

# GATEWAY TO INNOVATION

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## **Scholarship of Teaching & Learning - Teaching & Pedagogy**

Midwest Region  
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### **Designing for Experience**

Design is an intuitive process, involving designer's full participation as they deconstruct design problems into plausible yet imaginative design solutions. Creative design solutions are the results of designers focusing and fully immersing in user experiences. Reisner urges 21st century designers to create emotional experiences for users since he argues 20th century architecture neglected to provide its users with emotional environments. The problem facing design instructors is centered around how to create designers that focus their design solutions on the emotional experiences of the users. This presentation explores design pedagogy relationships between communication and experience. Architects and interior designers are communicating a story. Each design move affects the use of a space and its users' experiences. How can design pedagogy convey the importance of creating imaginative design solutions and shift the designer's focus to create a story that communicates user experience? When pedagogy can provide student designers with tools to communicate emotional experiences into their design, better spaces will result. This presentation will explore the parallels existing in the design process. Focusing specifically on Dillon and Howe's (2003) design model, and Jensen's (2014) three realms of design, a three-step technique that can be integrated into the design process was developed. The goal of the proposed technique is to have students think about the emotional experiences they are creating by designing the story and user experiences. The three-step technique has been incorporated into several design studios and focuses on designing for experiences. Step one in the technique begins with the students determining what experiences their design will communicate. Step two focuses on the spatial relationships between the experiences. Finally, step three allows students to consider the user experience by relating it to the design elements within each space. Incorporating this technique into the design process has increased the student's ability to design for emotional experiences. Students begin to realize their role as designers and take control of their ability to communicate a story through the design process, spatial layout and design elements.

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## **Scholarship of Teaching & Learning - Teaching & Pedagogy**

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### **Drawing as Experience: Integrating Experience Through Drawing**

American philosopher John Dewey described life as inherently disorganized and observed that our cognitive coping mechanism involved the compartmentalization of different aspects of our life. While effective for establishing order in a disorganized world, the consequence of this strategy is disjunction. Dewey describes it saying, “Compartmentalization brings about a separation of that mode of activity, called “practice” from insight, of imagination from executive doing, of significant propose from work, of emotion from thought and doing.” (1) Phenomenologist and educator, Rachel McCann expands on this description noting that we “distance ourselves from experience” and this poses a significant problem for design professionals who are tasked with integrative, creative design. (2) Design education attempts to provide students with tools that will allow them to work creatively. In the project “Drawing from Experience,” an elective course taught to a mixed class of graduate and undergraduate students, we attempt to re-establish the connection between designer and experience. The project asks students to choose a place for its emotional, intellectual or aesthetic impact, and document their impressions verbally and through photography. Students then engage in a process of controlled observational drawing and media experimentation designed to cause them to reframe their relationship to the environment. It is important to note that the focus of the exercise is not to learn conventional abstractions of space, light, and material, but on the student’s examined experience. The final product of the exercise is a rendered illustration of the observed site that embodies the sense of place experienced by the students. This involves students exploring the conjunction of their subjective experience and the sensed world of space, form and materials, through a careful graphic translation. The media and image are acting as a catalyst for new understandings. Jodi Forlizzi in her explanation of Dewey’s thought, calls this “heightened vitality.” Further, it is the “disruptive” aspect of the interaction between the direct experience of the world and the system of understandings that the student brings to the exercise that induces growth. (3) The new, deeper understanding of how the physical world interacts with individuals to produce experience, are then applied to subsequent projects. The third project in the course redirects the attention from observational discovery to design; asking the student to apply the composition and rendering skills from the first two projects in a design illustration. Students who participated in this exercise exhibited increased ability to use design communication media and construct compelling graphic narratives. More important, however, was their heightened sensitivity to the role materials, light, and the observer themselves play in the subjective experience of place.

