultural Knowledge and Competence VALUE Rubric developed by the Association of American Colleges and Universities states, "The call to integrate intercultural knowledge and competence into the heart of education is an imperative born of seeing ourselves as members of a world community, knowing that we share the future with others." (Association, 2009, p. 1). So how can we augment that learning, encourage the students to go deeper, and learn about many other cultures and their relationship to design? The author will share strategies for increasing cultural competency through exercises that prepare and assignments that require students to learn about other cultures while simultaneously completing an in-depth student project with one culture. Intercultural Knowledge and Competence is "a set of cognitive, affective, and behavioral skills and characteristics that support effective and appropriate interaction in a variety of cultural contexts." (Bennett, 2008). These exercises help to build those cognitive and behavior skills. The in-class exercises explore a student's cultural self-awareness. The assignments, or Cultural Understanding Activities (CUA's), are a menu of options for the students to choose from and some require engagement in on-campus activities. Through these CUA assignments, the student's achievement can be assessed by six of the key components of intercultural knowledge

and competence through the Intercultural Knowledge and Competence VALUE Rubric (Association, 2009, p. 2). The framework includes: Knowledge (self-awareness and cultural worldview frameworks), Skills (empathy, verbal and nonverbal communication), and Attitudes (curiosity and openness). Each activity requires the students to write a reflection paper. Using content analysis, the papers were qualitatively examined for words and phrases illustrating the six key components. One excerpt from a CUA where the student visited a Mexican restaurant states, "This experience was overall enlightening to me. It made me open my eyes to not only see what was around me, but to be curious about why those things are the way they are. If it were not for this assignment I may have never even thought anything about the meaning of a simple item on the desk (host stand) or thought to research about items hanging on the wall. This assignment has allowed me to view things in a different way and I will continue to do so in my future endeavors." One other excerpt from a student's visit to a Thai restaurant summaries the results of cultural understanding by stating, "Overall I thoroughly enjoyed this assignment. The subject is not only interesting but I also believe it makes me much more culturally aware. I think it's also very applicable to current times in the media. It seems we have entered an age where demoralizing people is becoming a norm, making it extremely difficult to not trigger others. That's why I believe assignments like this are important because we can begin to understand and respect other cultures we aren't initially exposed to." Analysis proves that the CUA's have achieved increased knowledge and competence and while they have been quite successful at augmenting a student's cultural awareness and understanding. The author is constantly seeking ways to further augment their experience in the studio beyond the project.

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When (not) in Rome

Nate Bicak, University of Nebraska-Lincoln
Lindsey Bahe, University of Nebraska-Lincoln

ABSTRACT

INTRODUCTION This presentation explores strategic curriculum development and an instructional partnership between an International Design Education Institute and US Interior Design Program. Desired outcomes included global and cultural awareness as contextual factors impacting the way foundation design students frame projects in studio. Stakeholders included second-year Interior Design students at (US Program), three faculty at (International Institute), and two faculty at (US Program). Course content, project briefs, and learning exercises were the catalysts for instructional understanding between the teaching partners. CONTEXT A relationship between the teaching partners began in Spring 2021 with four US students engaged in remote international instruction. In Spring 2022 the first cohort of four interior design students embarked on a 15-week immersive study abroad in Rome. That same academic year faculty developed an opportunity for foundation design students on campus to understand the role of study abroad in providing global context and awareness (Tarrant et al. 2014, 156) to their design process. METHODS Concurrent with students studying abroad in Rome, faculty at (US Program) worked with our international teaching partners to plan a Spring 2022 second-year studio to have intentional interactions with Rome and Italian design. Co-developed instructional exercises included: 1. Precedent studies of contemporary and historic Italian interiors, which students analyzed using a framework of interior elements and systems. (Appendix A) 2. Use of Italian Precedent interior elements and spatial systems to create an Italian Spatial Pastiche environment to promote literary activity. (Appendix A) 3. Situating the final project on a site in Rome, Italy. Faculty from the (International Institute) provided lectures, drawings, and contextual descriptions of the building site and neighborhood. 4. Programming the final project to include cultural and historical understanding of Roman Bathhouses. Faculty from

(International Institute) facilitated a lecture on Roman Bathhouse significance and programming. (Appendix A) 5. Faculty from (International Institute) provided a lecture on adaptive re-use practices of Italian Architect, Carlo Scarpa, whose body of work includes many adaptive re-use interiors. 6. Co-developing a three-day design charette at (US Program), where the International Partners visited the program in person. The charette began with lectures given by faculty from (International Institute), one lecture on Italian Architectural Collage, the other a journey through Italian typologies of Urban Design, Architecture, Interiors, and Designed Objects. The student design challenge was to find overlaps and connections between Local Cultural Design Icons and Italian Cultural Design Icons, through spatial collage. (Appendix B) 7. At the conclusion of the semester, students were asked to reflect on their learning throughout the semester through a narrative reflection paper. (Appendix C) OUTCOMES and DISCUSSION This presentation will offer discussion on the merits of study abroad for interior design students generally, and our specific hybrid pedagogy. This teaching framework utilized collaborative teaching practices and remote learning technology to overcome geographical barriers and provide an international learning community with a shared goal of establishing cultural and global awareness in design processes. (Asojo 23, Kucko et al. 25) Project briefs, instructional materials, and student work outcomes will be presented to facilitate this dialogue. Student perceptions of the experience will be shared through the results of their narrative reflections. The interactions in Spring 2022 have doubled applications for the Spring 2023 program, (US Program) faculty plan to review design work of students in Rome remotely in the future, and the teaching partners are planning a tandem Spring 2024 Reggio Early Education studio.

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Creating Life on Mars

Finis Eliot, Belmont University

ABSTRACT

The last half-century has produced scientific knowledge and technological advancements
propelling humankind into the Golden Age of space exploration and travel. With the global gaze
upon space, many are looking beyond the moon to the colonization of Mars. Once considered
science fiction, hypothetical questions of human habitability in extra-terrestrial environments are
becoming more of a scientific reality – and necessity - for the future of humanity. Humans have
successfully lived aboard Skylab and the International Space Station for long-duration space
missions since the mid-Twentieth Century. The interior living and working quarters of these
environments have long been engineered to create shelter from the extreme conditions of outer
space and provide functionality for task flow and systems control. Though, as first-hand accounts
from astronauts suggest, these confined quarters and lack of privacy often lead to feelings of
isolation, loneliness, and frustration in a place thousands (and soon to be millions) of miles from
home on planet Earth (Scott-Connor, et. al, 2014). Thus, the question must be asked: if there are
to be human colonies on Mars, how can interior designers work within aeronautical science to
design extra-terrestrial habitats that elevate quality of life and lift the human spirit? How do we
create environments that go beyond survival to embrace life? In this junior-level interior design
studio, students were tasked with exploring that question. First researching ecological engineers
to understand why species build (Jones, Lawton, and Shachak), then analyzing case studies of
human habitats in isolated and extreme environments (Bishop and Hauplik-Meusburger, 2021)
the class took a field trip to the US Space and Rocket Center to tour a mocked Martian habitat.
Students talked with aeronautic professionals about challenges and opportunities in space, and
the day-to-day needs of team of astronauts on a space mission. In the design studio, students
roleplayed as astronauts in a teams-based collaboration, their resulting research and design
project offering theoretical solutions for extra-terrestrial habitats designed for the behavioral,
psychological, social and spiritual needs of humans. Further, Introducing this research as a

teams-based studio projects in a 1:1 teaching environment allowed for greater student discovery (Krissy-Brown, 2016), provides broader context for the discipline of interior design, and opens new avenues of interdisciplinary collaboration both academically and professionally.

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Process to Product: Enhancing Service Learning Experiences through a Multidisciplinary and Community-based Project

Chelsea Helms, Appalachian State University
Kaylor Mead, Appalachian State University

ABSTRACT

Multidisciplinary collaboration is an expectation within the design and construction industry (Russ & Dickinson, 2008, p.52-58). To respond, design education is shifting from independent studio projects to collaborative, multidisciplinary project-based learning. Project-based learning (PBL) is a pedagogical "style" incorporating active learning utilizing a student-centered method of teaching that engages students in an authentic problem to find a solution (Blumenfeld et al., 1991). "Service-learning is a credit-bearing, educational experience in which students participate in an organized service activity that meets identified community needs and reflect on the service activity in such a way as to gain further understanding of Course content, a broader appreciation of the discipline, and an enhanced sense of civic responsibility." (Bringle & Hatcher, 1995, p.112). This curricular program seeks to redefine traditional pedagogical approaches to the study of the built environment in higher education by pairing PBL methods into service-learning community projects. A multidisciplinary group of faculty and students incorporate learning objectives across multiple courses in a collaborative (PBL) environment as a service learning designated course. Students work in their respective disciplines in office, studio, and shop settings to plan, design, build, and commission projects for community partners. Faculty serve as both educators and facilitators to support the work of students on behalf of external, community-based partners. In its first eight years of operation the program concept has evolved and expanded across multiple academic programs and departments to deliver tangible planning, design and construction products for community partners. In the spring of 2022, the program formed the largest and most academically diverse student cohort to date, tasked with the project

outlined here, Police Station and Public Works Offices (PSPW). Through a sponsored studio partnership, interior design and building sciences students collaborated with a local town to retrofit an existing building to serve as the town's Police Station and Public Works offices. Students were charged with applying curriculum knowledge to a real project with a real client through a real design process to deliver a real product. Unlike a traditional course, an assignment brief was not provided, rather the project was presented to students as a firm would hand off a project to a design team, shifting expectations to be student-led. Students organized meetings with the client to understand the program goals and user needs. Students conducted site visits to gather field measurements and as-built conditions to understand project context and constraints. Students researched relevant precedents and articles to inform design direction and to both empathize and best support the health, safety, and welfare of the users. The student team maintained active communication with the clients via request for information (RFIs), interviews, and meetings. Students moved the final design scheme into an Autodesk Revit Worksharing model for creation of design documentation drawings and building information modeling (BIM), practicing a design method to allow multiple team members to work on the same project model in real-time. The team presented the client a final design development (DD) scheme in the form of a DD construction drawing set, presentation boards, a construction estimate, finishes and specifications, a physical model, and a virtual reality walkthrough. This experience served the community with design services and project deliverables and afforded students the exposure to working in a multidisciplinary office/studio environment with a real client and project. This presentation showcases a relevant student team project and shares the processes for development in a non-traditional curriculum program, while acknowledging teaching and learning outcomes aligned with CIDA standards.

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An Exploration of Technology-Facilitated Teaching Trends for Lighting and Materiality

Kutay Guler, Kansas State University
Mariana Junqueira, Kansas State University
Henry Hammes, Kansas State University

ABSTRACT

The last decade has been a stage for leaps and strides in technological developments. The pent-up potential was released when COVID-19 struck in early 2020, also sparking a paradigm shift in design education. However, most of the emerging research focused on studio learning as this modality has been widely regarded as the signature delivery method in design education (Crowther, 2013), ultimately leaving the knowledge base development (so-called lecture courses) generally unresearched (Guler, 2022). Lighting and materiality are two unique and essential components of the interior design curriculum, as evidenced by the criteria developed by the Council of Interior Design Accreditation (CIDA, 2021). Due to the extensive theoretical basis, they are appropriate for adopting established online learning evidence from across disciplines, however, the complex visual and haptic nature of both subjects also create unique limitations. The dynamic nature of light and materials' visual and non-visual sensory qualities necessitates incorporating physical laboratory environments for robust learning. On the other hand, such lab environments may fall short in communicating how these spatial elements interact with each other within the larger context and how the overall spatial atmosphere is affected by discrete design decisions pointing to the importance of technology adoption. Many interior design departments across the country and the world developed an online curricula for lighting and materiality courses, and there is a growing need to understand the strengths and weaknesses surrounding each of the different learning modalities as well as suitable technologies available and how the physical and the virtual learning tools can best complement each other, as aforementioned course content continues to evolve and there's a need for uncovering best practices for curriculum integration. In order to develop an understanding of prevailing trends

and themes as well as gaps in the existing interior design research, published abstracts from EDRA and IDEC between the years 2015 and 2021 were examined in detail in this exploratory study. The initial analysis results indicate that there's very limited research on Materiality and Lighting over these 7 years, a total of 82 presented at IDEC and 40 at EDRA. There is significantly more research on Lighting compared to Materiality in this time frame (77 vs. 45). Lighting research averaged 5.5 abstracts per year peaking in 2019 at 16 and 3.2 abstracts for materiality peaking in 2020 at 10. In comparison with other research topics, these average numbers out of hundreds upon hundreds of research presented every year indicate an urgent need to bring focus to these areas. Online learning and virtual reality were identified as two topics that are gaining prominence that can provide relevant findings to enhance lighting and materiality teaching. There appears to be little interest in online learning until 2021, with only a total of 5 papers presented at IDEC and none at EDRA, though 23 papers were presented across both venues in 2021. On the other hand, VR research shows a steady increase over the years with an average of 7.14 abstracts per year, peaking in 2021 at 15. In order to deepen understanding of the content, iterative thematic analysis will be utilized to uncover prevalent themes throughout the identified research (Braun & Clarke, 2006; 2012), revealing important overlaps and gaps, as well as overarching trends and prominent areas of focus. Even though initial findings suggest great possibilities for enhancing teaching and learning of materiality and lighting, the reality appears to be a significant lack of research as well as very limited growth in research. Providing transparency should help interior design educators to assess the current landscape surrounding lighting and materiality, also to develop strategies for future studies.

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Cohesive Integration of Service-learning Components in Interior Design Senior Capstone Studio Courses

Suining Ding, Purdue University Fort Wayne

ABSTRACT

Service-learning has long been a teaching methodology in higher education that integrates community service into curriculum and course instruction. Much literature has defined service-learning and discussed frameworks and models for service-learning curriculum and course instruction (Bringle & Hatcher, 1995; Bringle & Hatcher, 2000; Forsyth, Lu, & McGirr, 2000; Kolb, 2014). How to integrate the service-learning component into the interior design senior capstone studio courses more cohesively? To achieve this goal, the author participated in one-semester-long service-learning cohort program at their institution. The author took a deep dive into the service-learning and revisited their senior capstone course and identified the community partners. This presentation responds to this question, demonstrates the process of developing, and enhancing the service-learning interior design senior capstone courses, and shares the curriculum map that links to the learning objectives, learning activities, and assessment. Students' senior projects and reflected journals will also be presented as the results of this effort of enhancing service-learning component. The literature review revealed that service-learning projects must incorporate four criteria to enhance their chances for successful service-learning experiences in design education (Zollinger, Guerin, Hadjiyanni, & Martin, 2009). The four criteria that can mainly be used for interior design studio service-learning courses are relevance to course objectives, applying course knowledge, connecting to the community, and reflecting on learning. These criteria were used as a reference for revisiting and enhancing the service-learning interior design senior capstone courses. The senior capstone courses at our institution are two sequential interior design studio courses that integrate service-learning components. Students will go through the entire design process in these two courses by starting the programming and

the schematic design in the first senior capstone course in the fall semester. They will continue to work on their senior projects for design development and construction documents in the spring semester. All the senior projects have to have a space-planning component and must have chosen project sites and clients. Students will work with the community partners for project programming, information gathering, and alternative design concept studies during the design process. In the first senior capstone class, design research is emphasized by introducing the universal design, sustainable design, evidence-based design, and several other design theories that can be applied to students' design solutions. In the second senior capstone course, students will continue working with the community partners to develop a set of construction documents. Annual interior design senior exhibition is required for all seniors in the spring semester. Through the service-learning fellows' program, the author worked with a community partner, who is a not-for-profit organization that provides services to help children and adults with disabilities. To design a facility for them, universal design principles are utilized. Additionally, research is emphasized in class so that design decisions are informed by the research evidence. Presenting a final design solution that accommodates all the users regardless of their ability and disability to the community partners can enrich students learning and provide a sense of accomplishment of helping users in a built environment. The curriculum map was created (Appendix 1) during the service-learning fellows' cohort program. Because reflection is an essential tool for thinking critically about Service-Learning, two reflection assignments were added in the course. Students reflected in their journals that they gained a better understanding of how design can positively impact people's lives and help people to reach their highest potential.

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Experiential Learning: Integrating Analog and Digital Methods

Maria Delgado, Colorado State University

ABSTRACT

Background: In spring 2022, 19 students enrolled in the university's only transdisciplinary capstone course. Seven academic majors were represented from both undergraduate and graduate programs. The unique class makeup allowed for students to share various perspectives. In the course, students collaborated with older adults to codesign a tiny house on wheels (THOW). Specifically, they used virtual reality (VR) to garner older adult feedback. Durall et al. (2019) argued codesigning with technology can lead to technology-enhanced learning innovations. Furthermore, Wu et al. (2021) affirmed that students who participate in codesigning with technology have enhanced learning experiences. In the capstone course, students participated in high-impact analog and digital educational practices to support their learning outcomes (Kuh, 2008). Objective: Students participated in various 2D and 3D educational techniques to enhance their learning. Additionally, students collaborated with older adults to codesign an accessible THOW. Instructional Methods: The course instructor employed three main experiential learning techniques to guide students from physical 2D thinking to 3D thinking and from virtual 2D thinking to 3D thinking. First, the instructor provided students with a piece of paper on which to draw their initial THOW design ideas. The exterior building shell dimensions were printed on the paper. Next, after designing, the students presented their initial ideas to the class. Then, faculty merged students with similar ideas into groups; the new group of students created updated iterations in Jamboard, a collaborative digital platform. After several iterations and class discussions, the students mocked up their designs to full scale with blue tape on large brown Kraft paper. They constructed the physical scaled floor plans and used cardboard to create dimensionally accurate interior features such as counters, beds, and built-in storage. After soliciting feedback from their peers, they updated the floor plans. This design-merge technique

allowed students to have ownership over and pride in the outcome. A Revit liaison student (who was studying interior architecture) executed the design-merge technique. The Revit liaison led the 3D model-making, which was projected in the classroom so all the students could participate in the design process regardless of whether they knew Revit. As the class formed the 3D model, the teacher introduced VR for them to experience the 3D space and codesign with older adults. Using an HTC Vive headset (HTC, 2022), the students and older adults walked inside the VR model to visualize the design. For the final presentation day, students produced the floor plan printed life-size on fabric and prototypes of their accessibly designed interior elements (Figure 01). Conclusion: At the end of the semester, the instructor facilitated an anonymous survey for students to reflect on their educational experiences. Out of 19 students, 18 (95%) stated the VR experience enhanced their education inside and outside of the classroom. Students identified examples to support that claim, including an increased understanding of wayfinding and textures, the comparison of iterations, and ergonomic relationships. The survey provided data to support that classroom integration of VR experiences enhances design education. Significance of Presentation: The project involved three novel elements. First, it provided an opportunity for students to understand 2D and 3D spatial design in both physical and virtual platforms. Second, the integration of VR supported students' understanding of the design and, in turn, enhanced their education. Third, the integration of user-centered design principles hold students accountable for their designs (Shivers-McNair et al., 2018). Therefore, user-centered design education activities reinforce the interior design profession's responsibility to understand their clients' needs in real-world scenarios.