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## **Scholarship of Design Research – Sustainability**

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### **Design Patterns for Transition Interior Design**

Our Energy Future Design students graduating in 2020 can expect to retire in 2065 or beyond, by which point the world will be quite different. By this time, the energy crisis will be impacting the careers of these designers. We know that climate change is already happening faster than predicted and at a rate that is shocking the scientific community (Rockström et al., 2009). Further, modern society is now at an unprecedented peak in unsustainable energy use (e.g., Hall & Day, 2009). Despite these challenges, new ways of thinking and practicing can position interior designers for the radical new context these wicked problems present. Transition Interior Design To avoid becoming a faded luxury of the declining oil age, the interior design profession needs to confront challenges arising from our energy-uncertain future. “Transition Design” is a term coined by scholars at Carnegie Mellon (Irwin, Kossoff, & Tonkinwise, 2015), an approach inspired by permaculture ethics and theories of localization as a means to achieve a post-carbon society (De Young & Princen, 2012). In this literature, localization is conceived as the process of localizing goods and services to manage a major downshift in societal-level energy use. This messy trial-and-error process is what we refer to as the ‘transition context.’ Interior designers can begin to translate this work into our realm of expertise: Transition Interior Design could be the bridge between current conventions and an environmentally uncertain future. It is a form of design practice that accepts, and begins to adapt to, a major downshift in unsustainable energy use. Transition Patterns To advance Transition Interior Design, this project examines one historic text, “A Pattern Language” (Alexander, 1977), for insights useful to designers in a transition context. Alexander's work was written with similar decentralist notions that underpin the philosophy of localization. Another unique gift of Alexander's work is that social and psychological themes are embedded into design thinking, a frame that is sorely missing in contemporary guidelines for green buildings. Our methods included a content analysis of A Pattern Language with three questions posed to each pattern: 1) How does this pattern help with energy descent, global warming or economic instability, 2) How does this pattern contribute to the psychological and social dimensions of positive localization, and 3) How might the patterns be revised for a post-carbon future? We present a matrix of categories that emerged across patterns and grouped into major themes, where each sub-theme contains 3-20 design patterns. The project's aim is to facilitate the evolution of new design methodologies, not merely to revive preindustrial vernacular design. The result is a toolbox of ideas for Transition Interior Designers interested in crafting environments for the transition context. “A Pattern Language” offers a portal to the past and a foundation for expanding and realigning Patterns in response to 21st Century design challenges.

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### **Scholarship of Teaching & Learning – Sustainability**

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### **Green Building Literacy for Online Learners**

Despite accelerations in green-building technologies over the last three decades and the proliferation of green square footage across the country, green building knowledge has largely remained within the narrow confines of industry expertise (Cole, 2013). The public has few opportunities to engage with and learn about green buildings. This lack of public green-building education is problematic as all Americans are building users, and many will own, construct, and maintain homes throughout their lives (Cole, 2017). At the same time, green building education for designers is an area of interest within the scholarship of teaching and learning (e.g., Gale, Martin, Martin, & Duffey, 2014; Ruff & Olson, 2009). Design programs with a focus on sustainable design can attempt to advance green building education on all fronts by offering general education green building courses. This presentation offers results from a multi-semester evaluation of a 100% online laboratory course on sustainable design. The course, tailored to both majors and non-majors, was uniquely designed to personalize sustainability themes through hands-on laboratories while introducing students to broad global issues through more conventional online lectures, readings, and quizzes. The evaluation framework used previous work on Green Building Literacy (GBL) to guide assessment (Cole, 2015). GBL is the desired outcome of green building education. It falls within the broader concept of environmental literacy, which encompasses themes such as human-environment relationships, affect, and environmentally responsible behaviors (McBride, Brewer, Berkowitz, & Borrie, 2013). Being green building literate, therefore, is much more than having green building knowledge, it is about positive attitudes and having the skills to take meaningful action. Research Questions • What facets of GBL were impacted as a result of one online green building laboratory course? • How did the online learning experience impact GBL outcomes? Methods This study was conducted within an accredited Interior Design program at a Midwestern state university. The mixed-methods study involved an online survey (n=46) and interviews with students in the course (n=10). The survey was administered pre- and post-course and across the two semesters the course was offered. The survey was based on