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Finding Strength(s): Empowering Teaching and Learning with Strengths Assessment

Adam Nash, University of the Incarnate Word
Dr. Diana Allison, University of the Incarnate Word

ABSTRACT

Many interior design faculty members have not had formal academic training as to how to teach prior to teaching a college course. While some graduate degree programs in interior design include a teaching and learning component, most designers-turned-educators rely on colleagues, real-time experiences, and university provided training to learn best practices (Ankerson & Pable, 2008). Aside from the logistical knowledge of setting up a course, faculty must have content knowledge and refined communication skills to create effective and successful learning environments. Conducting a survey of recent student evaluation survey comments, the need for an "understanding" professor is evident. A successful and inclusive learning environment for the student includes a teacher who can understand the student's needs and help them with difficult content by presenting the issues from various angles so that the student can make "knowledge break- throughs." Faculty are left using their own experiences and people skills to help reach the student. With so many students and the many varied learning styles they bring, this brings additional responsibility to faculty and requires a deeper level of understanding through the learning process (Kelly, 2020). Recently, a study to empower learning and collegiality among students, and strengthen inclusivity in the department had an interesting and beneficial side- effect for faculty. Strengths Assessment, formerly StrengthsFinder, has been used for the last four years in freshmen classes at a private university to help students understand and learn to work to their strengths. These strengths continue to be addressed throughout their tenure in the interior design program. StrengthsFinder was the brainchild of Donald Clifton over 50 years ago. His organization, Gallup, has conducted over 20 million strengths assessments since their creation, focusing on the recognition and development of 34 strengths found among individuals. While understanding strengths is important, understanding how to reframe an issue to that

specific strength is invaluable. Additional research utilizing Gallup's extensive data looked at how great leaders lead (Rath & Conchie, 2008). Understanding everyone's strengths and how these strengths are manifested allows more successful team creation in the classroom and more meaningful student experiences. Using the information that was generated for each strength, students in interior design studio courses were guided to develop their own solutions. The use of strengths in teaching provides a critical tool that empowers faculty to work effectively and efficiently with their students. In addition to the Strength's Assessment helping to gain insight on an individual's strengths, it gave a new vocabulary to students to understand each other and their professor. This empowered students to take control of their learning and lead with their strengths rather than focusing on what they are lacking. It allowed students to recognize the strength of diverse teams while developing a more inclusive classroom-environment. Students understood that the instructors had the students' interests at heart, and it gave them a sense of security with the instructor and fellow students.

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From Design Intent to Color Composition: Teaching Context-Sensitive Color Planning within Interior Design Studios

Genesis Okken, University of Florida

ABSTRACT

Students graduating from CIDA-accredited programs are trained in using color as a strategic tool given professional standards that emphasize understanding color fundamentals as well as utilizing color's multiple purposes. Still, not every program can provide dedicated color theory classes to meet this standard. What are other strategies for teaching color application within different interior design courses? In the context of design studios, the Color Planning Framework (Portillo, 2009) is a research validated tool specific to the field of interior design that can guide students to develop solutions addressing color's multiple functions (i.e., composition, communication, response, preference, pragmatics). Okken & Portillo (2019) utilized this framework to further explore how color functions were prioritized within different market sectors. Findings from this exploratory study produced design narratives that give insight to color planning strategies for healthcare, hospitality, corporate, and residential design. For design studios focusing on specific market sectors, color exercises can be targeted to support context-specific applications. Another challenge is guiding students in bridging their design goals for color to the final composition. Divers (2021) discusses the difficulty of evidence-based color for interiors since many color studies are limited to abstract, hue-based research ignoring the value and saturation levels interior designers would specify. Saying blue is calming ignores how stimulating electric blue can be perceived. Building from Valdez & Mehrabian's (1994) study of response to different value and saturation levels, Divers (2021) explores implications for a more qualitative and 'sensible' approach to color aligned with our field. This presentation reviews the development of a context-specific color workshop piloted within an advanced healthcare design studio, which was further refined in a capstone hospitality studio. In its first iteration, students

developed design solutions to renovate an emergency department and wellness area. The color intensive started with reviewing color fundamentals students learned in earlier support courses. Additionally, the overview introduced the Color Planning Framework (Portillo, 2009) to outline their design strategies and shared narratives from healthcare designers to facilitate understanding of color in context. In the next session, Ellen Divers guest lectured on how to consider color beyond hue for healthcare design. Next, teams discussed their design objectives and holistically explored iterations of their color and materials palette to support those goals. Teams posted their strongest iterations in a virtual platform called Miro for review. The final design solutions were assessed by external reviewers. In the next semester within a hospitality studio, the workshop was revised for this cohort as a reflective assignment. Hospitality-focused narratives were shared with students at the start of the exercise. They were tasked with identifying goals regarding color's multiple purposes and then exploring design iterations. The final portion of the exercise was to assess iterations regarding their execution of identified goals. Again, final solutions were critiqued by external reviewers. For this program, integrated color workshops help deliver critical content that is sensitive to context. While limited by its reliance on digital renderings to assess application, most rendering engines allow students to simulate specific lighting conditions with photometric data and color temperature. Students are still expected to consider physical materials in their process. Despite limitations, this approach to teaching environmental color helps bridge theory to thoughtful application. Without guidance, students trying to support their solutions with research can fall into the trap of citing studies that fail to consider the many variables in the built environment impacting color design.

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Materials Methods: Connected Learning in Materials Education

Leah Scolere, Colorado State University

ABSTRACT

Materials educators Turner & Sickler (2022) have pointed to the constraints and demands of the materials course in the interior design education curriculum and the opportunity to expand learning experiences. Material educators have emphasized experiential opportunities to engage with materials beyond the lecture format (Sickler, 2019; Matheny, 2020). As learning environments become increasingly hybrid in how they include experiences across the digital-physical spatial continuum, there is a need to consider how materials education can consider access to larger networks and environments surrounding the learning about interior materials. A Connected Learning framework (Ito et al., 2013; Ito, Arum, et al., 2020) emphasizes the role of situating learning at the intersection of opportunities, interests, and relationships across digital-physical settings. As a part of amplifying the experiential learning opportunities in material education, this presentation proposes a connected design learning framework for teaching materials with an emphasis on connecting students with opportunities to learn with industry partners, build their networks, and explore materials from an interest-driven perspective. Key course components are mapped onto this framework INTERESTS x RELATIONSHIPS x OPPORTUNITIES: This case study positions the student-run design materials library as an integrated resource for the materials course. The Design Materials Library is modeled after professional libraries and is a catalyst for connecting students with industry and is routinely updated by reps. The library is b a digital-physical resource for students including a virtual experience and IG account which serves as a platform featuring student outcomes from the materials course as well as a place connect with students on content knowledge. INTERESTS x RELATIONSHIPS: Material Feature Presentations. To foster co-creation teams focus on researching a new material of their choice to add to the Design Material Library. To scaffold the

experience of learning how to communicate with manufacturers' reps, the teams reach out to manufacturer's rep to learn about the product and to acquire samples for the library. RELATIONSHIPS x OPPORTUNITIES: Material Labs. Using the Design Materials Library, weekly Material Labs were introduced to expand lecture and test a social peer-to-peer way of examining physical materials while learning about material properties. Each table of students uses their own set of materials to actively explore through a guided lab focused on noticing how differences in material construction impact appearance/performance. A mini-trade show composed of 5-7 reps allowed students practice their skills interacting with each rep and experimenting with how they ask questions based course learning. OPPORTUNITIES x INTERESTS: Creative Challenges are mini-assignments focused on individualized creative risk-taking for material palette creation and workstation typical design. Each of these involve an industry partner (designer & rep) to connect these challenges to career-oriented practices. Innovative palettes focused on topics such as material health were shared via Design Library Instagram to connect students' points of views with industry networks. Implication: By adopting a connected design learning framework to guide the components of materials education, this 'learner-centered' approach emphasizes the opportunities, interests, and relationships that surround the technical and soft-skills of engaging with interior materials. This lens situates learning components as connective bridges for students to build professional networks, to navigate tools across mediated spaces, and to develop their voices. Micro-assessments were included to understand learner development over the duration of the course in technical content and areas such as comfort interacting with industry for information seeking. This framework advances material education across digital-physical settings.