previously developed instrument (Cole, 2015). The students selected for interviews represented a cross section of genders and majors. The interviews offered insight around GBL survey themes and also student experiences learning online. Results Preliminary analyses show that students significantly increased environmentally responsible behaviors as a result of this course. Interviews revealed the hands-on and personalized laboratory experiments not only deepened knowledge and skills but tended to surprise students by the difference small tweaks can make for resource conservation. The laboratories together with the final assignment changed behaviors during the semester students took the course; students also expressed behavioral intention toward issues such as water conservation, lighting, and phantom energy reduction. Additional analyses regarding differences across majors and online experiences will be complete by the time of this presentation. The data overall suggests that good course design that includes experiential assignments can overcome the limitations of the online format and promote increases in Green Building Literacy.

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## **Scholarship of Design Research - Globalism & Multiculturalism**

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### **Operating an Interior Design Firm in Saudi Arabia: Opportunities and Challenges for Professional Females**

There are various limitations that the people of Saudi Arabia, particularly women face including, but not limited to, segregation and ban on women driving, inadequate job opportunities, and lack of training in various fields of education. Western activists believe that moving toward achieving equality for women, in the home, in the workplace, and in positions of education, health and political power, remain one of the most important challenges facing the Saudi government in the twenty-first century (Alsaleh, 2012; Aguirre, Hoteit, Sabbagh & Rupp, 2012). Through initial research of the Saudi Ministry of Economy and Planning Ninth Development Plan (2014) the researchers found current support for women's education and validation of their intelligence and skills in contributing to the Saudi economy. This support could positively assist women in their career and job goals. Upon further investigation it became apparent that the art and design domains are growing in Saudi Arabia, making these fields of study beneficial for the country and its female population in particular (dominate field of study for female college students). However, there are realities that shape the Kingdom of Saudi Arabia and differentiate it from other countries in the world. As Aldraehim (2013) explains, "Islam is the first element of Saudi Arabia's culture and sets the moral principles and behaviors in its society through the Koran (the holy book) and the Sunna (the sayings and practices of the prophet Mohammed)." Hence the culture affects business enterprises in Saudi Arabia. The overarching goal of this study was to investigate the current business operations of interior design firms in Saudi Arabia and to answer the following research questions: RQ1: How are employees, in particular females, in Saudi Arabia able to obtain appropriate training that provides them with the uncategorized skills, in agreement with the Ninth Development Plan, needed to work in the interior design profession? RQ2: How is communication between males and females work sections facilitated within a stratified work environment and use of technology? Does the work environment actually suggest stratification and/or privilege? RQ3: What technologies and software can best be adapted in a firm to complete interior design projects? The research started by identifying the number of established interior design firms in Saudi Arabia

using the method of “snowballing” due to the lack of official databases. Twenty interior design firms were identified. The participants were professionals managing interior design firms specifically in the Cities of Riyadh and Jeddah. A mixed method approach was used with both qualitative and quantitative elements. The quantitative questions were utilized to gather information about the demographics of the firm including number of employees, male/female ratio, and education qualifications. For the qualitative portion, the participant answered in his/her own words open-ended questions such as how females secure transportation to and from work, and how female and male employees collaborate to complete projects if segregated. Survey distribution and Data analysis was conducted using the Survey Monkey. The descriptive statistical analysis was conducted for the quantitative questions. Findings indicate that females are able to access educational opportunities with interestingly 71.4%, obtaining their education internationally. And females were owning and managing firms even though culture dictates that male managers be employed. The qualitative questions were examined and coded manually to establish trends and common themes. Answers to qualitative questions were first written (by choice of participants) in English then translated into Arabic by a professional translator and then back translated into English to establish an accurate interpretation. Through open ended questions solutions for transportation and collaboration between males and females were explored with a variety of responses from participants.

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### **Scholarship of Design Research - Teaching & Pedagogy**

Midwest Region

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### **Not Your Typical Spring Break: Gaining Professional Experience Through Interior Design Externships**

Preparing students for entry into the professional environment is an important aspect of interior design education. The 2014 CIDA Future Vision Report agreed that future designers must, “commit to the on-going process of learning and idea exploration in collaboration with others”, as well as engaging in risk taking and experimentation (p. 5). One of the challenges that many interior design students face is that they do not have the experience required to make an educated choice about their career path. Research supports that experiential learning models can offer an expanded understanding of a profession and are one of the best ways college students can clarify their interests and determine future goals (Orndorff & Herr, 1996). This presentation will discuss

outcomes over the course of four years from a spring break externship program that was initiated to offer greater exposure to the interior design profession. In comparison to internships, externships are typically held for a shorter period of time and offer an exploratory immersion ranging from shadowing to hands-on activities depending on the practitioner and academic agreement. The objectives for this particular externship program are to bridge the gap between formal education and professional practice and to offer cultural exposure in new cities over the course of the students' spring break. The program is open to second through graduate level students and placement is determined by the faculty director. To better understand the effectiveness of this experience, qualitative and quantitative data was collected. Comparative survey data measured the effectiveness of this experience on both practitioners (N = 81) and students (N = 94). Over the course of four years, externs repeatedly expressed increased levels of personal confidence, career preparation, and interest in their chosen field after the experience. Participating firms also reported high levels of satisfaction with their experience, and all firms reported that they would be interested in hosting a future extern. Student and practitioner feedback was additionally ascertained via the request to respond to open-ended questions. One student commented on the importance of the multidisciplinary nature of the profession stating, "The opportunity to shadow at an architecture firm made me realize I fit in with a larger and multidisciplinary company. It was beneficial to see the design process we learn in school applied in the real world." Another student stated, "This program allowed me to gain confidence in the direction I am going as a designer and how to pursue the areas I am interested in." Practitioner responses additionally confirmed the importance of the program stating that, "More and more we are seeing that students have multiple internships at large firms and that stands out when we are looking at candidates to hire." The primary goal of many college students today is to prepare for a career after graduation. Experiential learning, such as externships, offers students an opportunity to apply what they are learning within classroom to the real world and can help clarify their interests and determine future pathways.

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### **Scholarship of Design Research – Technology**

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### **Interior Design Inquiry and Studies of Mental Health – Expanding Methodologies and Questions Asked**

Studies of mental health have primarily been grounded in fields such as psychiatry and neuroscience and as a result, the focus was on what is happening 'inside' a patient's mind. This paper is an example of how infusing interior design inquiry into studies of mental health can inform and challenge assumptions about how mental health is studied and approached, expanding the questions asked and the methodologies employed. The paper draws from a study funded by the National Science Foundation that supported a three-college collaboration at the [name of university]: the College of Design, the Medical School's Department of Psychiatry, and the



College of Science and Engineering. The study's purpose was to explore the environmental factors associated with behaviors tied to Obsessive-Compulsive Disorder (OCD). OCD is a debilitating anxiety disorder experienced by 1% to 3% of the population. As up to 80% of OCD cases begin during childhood, early diagnosis and treatment can have life-transforming outcomes. Many of the compulsions, such as repeating and ordering rituals, and excessive hand washing involve elements of interiors such as door openings, light switches, sinks, and toilets. By turning the focus onto visible and observable behaviors, the study increased understanding of how the condition manifests itself and its impact on patients' lives, and exposed the nuances of how the built environment is seen and perceived by diverse users. As a way to more accurately decipher how environmental factors are associated with OCD behaviors, subjects were videotaped. This methodology allowed for observations and analysis using computer vision tools of behaviors that are too complex for parents and others to observe in real time and nearly impossible for doctors to witness during an office visit. Experiments were conducted with 40 subjects, 18 children and adolescents with OCD and 21 matched healthy controls who engaged in everyday activities such as hand washing and interactions with bathroom fixtures as well as clutter organizing. Variables measured using the videos included total time spent doing each task, number of times an object is moved during a task, whether the arrangement made by the participant is similar or dissimilar to the sample card given to the participants at the beginning of the task, and repetitious behaviors during the tasks. The videos challenge preconceptions about the monolithic use of interior elements such as a bathroom sink and allow for a glimpse into how these aspects of the environment are viewed and interpreted by OCD patients. Additionally, the findings can be used