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Media, methods, and meaning in architectural representation

Cory Olsen, University of Oregon

ABSTRACT

Led as an experimental media seminar, a ten week course delved into graphic roles, techniques, and visual communication. Briefly, the course goals were twofold: 1) Research, analyze, and translate a selection of unbuilt works from the Arts and Architecture Case Study Houses program (Smith) 2) Instruct students in a broad range of media workflows, techniques, and strategies, tempered by active class debates about graphics and their communication capacity. Research and Context While many of the Case Study Homes are iconic built works, the unrealized projects have remained more obscure. Most of these exist only in a handful of original drawings and perhaps a study model. Students assembled research from publications, online sources, and archives. Using these unbuilt projects as our muses, the course sought to represent them in contemporary graphics to further explore the original designs. Complementary readings colored our class discussions, with focus given to the post-digital reaction against photorealism and the promises of new modes of drawings from 3D modeling (Jacob; Soberg/Hougaard). Further, we returned to the idea that the drawings themselves were tools for exploring and understanding design, not simply the end goal of an aesthetic image. Other readings focused on the traditional role of specific drawing types, and how these are either maintaining or shifting with the effectiveness of the digital model (Lewis, et al; Drawing Matter). Sam Jacob frames the argument neatly here in this excerpt from 'Architecture Enters the Age of Post Digital Drawing': "Digital culture, up to now at least, has categorized drawings as either technical or illustrative, as building information or money shot. But in doing so, the drawing's role as an exploratory, inquiring design tool has diminished." —Sam Jacob, Metropolis Method and Pedagogy Following the initial research component, the course was critically about instructing students in a variety of media techniques. The format was unique: each week the class would focus on a

singular drawing type by sourcing precedent graphics. The class used Miro as a shared real-time platform to debate the effectiveness of individual drawings and go through three rounds of communal voting to narrow our focus to one drawing precedent to serve as our model archetype (fig. 1). Our debates would occur on a Tuesday, a live in-class demonstration on Thursday recreated the selected graphic, and students had a long weekend period to execute their versions. As part of our in-class discussion, traditional drawing conventions were first addressed. Students were interested in identifying what was critical and what was, perhaps, arbitrary, limiting, or antiquated. As a specific example, the graphic chosen for our elevation study paired an orthographic projection of the built architecture with a superimposed perspectival foreground. The group felt that this strategy maintained the essential information of the elevation while enriching the drawing with a greater sense of depth and context. (fig. 2) At other times, the students were less interested in changing conventions and more invested in the content the image was carrying and conveying. In our section perspective debate they reacted strongly against photorealism yet we landed on a graphic that effectively implemented accurately rendered shadows and textures. The difference they argued for was that the textures were left abstracted and the utilization of a color overlay kept it more suggestive than declarative (fig. 3) The resultant work is indicative of skills acquired, fluid workflows between software and media, effective graphic communication, and a novel re-presentation of the CSH projects. Framed as an SOTL presentation, I will highlight the course format, schedule, media techniques identified, work outcomes, and quotes/anecdotes from our class debates.

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Operational Verbs - a Way to Design

Nadya Kozinets, University of Louisiana at Lafayette
William Reihm, ULL

ABSTRACT

INTRODUCTION. Spatial ability, defined as the ability to visualize, imagine, translate, and interpret two- and three-dimensional spatial information, is a crucial creative skill required in the interior design profession (Cho, Suh, 2021). According to recent research on spatial ability and 3D visualization, these proficiencies predict both the originality and 3D quality of the design. This case study reviewed in the proposed presentation examines a foundations studio curriculum focused on fostering a spatial three-dimensional thinking through operative action verbs applied to basic geometric forms. The pedagogical approach begins with the most basic forms, then asks students to act on them – creating new form. This approach is anchored in theoretical approaches to design that began in the late twentieth century and found itself firmly in the discourse of design by the early twenty-first century (Hull 2000). This case study uses a pedagogical precedent developed more recently by Mari and Yoo' in Operative Design: A Collection of Spatial Verbs (2013). Mari and Yoo's slim text is accessible to students through visual communication, limited written exposition, and "shows" the potential for spatial creating through the use of actionable processes described with action verbs. METHOD. This case study covers seventy-five interior design students enrolled in a second-year design studio over a four-year period. Students follow an instructive (and for them, laborious)process and apply operative action verbs (twist, carve, bend, etc.) to a choice of six basic volumetric forms. The process of manipulating (conducting operations on) the volumetric form can create geometric conundrums, as if the students are solving a puzzle that requires patience and an open mind. These forms are then used as a base object to be adapted to a residential program. The learning outcomes are assessed here to find changes in spatial understanding through their mastery of the new form in the residential portion of the assignment. FINDINGS. We find that this process instills in students an understanding of spatial manipulation in a systematic and fundamental way.

Qualitative assessment of outcomes recognizing non-normative outcomes, and complex "unrealistic" design challenges in residential design show that the assignment encourages creative volumetric thinking over plan extrusion. Students develop an imperative to manipulate the potential of their future projects rather than placing design inside of constraints. With this understanding of design, students prioritize the processual experience of their design over the product. The outcomes are unpredictable and, result of the process, original three-dimensional forms. Student create design possibilities, not "correct answers." This process forges meaningful learning and thinking that potentially enhances students' spatial abilities to visualize and interpret spatial information, and thus develops an important design skill set. CONCLUSION AND DISCUSSION. Moving forward, these case study understandings can form a basis of a structured pre- and post-test longitudinal study implementing the Architecture and Interior Design Domain-Specific Spatial Ability Test (AISAT). Recent research suggest that the AISAT is a valuable tool for student's design abilities (Cho, Soon 2019). With the qualitative findings of this case study showing a divergence of spatial understandings, this next phase in research can establish a more quantitative assessment research design that both evaluates these qualitative findings as well as building on the understandings of the potential of the AISAT.

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Outdoor Interiority

Nerea Feliz, The University of Texas at Austin

ABSTRACT

TOPIC: Outdoor interiority refers to an expansive understanding of interiority as an autonomous condition linked to interior design tactics of spatial appropriation, such as the deployment of material finishes, furnishings, lighting etc. This notion of "outdoor interiority", shared by a number of contemporary scholars, is not bound to enclosure (architecture), and acknowledges the possibility of a transposed urban interiority based on models of interior occupation: not streets but corridors, not squares, but rooms. Before Covid-19, according to the Environmental Protection Agency, Americans spent approximately 90% of their life inside. As long-term gathering in crowded interior spaces became unsafe, social activities were either cancelled, restricted or gradually moved from the inside to the outside. A third-year undergraduate design studio taught in Fall 2020 aimed to engage students with the urgent pressures that the pandemic placed on our public spaces. In particular, this course served as a platform to showcase how interior designers are currently positioned to play a key role in the accommodation of indoor activities outdoors. RESEARCH QUESTIONS: Can exterior spaces be treated as interiors, not streets but corridors, not squares, but rooms? What are the benefits of shifting selected indoor activities to the outside? How can interior designers contribute to improving the nature of our public urban spaces? METHODS: Students were asked to transform the parking lot of a strip mall to accommodate outdoor dining for a number of restaurants. The rich diversity of immigrant-owned businesses populating strip malls offer residents a true "urban" experience. "Urban" as a condition of diverse and informal conviviality among people from various socioeconomic groups and cultural backgrounds. The studio considered how interior design elements such as surface treatments, lighting design and furniture placement can help cultivate a sense of interiority in an outdoor environment in a regained pedestrian space. The semester was divided into four parts: 1) Street Life, 2) Site Flows, 3) Lines and 4) Surfaces. 1. Street Life: The design process started with an in-depth study of street dining in the countries of origin of the

restaurants' diverse cuisines. 2. Site Flows: The analysis and creative interpretation of existing conditions served as a way to reveal unexpected spatial opportunities and original design solutions. 3. Lines: The study of abstract patterns and geometry informed the students' tactics to organize space. Students were asked to analyze, transform and reinterpret graphic patterns designed by canonical figures such as Anni Albers. 4. Surfaces: Students synthesized surface treatments, furniture choices and lighting explorations into a unified proposal. CONCLUSION: By breaking away from the limiting associations of Interior Design with the boundaries of architecture, the objective of the studio brief was to inspire creative work that expands the scope of the discipline. In an increasingly globalized design market, the site of this multicultural strip mall offered an opportunity to familiarize students with vernacular design in foreign cultures. Outdoor dining can provide a strong sense of communal ownership of public space. Nourishing and supporting these urban practices contributes to enrich the "interior" of our cities.