to develop algorithms that perform the measurements automatically so more patients can be evaluated over time in different settings. Next steps also include expanding the study to the investigation of mental health disorders, such as schizophrenia; the assessment of environmental factors, such as lighting, color, and spatial layout/views; and settings, from the home to school and work environments. Note to be inserted: The author would like to acknowledge the other Co-Pis of the study: the College of Design (authors), the Medical School's Department of Psychiatry (), and the College of Science and Engineering ().

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### **Scholarship of Design Research - Teaching & Pedagogy**

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### **Career Construction and Graduate School Decision-Making**

The Interior Design Body of Knowledge (Guerin and Martin, 2010) reveals not only the breadth of knowledge that an interior designer is expected to intellectually engage with as a generalist in the practice of interior design but it also reveals opportunities for specialization. This pilot study investigates the actions of students from one Midwestern university's interiors program and their exploration of, and decisions about professional practice and graduation education. During both the 2015/2016 and 2016/2017 academic years, approximately one half of the graduating seniors of a Midwestern university's interiors program were considering or had applied to graduate schools. At a time of historically high employment rates in the interior design profession (Berens, 2016),

this level of graduate school investigation caught the attention of the program faculty, especially given this institution's consistently high placement rate of students into professional practice positions. Additionally, students overwhelmingly considered and chose graduate programs in architecture. Research Questions: The research questions guiding this analysis are: (a) What was motivating students to forego professional practice in favor of graduate education? and (b) How did students conceptualize a graduate degree in architecture as part of their career trajectory? Theoretical Framework: Career Construction Theory. Savickas' (2002) contemporary model of career construction suggests that careers are constructed versus simply unfolding and are the result of personal traits, societal influences, and personal desires and motivations such as satisfaction, approval, and stability. Setting: Data were collected via online survey and through both in-person and telephone interviews. Subjects: A total of nineteen interior design students were surveyed and a total of seven interior design students were interviewed from the two academic years: 2015/2016 and 2016/2017. Research Design: A case study approach was used to examine career construction by interior design students. Findings were developed from surveys and interviews. Findings: Nearly one half of the participants saw an advanced degree in architecture as an integral part of their professional aspirations as both desirable candidates for professional practice and in order to achieve respect as a practitioner in design. Students who were considering graduate education saw graduate study in interior design as less useful/less necessary. Students who were pursuing graduate education felt unsure of their ability to be good designers without a stronger understanding of architecture. Conclusions: Using Savickas' (2002) contemporary definition of career construction theory as a theoretical framework, this study revealed that students have varying perceptions about professional practice in interior design. The findings from this study give faculty a critical framework by which to review program curriculum and to assess how professional practice, interior design, architecture, and graduate education are discussed and explored during the educational experience.

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### **Scholarship of Design Research - Teaching & Pedagogy**

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### **Placemaking in the Interior Design Studio**

During lean economic times in higher education and at a time when online education challenges the value proposition of the physical campus, justifying and validating the need for physical space