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Pedagogical Juxtaposition: Simultaneous Design & Theoretical Applications for Supportive Lifetime Housing

Cathy Hillenbrand-Nowicki, High Point University
Jane Nichols, High Point University

ABSTRACT

Societal concerns about increasing lifespan and rapidly rising senior healthcare costs prompted a capstone interiors project combining universal residential design with healthcare design within the same building shells, to design floorplans responsive to future evolving medical interventions typical for aging residents. Flexible long-term aging-in-place solutions were designed by senior interior design student teams using the theories of "place" and "affordances" (Raymond, Kytta & Stedman, 2017). Layered Residential, Universal, and Healthcare space-planning promoted the transformation of single & duplex residential housing units into duplex and quadraplex assisted living units, as part of a proposed phased senior living campus. Experiential learning was foundational to project programming, requiring student interface with a local Continuing Care Retirement Community (CCRC) to provide understanding of institutional logistics and their business model, and for professional feedback and design critique from professional Senior-Living practitioners and administrators. Operationally, students worked in teams throughout the project, benefiting from peer-to-peer learning (Topping, 2007) as instructors employed a focused team-based learning methodology (Sisk, 2011). Students assumed the role of senior citizen "Social Stewards" (Mathevet, et al, 2018) when merging program requirements from the CCRC collaboration and pedagogical design theories of space and place /occupant attachment to define "home" (Giuliani, 2003; Tuan, 1979) with the design theory of "affordances" (Gibson, 1979) that encourages problem solving for multiple possibilities and outcomes (Webb, 2018). Assumptions that housing is a social determinant of health underscored all design decisions (Clark & Boyd, 2017; Gibson, et al, 2011). In addition to dwelling units, student teams designed residential

prototype Common Houses for social interaction, dining, and recreation, that also transition to feature more supportive care and medical amenities evolving from no or limited assistance with daily activities, to part-time or full-time healthcare providers on site. As community residents age-in-place, their need for trained medical staff will increase proportionally to their decreasing need for residential square footage. Residents can remain in their community in their existing building or one nearby, trading a larger home for a smaller one that better suits their needs. In the current traditional model, aging-in-place ends when needs become too great, and commonly results in a traumatic move out of "home" to a medical institution. This transition could trigger a series of compounded health issues and trends toward physical and mental deterioration that could be avoided (Clark & Boyd, 2017; Gibson, et al, 2011). Dwelling unit floorplans were designed to "morph" to accommodate future needs of the occupants from individual (single-family) homes to duplex units accommodating various levels of medical assistance, and potentially permitting rental of a "sub" unit to supplement escalating health costs, and duplex to quadraplex apartment style units intended for assisted living or skilled nursing with on-site or visiting medical professionals within the same building shell (Clark & Boyd, 2017). This project provided an opportunity to simultaneously teach residential, universal, and healthcare design in the same studio, identifying commonalities and differences between them, and demonstrated how combining them successfully might keep people in their homeplace longer or indefinitely, possibly providing a more cost-effective palpable alternative to full time institutional care (Gibson, et al, 2011). The concept was so well received by the CCRC involved in the project, that they are considering using it for a new community building model.

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Sequential [art] Shift: Narrative Techniques from Graphic Novels + Universal Methods of Design Set the Scenes

Moira Denson, Marymount University
Mai Shim, Marymount University

ABSTRACT

As Interior Designers, we often find ourselves looking to present our design process and outcomes to audiences in more approachable ways. Stories and narratives are one of the classic methods in life to communicate complex concepts more easily. According to Danko, Meneely and Portillo (2006), "Because narratives possess a unique ability to give meaning to human experience, they provide the designer with a promising tool to explore and communicate a totality of design experience as a fluid sequence of time and space" (p. 17). With an abundance of technology tools available for creating interior design presentations today, eg. Revit, Enscape, Adobe Suites, there can be an over reliance on the tools themselves to tell the narrative. Technology is great, but it should not drive the narrative. This presentation explores how narrative techniques from the "approachable art" of Graphic Novels/Comics and storytelling tools of Universal Methods of Design were used to drive the order of technology instruction in a foundational Presentations Techniques Course. A Graphic Novel is a complete story in a comic book format. It too involves presenting spatial relationships through time as well as other familiar elements to designers such as light, value, and often the use of color. During the Spring 2021 Semester, two faculty co-taught the Presentations Techniques for Interior Design Course over Zoom. In planning the course, the instructors questioned how studying the language of graphic narratives and comics might help students in their learning of technology skills. The sequential shift of students constructing the narrative first prior to learning Revit, Photoshop, and Enscape implemented in the Spring 2021 co-teaching virtual semester yielded strong student outcomes. Therefore, the following year (Spring 2022), the two instructors continued the

sequence shift in instruction. The Spring 2022 course returned with face-to-face in-lab instruction, separate course sections, and a new online collaborative learning tool, Miro, was introduced. Students were encouraged to interact and critique each other's storytelling and technology work using individual and class Miro boards. Also, during the Spring 2022 Course, a Graduate Teaching Assistant supported with critiquing and instructing in Storytelling and Revit/ Adobe assignments. The Teaching Assistant had previously been a student in the Spring 2021 course and will present their first-hand experience as a student in the 2021 course and as a TA in the 2022 course. Student Projects over the two semesters provide invaluable insights on the success and challenges of sequential shift implementation. The shift away from just tool settings and hands-on practice to narrative construction required students to develop a deeper understanding of their own project narratives. They needed to set a scene for the end-user, not just create a perspective (for example). The teachers had a clear structure/ path to deliver the technology instruction guided by the Graphic Narrative constructs and external critics had a construct to expect and evaluate. Strengths of the course sequential shift showed: student awareness and understanding of storytelling techniques to help improve their presentation techniques and teachers having a clear structure/ path to deliver the technology instruction based on narrative constructs. Potential negatives may be students overemphasizing narrative components at the expense of some technical ones (for example: highlighting establishing scenes over floorplans on presentation boards). Future explorations should also look at measuring how the storytelling skills transfer into the upper-level studio courses completed after the skills-based technology course.

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Scholarship of Teaching and Learning | Pedagogy | Presentation

Social Learning as a Catalyst for Creativity: An Ongoing Study of Dynamic Knowledge in Beginning Design Education

David Matthews, University of Tennessee Knoxville
Scott Poole, FAIA, University of Tennessee Knoxville

ABSTRACT

While the demand for creativity has been on the rise (Schwab, Zahidi 2020), criticism of how we are educated out of creativity has been a nasty specter in the background. The gravity of this problem is underscored by the fact that Sir Ken Robinson's TED Talk, "Do Schools Kill Creativity?" continues to be the most popular TED talk of all time with more than 73 million views. (Robinson, 2007) Well, do we? Do we contribute to killing creativity in design schools? Or is all that damage being done somewhere else? Are the conditions for educating creatives—especially beginning designers—evolving, or are they suffering from a lack of creative thinking? Coming from high school, a first-year student's first encounter with a design studio can be intimidating. They assume they will be working individually, competing with their peers to execute a succession of projects within clearly defined timeframes. But what if this was not the case? What if, from the very beginning, the studio focused on group dynamics—building relationships within a diverse cross-section of abilities and talents—with projects attuned to the actual pace of learning? What if the studio was less focused on a series of sequential outcomes and more on a flow of work that overlapped, intertwined, and had indeterminate endings? Our purpose in this paper is to describe alternatives to the traditional design studio. We will present findings from our fall 2021 experimental studio team-taught by two faculty, one from architecture and one from interior architecture (38 students, equipped with cold desks). Our goal focused on unlocking students' latent imaginations with tactics that included fostering a gradual build-up of creative capacities, allocating sufficient time for iteration and discovery, and maximizing dialogue and self-directed learning through multiple intertwined projects. To create

a dynamic atmosphere, students were quickly required to engage resources beyond the boundaries of the studio, including fabrication facilities and a photo laboratory which they were free to use at their discretion both during the studio and outside studio hours. In comparison to the fall 2021 studio, the fall 2022 studio (36 students) began with a significant twist. The college pivoted to hot desks for all beginning design studios, meaning our students no longer had their own workplace 24/7. Instead, they had a dedicated workplace for two hours, three times a week. Using this new studio structure as an opportunity, deeper and more intentional social learning was introduced into our ongoing teaching experiments. (Chaiklin, 2003) Since college is new and the design studio is unfamiliar, asking beginning designers to work together in teams toward common goals is not difficult. But is it effective? Our preliminary hypothesis—based on a direct comparison of seven weeks of work on identical projects from fall 2021 and fall 2022—is that working in small groups (5-6 students) elevates the group as a whole and individual projects within the group. Benefits we are now observing include increased interaction, improved focus, greater interdependence, heightened independence, and a strengthened sense of camaraderie. And because of the small size of the groups, there was limited opportunity for students to self-isolate. By beginning with collaboration and a new emphasis on parallel prototyping, we found that learning accelerates, dialogue grows, and anxiety diminishes. Questions normally directed to the teacher are redirected to the groups or the studio-as-a-whole, enabling peers to provide immediate feedback. (Johnson, 2011) In response to these observations, our teaching has become focused on helping students become more self-directed and intrinsically motivated learners (Pink, 2009), and developing students who are more comfortable with ambiguity and uncertainty and more willing to take risks.