are common requirements for academic programs. This investigation studied students' use of the dedicated interior design studios at a mid-size university in the Midwest. Through three different qualitative methods, the researcher studied placemaking by undergraduate interior design students, how placemaking evolved over time, and the relics and rituals involved in placemaking activities. Research Questions: The research questions guiding this analysis were: (a) How do students create a sense of place in the undergraduate interior design studio? and (b) How does placemaking in the undergraduate interior design studio evolve over time? Theoretical Framework: Placemaking theory Setting: Data were collected via observations, in-person interviews, and focus groups Subjects: Ninety-nine interior design undergraduate students were observed over the course of two academic years at a mid-size university in the Midwest. Research Design: The case study approach was used to examine how undergraduate interior design students actively take part in placemaking in three dedicated interior design studios. Initial findings were documented via photographs with follow-up focus groups and individual interviews. Findings: Findings from this investigation reveal that students become more active and spirited in placemaking as the academic year progresses. Variations are visible among the three levels (sophomore, junior, and senior) specific to the extent and type of placemaking activities that occur. Students "build up" and "spread out" as part of defining their space. While students verbalize ownership of a given "property", population density shapes ownership activities. Conclusions: Findings from this study help to illustrate the connection between student, educational setting, and educational outcomes. Students become active participants in creating quasi-interiors and experiences similar to how they will practice as designers after graduation. While the relics and artifacts are different, the placemaking in the interior design studio is similar to what we see in the open office environment of the commercial interior. Because of these similarities, an opportunity exists to exchange ideas and rituals between the two settings.

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### **Scholarship of Design Research - Design Practice & Process**

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### **Using Student Experience to Innovate Student Housing Design**

Universities over the centuries have housed students on campus, often requiring on-campus living as condition of acceptance. For some low-income, minority, and first-generation students, on-campus housing can be viewed as a luxury, an unnecessary expenditure in the ever-increasing cost of higher education. Universities are not being arbitrary in their on-campus living requirements. A great deal of literature is available from the past several decades which link on-campus housing with higher retention rates, fostering social integration, and stronger student outcomes, most publications focus on the relationship between residence life programming activities and academic

success. However, little is known about the influence that size, variety, cost, and spatial organization have on outcomes, retention, and on-time graduation of diverse populations. University of Memphis has invested in on-campus housing since its founding in 1912. Over the past century the campus has built seventeen buildings to house the diverse undergraduate student body on campus. This study looks at four residence hall settings at the University of Memphis and explores correlations between design decisions, residence hall spaces, student academic performance, and student retention. The research uses a mixed methods approach; including ethnographic study, student surveys, historical data, and an assessment of architectural attributes to explore provided residence hall space and the impacts on first year residents' retention and academic performance. Preliminary analysis describes the relationship between space organization/type, student choice, and academic outcomes as well as the impact of resident choice on residence hall diversity and academic outcomes of first year students. While a deeper investigation reveals the impacts small design decisions can have on student satisfaction, and retention. This study has significant implications for future construction and renovation of student housing, as well as having the potential to significantly impact current students and university housing decisions. In addition to providing much needed information about student housing and first year student outcomes, this study creates a framework for which future research can build upon to encapsulate a complete picture of how design decisions related to physical spaces, and spatial organization of student housing impact residents across their college career.

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### **Scholarship of Teaching & Learning - Teaching & Pedagogy**

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#### **Design, Environment, and Construction: The Elements of Integrated Teaching Delivery**

Similar to the present norm of Integrated Project Delivery (IPD), the XXXXXXXXXXXXXXXX program at XXXXXXXXXXXXXXXX has designed and implemented a model of Integrated Teaching Delivery (ITD). Integrated Project Delivery is a design delivery method that should result "in buildings that better embody the guiding principles of the project and better serve the client and the end user." (AIACC, web). Similarly, the XXXXXXXXXXXXXXXXXXXXXXXXXXXX developed the Integrated Teaching Delivery method to provide parallel learning of theory and technical information delivered across three courses, rather than the traditional linear learning method of theory lecture, technical lecture, then, studio application. Integrated teaching delivery