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The Articulation of Design: Developing and Improving Writing Confidence through Interior Design Coursework

Laura Kimball, Radford University

ABSTRACT

"I am not an English professor, yet why am I teaching basic writing skills?" says the design professor who struggles to read, interpret, edit, and grade students' written work. Writing proficiency is not a new problem, yet still, it is a problem. In 2017, a New York Times article Why Kids Can't Write reports that of those who took the 2016 ACT writing exam 40% lacked the reading and writing skills necessary to successfully complete a college-level English composition class (Goldstein 2017). The article addresses the root of the problem "teachers have little training in how to teach writing and are often weak or unconfident writers themselves" (Goldstein 2017). Through over a decade of instructional observation, design students need further developed writing skills, practice, and confidence. While visual communications are an expected priority in design programs, as noted in CIDA Standard 9, it is not the only format students need for success (CIDA 2022). According to the National Association of Colleges and Employers' Job Outlook 2020 survey, 77.5% of managers feel writing proficiency is the most desirable hard skill among recent college graduates. Kellogg and Raulerson pose that "effective writing skills are central both in higher education and the world of work that follows" they describe writing as particularly challenging as it simultaneously tests memory, language, and thinking ability with a rapid retrieval of domain-specific knowledge (Kellogg 2007). They suggest that deliberate practice, through training rather than instruction, is not only accomplished in English compositions courses but across the curriculum in all subjects; they also offer the following methodical approach for skill development: effort to improve, motivation to engage, practice, feedback, and repetition (Kellogg 2007). Student practice and feedback is often focused on academic-style writing, yet both academic and general writing exercises can be applied and

embedded in design coursework throughout all levels of education in order to improve student writing skills. Opportunities for deliberate writing training include written correspondence, context awareness, knowledge and utilization of appropriate design language, concept and ideation articulation, gathered information organization, audience interpretation, applied research, process connection, and informing the design. Curricular inclusions: To address the increasing need for additional written practice outside of English-class coursework, written elements have been deliberately developed as course inclusions and applied in design coursework. These inclusions offer writing training opportunities. Incorporating written elements make writing an expected and iterative practice throughout education. Feedback through collaboration, evaluation, and opportunities for revision emphasize skill development and improvement. The following course materials are examples of developed written training exercises: concept statements, process work narratives, scope of project, self and peer evaluations, personal response, research papers, design file articles, evaluated note-taking, specifications, infographics, portfolio, resume, cover letters, business documents, correspondence, and blog entries focusing on design articulation. Curricular conclusions: Students were assessed with a self-evaluation questionnaire regarding writing ability, confidence, and improvement. Results included 92% stating improved writing confidence. Students recognized their writing progression. Writing as part of design projects are an expectation not an anomaly. Qualitative findings included improved written submissions. While design professors are not English teachers and design students not English majors, the added deliberate writing opportunities showed improved written communication skills in design students.

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Time Capsule as Interior

Igor Siddiqui, The University of Texas at Austin

ABSTRACT

The presentation focuses on design pedagogy developed around the objective to explore the relationship between interiors and time capsules in a semester-long studio course. The exploration began during the fall of 2020 – the midst of the global pandemic. In the syllabus for the six-credit upper-level design studio in a CIDA-accredited interior design program, the instructor observed, "We live in a time when the extraordinary is routinely becoming ordinary, and what may have once seemed unprecedented can now occur daily." This observation was meant to be inclusive: it takes into account climate change, rapid advancements in technology, public health, social unrest, politics, and all else that is in flux. To future generations looking at our present, what has come to be ordinary to us (captured popularly by the flawed term 'the new normal') may yet again appear as extraordinary. Indeed, a minor document from life in one era can provide numerous clues to another generation. A personal artifact, for example, seemingly insignificant at one time, may be capable of telling a critical collective story at another time. This, in many ways, is the ambition of time capsules — containers filled with remnants of material culture, recorded information, transcribed rituals, and otherwise represented knowledge to be discovered by future generations. This studio as such focused on the construct of the time capsule as a framework for exploring the interior's capacity to capture the present moment while also serving as a tool for projection into the future. Students studied time capsules as material artifacts, communication devices, and a metaphor for the interior as a container that travels through time. Following public health guidelines, the studio was taught remotely, resulting in an increasingly virtual and graphic nature of student projects—the further exploration of which was encouraged rather than suppressed. As such, students explored the capacity of graphic representation to be immersive, inhabitable, and interactive. Finally, the studio explored how design pedagogy can help us process what is happening around us at a time of crisis while at the same time fulfilling the necessary objectives of professional design education. The presentation

is organized into three main parts. The first part is an overview of case studies that helps establish a conceptual connection between time capsules and interiors. The second part provides a series of work samples demonstrating how students applied their conceptual understanding of time capsules in their work. The third part offers a set of conclusive reflections based on documented learning outcomes, focusing in particular on the following aspects: (a) the capacity of the interior to serve as a medium for capturing collective memory, (b) the potential of the time capsule to emphasize temporal aspects of spatial design, (c) the value of shared experience at a time of uncertainty, (d) the necessity of subjective reflection in the design process, and (e) the role of graphic representation in the experience of physical reality. The aim is to outline a reproducible design pedagogy in which the time capsule plays the role of a generative tool for interiors.

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Toward an Ungraded studio: using self-assessment in the design studio classroom

Cotter Christian, Parsons School of Design, The New School University

ABSTRACT

Bell hooks (1994) advocated for a liberatory pedagogy with a flattened classroom hierarchy that fostered collaboration. Unfortunately, traditional grading practices reinforce hierarchies and, in general, present problematic inconsistencies across courses, programs, colleges, and universities. Moreover, grading may disproportionately favor students with previous advantages granted through privilege and access not readily available to other students. Grades "discourage risk-taking and encourage replication of safe tactics" (Kohn & Blum, 2020, p.13). This reduced risk-taking amid the perception of an achievable "correctness" is particularly problematic in a design studio. A recent study by Ekreis-Winkler and Fishback (2019) found that personal failure limited learning due to the perceived threat to one's ego. Grades highlight success and failure through predetermined values (e.g., A-F). Without rigorous feedback and an understanding of their meaning, any grade other than the highest achievable can elicit a sense of failure. This project explores student self-assessment as an alternative grading strategy in an undergraduate studio. In particular, we are interested in how students perceive grades and where they find motivation. Similar to Holmgreen (2018), who asks, "[h]ow can faculty in the arts grade student work in ways that improve learning and support artistic development" (p.2), we want to uncover ways to meaningfully assess interior design studio work that inspires students to improve while meeting institutional grade requirements. For this study, purely instructor-provided grades were removed from one section of a senior undergraduate interior design studio. In their place, students engaged with goal-setting exercises and self-reflective assessments of their work accompanied by individual meetings at midterm and final with their instructor to arrive at their grades collaboratively. Various methods were used to gather data and feedback, including an anonymous start-of-term survey, self-assessments at midterm and final, and end-of-term course

evaluation questions. In addition, a graduate research assistant led focus groups at the beginning and end of the semester to better understand the student perception and value of grades. Results show that most students reacted positively to self-assessment, stating that this mechanism was a vehicle for feedback and learning that pushed them to produce more creative work. When asked, "What motivates you to do your best work," only 25% of students selected "a good grade/ fear of a bad grade," and more than 91% of students selected "an inspiring setting/ inspiring peers" as one of their choices. Furthermore, when asked to describe self-assessment and one-on-one grading meetings with their instructor, more than 95% described the process as "very effective, reflective, very efficient, fair and straightforward, and extremely helpful." Nearly 100% of students agreed that the studio differed from any other class. "Studio is our major, and it is the most important class. We try to learn more in this class because we are interested in the field," they stated. When asked what they would like to change about the grading system, all of them agreed that "more checkpoints, one-on-one conversations with the instructor, and exit tickets at the end of term would be extremely helpful in learning more about how their work was being evaluated." This project contributes to a small but growing body of studies regarding assessment in design education by examining self-assessment and collaborative grading as viable options to promote creativity and student agency in an interior design studio. As Smith (2013) learned, studio project grades figure prominently in students' perceived barriers to learning. If we are to encourage learning, growth, and intrinsic motivation in our students, we must continuously challenge systems -- such as grading practices -- which might be obstacles to these goals.

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Understanding Noise in the Design Process

Erin Speck, George Washington University

ABSTRACT

In a Lighting and Acoustics class, students are effectively able to show lighting through lighting plans, light mapping, reflected ceiling plans and renderings demonstrating the lighting effects. However, sound is more challenging for students to show. Identifying noisy areas within an interior environment during the design process can avoid subsequent and often costly problems after construction is complete. Additionally, sounds levels in work environments are important not only for productivity but also for human well-being. To assist students with experiencing sound levels they are first tasked with downloading an SPL app on either their phone or device, Decibel X, Sound Meter, or other. They are then given a list of areas/settings where they record and document the decibel (db) levels. Examples of the areas include: a private office with 2 people talking, music inside an eating establishment, a microwave tone, siren or emergency vehicle, and more. With an awareness of their db levels they then reference Common Noise Levels, https://noiseawareness.org/info-center/common-noise-levels/ to guide them in assigning db levels to all spaces in their studio project, as well as areas within spaces that generate noise. Students develop a plan view map of these db levels for their project, often preferring a colour coding legend/key of the various db levels. Examining these Acoustic Maps provides an awareness of potential noise issues within a space or with adjacent spaces. After watching Architectural Acoustics, Sound Absorption and Reduction Coefficient, Sound Absorption, https://www.youtube.com/watch?v=ysdfoA-t1aA, students determine the Coefficient of Absorption for each finish material in each space of their studio project. Guidance is provided in determining which Hz column refers most closely to their setting. Using 3D views created for their studio class Coefficient of Absorption values are identified for each finish material. Students are informed that materials with medium to high sound absorption coefficients, usually greater than 0.50, are referred to as sound-absorbing while those with low coefficients, usually less than 0.20, are sound-reflecting. Through the steps in this assignment students gain an

awareness of various db levels by experiencing them, map out db levels in proposed spaces to recognize potential noise problems, and become familiar with the Coefficient of Absorption for interior finish materials.

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University-industry partnerships: reflections on a collaborative design studio focusing on acoustics in workplaces

Elif Tural, Virginia Tech
Andrew Kim, Steelcase, Inc.

ABSTRACT

BACKGROUND With increased recognition of integrated design practices, interior design graduates are expected to work in teams and collaborate with team members from and outside of the profession (CIDA, 2022, Professional Standard 5). Additionally, understanding of acoustical design principles and strategies, and being able to design and specify materials, furniture and finishes respectively are significant designer skills, as emphasized in the Standards 13 and 14. The majority of programs address acoustic principles and room acoustics as part of their building systems courses, and encourage students to incorporate auditory experience and indoor environmental comfort to their design decisions in studios (see for example, Kitapci, 2019; Karsli, 2013). However, interior design instructors rarely prioritize acoustics in design studio projects. With increasing emphasis in acoustic comfort in health-related standards, such as in the WELL Building Standard v.2, focusing on acoustics may benefit students by furthering their understanding of principles, and familiarizing them with the terminology to be able to communicate with other professionals whose expertise are in acoustics. STUDY OBJECTIVES This study reports the process and outcomes of a junior-level studio taught in S2022 in a CIDA-accredited Interior Design program. The studio adopted an experiential pedagogical framework, collaborated with a leading systems furniture manufacturer and an audio specialist. The main design objective was to reimagine the semi-open hybrid meeting spaces for co-located and remote participants with passive and active acoustic design approaches. The adopted pedagogical approach also provided the students an opportunity to work on a multidisciplinary project and apply their design knowledge and skills to develop conceptual design proposals for a real

client/industry partner. Background research on user needs and client expectations, including a site visit to the industry partner's showroom preceded the conceptual designs. The collaborative studio was taught with continuous involvement of the non-design faculty and industry partners. Following the final review, the client chose their top three projects, and students from one team were hired to revise their proposal with multiple feedback sessions from the stakeholders, build a full-scale prototype and get user feedback on their designs. METHOD The data collection methods include reflection papers by students on the collaboration processes and teamwork, and their perceptions on the studio's impact on their understanding (n=36), feedback from the industry partner regarding the benefits of this partnership, analysis of student projects, and faculty reflections to the process and final projects. OUTCOMES AND IMPLICATIONS The findings are in line with previous research with respect to the benefits of such projects, such as collaboration with industry, as well as expected barriers in relation to project scheduling within an academic calendar and balancing stakeholder priorities (Altin, 2016). The industry partner underscored the usefulness of student projects for visioning and the enjoyable aspects of the process in terms of student interactions and educational opportunities. During the presentation, the authors will also share student projects, and the lessons learned that may help other educators who would like to teach about acoustics as an integral part of studio projects, and/or are interested in fostering industry partnerships.

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Virtual Immersions: Using Virtual Reality to Evaluate and Improve Solutions in Interior Design

Lisa Phillips, Thomas Jefferson University

ABSTRACT

Model making has always been a valuable practice in the field of interior design but as technology improves new methods of exploration have become available to utilize. A study was recently conducted to determine whether virtual explorations can be applied to the model making process to improve the design development phase in an interior design studio. Educators Elizabeth Pober and Matt Cook (2019), explain that during the design process students "…rely on spatial thinking to develop and simulate …. solutions, but … (they) lack the experience necessary to accurately visualize and translate the real-world scale of interior space." (p. 23) Modeling is often utilized to close this gap, whether it be physical or digital. If physical three-dimensional representations of space are created these ideally explore issues of "…void/solid, opacity/transparency and different materials…." (Higgins, 2015, p. 171) or they examine the relationship between old and new design elements. One limitation of physical explorations, however, is that it is difficult to understand what it feels like to occupy the spaces created. Since the early 1990's software has been available to facilitate virtual modeling. The opportunity to quickly save versions of models and recreate new iterations can be extremely helpful in improving designs. The immersion of the designer in the environment, however, still falls short in many ways, as a computer screen and print outs are limited in their immersive abilities. The release of virtual reality in the last decade holds potential to allow designers to interact in their creations in a way unimaginable up until this point. "Virtual reality systems can … support instruction focused on spatial reasoning … (supporting and augmenting) spatial thinking by allowing designers to both conceptualize and reason volumetrically." (Pober, 2019, p. 23) To examine the potential of VR as part of the modeling process, a six-week hypothetical design

problem was presented to junior-level interior design studios during 2021 and 2022. Students tested the ability of virtual reality assisted modeling against traditional methods to assist them in producing more thorough and well-informed final solutions. Two groups formed a total of twenty-three students, all female, ranging in age from twenty to twenty-five years old, with most on the younger end of this spectrum. Prospect by IrisVR, and Enscape were utilized for this purpose. Projects ranged from 400 square feet to 10,000 square feet and from one to three levels. Although some adjustments do naturally occur between the design development stage and the final design regardless of the method, VR immediately challenged student designs with a more authentic engagement that allowed them to understand scale, as well as materials, lighting and details. They were able to see areas that were under-designed, areas that felt too exposed or those that would benefit from better transitions. In a student survey models viewed using virtual reality fared better (4.46) than physical models alone (3.83) for their ability to help students understand and improve their designs. Scores reflect average ratings on a scale of 1-5, with 5 being the highest rating. VR did perform slightly under computer only models (4.83), but it is believed that hardware and software issues encountered with VR during the first term influenced the survey to some degree. These have subsequently been improved. Despite minor issues faced with cybersickness and establishing best practices, the results of the study were overwhelmingly positive, indicating that there is significant potential to utilize virtual reality during the design development stage of design. This presentation would cover the theory, methodology and potential expansion of this experiment. A demonstration of the VR application could be included in the presentation for selected audience members to interact with if time and location allow.

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Virtual Reality and the Design Studio: Lessons Learned from Adaptations to Engage Learning Through Technology

Natalie Rowe, Fanshawe College
Wendi Hulme, Fanshawe College

ABSTRACT

Pre, during and post-pandemic, the integration of virtual reality (VR) has become a cognitive and spatial learning tool that supports the development of student projects in interior design studios. In addition to students' increased interest and joy in participating in problem-solving activities in design education, opportunities for students to use VR during the design process in interior design projects can enhance their creativity and creative learning process (Ozgen et al., 2021). Emerging research from Yang and Zeng (2022) suggest that, 'as a result of being transported to an alternate reality where they can see things that are otherwise unimaginable, students will be more attentive when using virtual reality technology' (Yang & Zeng, 2022). In studio practice, virtual reality adds a layer of opportunity for students to engage in simulation experiences with community partners, to build understanding and empathy for populations they are designing spaces for. Additionally, virtual reality creates a platform to enhance spatial perception through experimentation to enhance the understanding of the three-dimensional built environment they are designing for capstone projects. Witnessing the advancing merge of technology and paper-use in design education, our team integrated virtual reality into third-year and fourth-year design studios to offer students the experience of two types of virtual technologies; experiential and spatial. Using the Beatriz Lab platform, third-year interior design students engage in virtual simulations that transport them from the traditionally physical, in-person experience, to one that is remote and digital. In doing so, students begin the information gathering phase of the design process as they step outside of their familiar reality into a cone of vision that presents a first-hand account of what an individual with dementia might see, hear and emotionally feel. This virtual,

cognitive and spatial experience informs their design solutions for a care centre for individuals with dementia. In fourth-year design studios, students engage in virtual reality experiences at various milestones during their senior and capstone projects. Set in physical VR pods, students walk through interior spaces of their own design and construct at different stages of conceptual development. The VR sessions move students beyond traditional paper-based concepts, embracing digital design for investigation, adaptation and critique as a more robust form of knowledge exchange. As the culminating project in the Bachelor program, the capstone design concepts are evaluated and refined by the students through this VR experiential and spatial opportunity. The integration of VR has the potential to alter design processes and merge knowledge into a digital design format. This presentation will offer both faculty and student perspectives on two VR-integrated design studio case studies to share cognitive, emotional and spatial experiences; the role VR played in the design process; skills gained and/or improved by the students; and the impact on project outcomes in upper level interior design studio. As a step toward further VR integration, lessons learned will be presented on the experiences, project setup and implementation.