is entered into by the assigned 3rd year studio professor (IAD351), Color + Lighting instructor (IAD355), and Construction + Detailing professor (IAD310), who agree to work together as a single entity, under a multi-party agreement as outlined in the course syllabi. "In pure IPD...risk is shared on a pro rata basis" (AIACC, web) whereas in the educational setting student success is the shared focus of the educators, students, and administration. The team-teaching strategy is not new to design education and integrated teaching is not ground breaking. However, the multi-party agreement entails establishing an end goal which encompasses all aspects of a design project and assigns tasks to the appropriate learning venue (i.e. researching lighting manufacturers vs. developing framing details for lighting bulkheads). By establishing a clear list of requirements for successfully completing the fall semester, third-year, the faculty can then identify areas of specialization in which each is responsible for teaching. To conclude the semester each student prepares one presentation including an oral component, graphic boards, and technical drawings/specifications which span learning objectives in all three courses. Assessment is considered both on the collective presentation and any elements addressing specific requirements in each individual course. To date, the integrated teaching delivery method has been implemented with a single cohort with mixed results. A notable challenge to be addressed is whether to consider a student's final presentation and progress/process as a single grade for all three courses, or to allow individual faculty to score a student on their perception of meeting a single course's requirements (studio, lighting, or construction). In the first cohort of fifteen students, eleven successfully completed the criteria for all three courses and matriculated to the spring course sequence. However, four students failed to complete requirements for either the lighting + color course, construction + detailing course, or both. These four students will be required to retake the course(s) they previously failed. Similarly, another challenge discovered in the first cohort was that of final presentation requirements. The idea behind the ITD agreement was to allow for fluid communication between all parties throughout the semester. However, decisions which were made unilaterally regarding presentation requirements led to confusion and misunderstanding of requirements. This is in-part due to poorly defined criteria and changing the criteria to meet the requests of the students.

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### **Scholarship of Teaching & Learning - Teaching & Pedagogy**

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### **Promoting Product Proficiency Through the Creation of a Collaborative Materials Sourcebook**

Promoting product proficiency through the creation of a collaborative materials sourcebook developed by interior design students Interior design education continues to include lecture format



classes to ensure students graduate with knowledge and proficiency in technical categories as outlined in the Council for Interior Design Accreditation guidelines. Materials and finishes, including the specification of interior products, are one aspect of design that continues to be taught in this way, with particular regard to CIDA Professional Standard 13 (2017). A materials course with over one hundred students utilized a materials sourcebook assignment to familiarize the students with a wide variety of high-end residential and commercial products. Each student became intimately familiar with one particular product and transferred that knowledge into a sourcebook submission. The final sourcebook is used as a hard copy product reference for students in the interior design resource room. The wealth of knowledge gained is not only useful to the individual student, but to current and future students who visit the resource room. Method Each student was assigned a finish material and asked to develop a five-page summary of the product. The students were asked to provide a title page with essential product information including the product Construction Specifications Institute (CSI) MasterFormat number (2016) and product classification. The specifications page required information directly from the product source, including a product description and technical information. Material properties, testing data, installation, durability, care and maintenance information were incorporated into the layout. The analysis page required written and visual evaluation, with an emphasis on sensory qualities of the product, sketches of the material, and/or detail drawings. The final pages were reserved for images of the products and additional lines carried by the manufacturer. The format for the project was given in Adobe InDesign, assuring a consistent layout and page format throughout. Outcomes Students were excited to develop a strong, well-defined material sourcebook that could be referenced and considered by their peers working in the resource room. Students inherently took ownership of this project and challenged themselves to do their very best work, understanding that this product research would be a lasting legacy and personal contribution for current and future designers. Students learned the Construction Specifications Institute MasterFormat organization, as they were required to utilize the system for this project. The completion of the assignment required students to identify the MasterFormat number of the particular product they were assigned. Furthermore, the students actively use the numbering system when researching material submissions to apply the information in the book to interior design studio projects. During the semester that this project was developed, the sourcebook pages were organized by product application. One book was made for high-end residential products and two additional books for commercial products. In the future, architectural products, furniture lines, and specialty materials will be topics for the assignment. In this way, the resource library will continue to expand and diversify based on strong and reliable work created by and for our students.