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Adaptive Reuse: Recycling the Built Environment

Rhonda Gilmore, Cornell University

ABSTRACT

Title: "Everything old is new again:" How to teach adaptive reuse as a form of recycling Problem Statement: How might we teach historic preservation as sustainability and stewardship strategies? Purpose: Adaptive reuse has transformed from an endeavor promoted by historical societies to an imperative in this sustainability-focused culture: shopping at consignment stores, scoring an architectural salvage "find," and bragging about how many recycling bins you own is now mainstream. While this transformation has taken decades, it has been the focus of one of my studios for over 30 years: how best to teach design students to sensitively and ethically transform an historic structure. Methods: Using a methodology that addresses both sustainability and the stewardship of the built environment, this course teaches: • how to document an historic structure • how to analyze a building site, context, community • contractural agreements • architectural history: preservation styles • historic precedents • The Secretary of the Interior's Standards for the Rehabilitation of Historic Structures • building codes • zoning • LEED for existing buildings • programming • all design phases, from schematic design to design development to construction documents • lighting design • millwork. As a comprehensive, semester-long project, students have the opportunity to build their skills, but more importantly, they learn how to advocate for the planet: using adaptive reuse as a construct, students gain knowledge in the stewardship of the built environment, how to nominate a building for the National Register of Historic Places, and gain invaluable insights into how to create a better fit for a prospective end user within an historic structure. The commitment to sustainability permeates the entire learning experience, which goes beyond simply using the LEED system. In this course, students consider the "unspoken architectural language" of a building, what syntax is expressed in the existing brick patterns, how embodied energy is conveyed in every detail of the building. By providing the

studio with an existing building, the structure becomes their laboratory, and they become preservation pathologists, studying how best to create a viable set of interior spaces, while honoring the character-defining elements of the building. Teaching adaptive reuse as the largest form of recycling gives students both the skills and strategies to advocate for the preservation of the built environment and the planet.

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Rebuilding Interiors: A Critical Service-Learning Project in an Interior Environmental Technology Course

Julie Emminger, University of Florida
Dr. Nam-Kyu Park, University of Florida

ABSTRACT

The World Health Organization (2021) estimates about one billion people worldwide live with some form of disability. Further complicating the issue is the age and lack of accessibility of existing homes, as well as the cost of ongoing house maintenance. In response to these needs, interior design students may be able to contribute significantly to maintaining and improving homes for America's underserved communities. According to the Council for Interior Design Education (2022), interior designer students must understand building systems and construction concerning occupant safety, health, and wellbeing. As part of design pedagogy, service-learning encourages students to reflect on course content and gain a deeper understanding of it through community experiences (Sterling, 2007). However, due to a lack of critical analysis of social issues and policies, implementing meaningful service-learning projects remains challenging in higher education. Consequently, service-learning projects often fail to meet advocacy and accountability expectations (Mitchell, 2008). In consideration of these opportunities and challenges, a critical service-learning project in an Interior Environmental Technology course is being developed for Fall 2022. It is designed to provide field experience, to help students understand current principles and practices in interior environmental systems and the need for home rehabilitation for underserved populations. The class will collaborate with a nonprofit organization, specializing in rehabilitating and repairing homes within the communities it serves. The following objectives of the project are identified to stimulate students' learning: • To understand the integration of building systems including plumbing, mechanical, and electrical systems through field experience. • To develop the interior design skills required to improve the

health, safety, and well-being of neighbors in need. • To provide exposure to public services in consideration of equity, inclusivity, and sustainability. • To develop effective communication skills in the context of professional collaboration. To model the project process, the project is divided into 3 phases: 1. Project Introduction which includes a guest lecture and a pre-survey of students' attitudes toward design for occupants' health, safety, and wellbeing. 2. Field Work where students are required to participate for a minimum of 8 hours in the field during the semester. 3. Critical Reflection which includes reflective essays, critical analyses, and a final survey. During and after the project, additional data (stakeholders' perspective views, field observations by instructors, and interviews with students) will be collected to understand the overall experience of the project team. For the IDEC presentation, all materials and data outcomes of the project will be shared including project description, guest lecture materials, survey results, examples of reflective essays and critical analyses, findings of interviews with stakeholders, and conclusions of instructors' field observations. Lessons learned from the experience will contribute to further development of critical service-learning implementation - bridging practical field experience, course content, and advocacy.

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The Future of Nature Integration in The Urban Interior: Education, Growth, and Food Resiliency

Kendra Locklear Ordia, University of Nebraska Lincoln

ABSTRACT

In less than a single generation, the population of the world's cities is projected to grow by two billion more people, and, according to The CIA World Factbook (2022), more than 60% of people will live in cities. With growing urbanization, there continues to be rising needs for physical space, drinkable water, breathable air, and food access. Historically, much of our food production has moved out of our cities increasing our physical distance to access and changing our behaviors related to consumption. While food is considered a basic human need, it can compete with other essential expenses in many households and is influenced by other factors of food assistance, shelf life, and obviously cost. An additional consideration for food access and wellbeing also needs to address aspects of culturally relevant foods as a vital way to preserve health benefits and food traditions for many people. While urban agriculture is not the solution to all issues surrounding future food access inequalities, it is one approach that has the possibility to address multiple challenges in many urban environments (Sustainable Food Centers, 2020). With growing agrotechnology and trends in biophilic interior design, urban interior agriculture offers opportunities for increased association with food sources and renders interior access and connection to nature to be utilitarian, engaging, and potentially culturally relevant. This presentation will discuss ongoing third-year design studio project typologies investigating experiences in the urban interior to enhance awareness, knowledge, and opportunities for meaningful connection to nature around the topics of food security and healthy foods – especially for under-resourced populations. Each project is framed with the following question: How do you design urban interior nature-influenced spatial experiences considering culture, values, and resiliency while promoting education, growth, and equitable access to healthy foods? The context for the studio projects explores aspects of humanistic and moralist values of

biophilic design filtered through a lens of E.O. Wilson (1984) and Stephen Kellert's (2014) interpretation of biophilia: as a complex process encompassing an array of values and qualities that constitute a broader human attitude and affiliation with nature. By utilizing research-informed design for understanding the fundamental ways we attach meaning to and derive benefit from the natural world, students explore inventive and distinctive approaches for individuals, groups, and cultures while referencing identity of place and local ecosystems. To contrast the perception that nature is something only occurring outdoors or in places where the human presence is transient, each project seeks to recognize the many ways the natural environment is part of our lives – including the food we eat. For the past two years, students in the design studios worked with a local start-up interior vertical farm to understand their own connection to healthy food by seeding, growing, harvesting, and processing fresh lettuce. They learn firsthand about ideal spatial layout for efficient workflows, interior environmental conditions and materiality, opportunities for outreach, and what makes for successful urban farming. These active learning and hands-on opportunities have helped students develop a deeper understanding of the food systems, environmental education, and scalable opportunities to integrate into their own projects. In terms of academic benefits, the projects provide an opportunity to simultaneously utilize analytical and creative thinking in evidence-based design while considering how design can promote a culture and nature connected to a more secure, accessible, and sustainable food system within interior environments. It is a positive example of biophilic interior design moving beyond surface-level application to functional, experiential, and productive interactions with interior nature.

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TEACHING & LEARNING in the ROUND

Reflection on Empathetic Pedagogy and Practice: What did we learn? What can we change?

Andrea Sosa Fontaine, Kent State University

ABSTRACT

The CIDQ (2022) defines interior design as human-centered solutions that meet socio-economic, cultural, demographic, and political elements. Interior spaces should consider people's diverse physical, mental, and emotional demands. In contrast to a formal imagination that emphasizes geometrical arrangements, Pallasmaa (2015) offers a more empathetic imagination that simulates sensory, emotional, and mental experiences. Thus, this foresight affords empathy. Empathy is defined as the ability to identify, understand, and feel other individuals' thoughts, feelings, and circumstances, and respond consequently to them (Howe 2013). It requires inquiry as much as imagination and should be the core of design thinking and the essence of the design process. A systematic linear methodological approach is embedded in the design process of a typical interior design studio, both in academia and in practice. It involves two phases for interior design projects: 1) the pre-design phase focuses on research, analysis, and synthesis of information, and programming and 2) the design phase focuses on conceptual, schematic, and design development along with preparing construction documents. The students often become enmeshed in the details of the site and program, providing functional solutions to a 'problem', and struggling to create a meaningful, empathetic, and experiential spatial narrative. Empathetic design is characterized by proposing a balance between rationality and emotion (Postma et al., 2012), between the affective involvement of empathizing with others' experiences and the cognitive process of analyzing them (Kouprie & Visser, 2009). Hence, there is a need to identify empathy as a mode of inquiry in the design process to research, ask questions, explore people's experiences, reflect on this information and provide meaningful human-centric design solutions. This round table will look at how educators have included empathy into design thinking processes and how it enables students to critically consider the design challenge and produce a compassionate design response through self-reflective practices. Each group of educators will discuss their own missteps and failures in early attempts at empathetic design pedagogy, as a reflective practice to develop new pathways forward. The round table will be conducted by four educators. The first group of two educators will discuss different participatory exercises that they have used to build empathy among each other, with our students, among students, and with our communities. These activities and exercises will be crucial to understand the relevance of building a true design team and establishing trust, through a reciprocal, non-hierarchical relationship. The third instructor will talk about the strategies used to assist students in developing empathy through a series of self-reflective exercises, and how these exercises lead to empathetically responsive design solutions

that defy the linear thinking process taught in design studios. This discussion will last for the next 20 minutes. The fourth educator will address the results of their studio and elective courses, as well as whether empathy is subject to prejudice and discrimination. They will also explore how we could slow down the design process and reconsider the quantity and format of our assignments. We will conclude by outlining ways of enhancing the quality of interior design discourse to inspire the empathetic design educators, thinkers, and practitioners.

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