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**Scholarship of Design Research - Design Practice & Process**

Midwest Region

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**STEAM (Science, Technology, Engineering, Art, Math) Outdoor Learning Space**

This presentation follows the design process and development for a STEAM-Centered (science, technology, engineering, art, and math) Outdoor Learning Space that is made possible through the Boeing “STEM Sprouts” Grant and located within the courtyard of an early childhood education center in North St. Louis County, Missouri. This project is an extension of an earlier collaborative research project with faculty from the School of Education that explored the positive impact of incorporating creative design projects into the K-8 classroom. The previous research speculated the benefits of studio-based learning through the lenses of mathematics and spatial principles and resulted in several design projects published in a nationally distributed gifted education journal. The design for the STEAM Outdoor Learning Space builds on this previous research and aims to apply STEAM-centered principles to a fully immersive, occupiable learning space. Development of the design proposal involved working through the typical stages of the design process (pre-design, schematic design, design development, etc.), and the design proposes the case for spaces to serve as active teaching tools for math and science principles. The project began with researching the state learning standards for math and science specific to early childhood learning (ages 3-5). The design team collected and categorized the learning standards, and eventually common threads emerged as opportunities for design exploration. Multiple design presentations documented progress, and designers collected feedback from project administrators and stakeholders throughout the design process. The final design for the outdoor learning space aims to incorporate specific math and science learning standards into a play-focused learning environment. The plan incorporates spaces for children to grow both native and edible plants, an area appropriate for students to actively participate in building projects, and a teaching-centered quiet zone appropriately organized for outdoor instruction. Age-appropriate counting and measurement elements are integrated throughout. Additionally, large-scale environmental graphics depict over-scaled, brightly colored natural scenes, and serve the dual function of teaching primary mathematic and geometric principles. Construction for this project is ongoing, and the project administrators hope to have the project completed by Fall 2017. The finished result will provide students a variety of outdoor spaces focused on math and science learning. Ultimately, this project is testament to the ability for design to transform and deeply benefit active learning environments.

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**Scholarship of Design Research - Design Practice & Process**

Midwest Region

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**Reflective Interior Design Practices of Diversity and Inclusion on Campus**

Non-discrimination on college campuses is creating ripples for interior design practices. What are the diversity and inclusion demands in facility design? How is this being achieved? The purpose of this presentation, utilizing a hybrid model of reflective practice, employs professional experience, creativity, and research to gain an understanding of the growth in scope of interior design for persons with (1) diverse gender expression, (2) a body mass index over 30, and (3) disabilities as defined by the Americans with Disabilities Act. Design Issue Background Inclusive design mitigates discrimination and is a social justice call to action. Goals to achieve non-discrimination connect to the low-hanging fruit like physical access of places, square footage clearances and accommodating plumbing infrastructures. But a more recondite shift for inclusiveness is necessary, where a welcoming social climate engages all levels of ability, and diversity education of campus facilities staff is valued and practiced. Without understanding how the design profession plays a role in diversity is inadvertently doing what has always been done. With student groups leading demands, diversity and inclusion is center stage in a new interior design paradigm impacting higher education facilities and users. Research Methods Evidence-based design (EBD) practice became popular in healthcare design (Center for Health Design) as a process valuing credible evidence to influence design. Design decisions are based on the best information available from a hybrid model applying – and intended to close the gap between – research and reflective practice. A proficient panel of four experts who translate design research findings into practice deliberate concerns of diversity and inclusion. The panel background experience is: diversity advocates, educators involved in campus planning, practicing architects and interior designers, and design professionals involved in code development. One member worked with students in designing residence hall restrooms, two members worked with campus facilities in planning, and two members are involved in revising and training the International Code Council (ICC) codes and ADA Standards. Panel members contributed to a narrative on evolving practices and building blocks in inclusive design. The process includes sharing of work, interactive questioning, memo writing, critiques, and narratives addressing diversity and inclusive design practices and accessibility code development. Guiding resources are: Campus initiatives, student feedback, ADA enforcement history, 2010 DOJ Standards for Accessible Design and the International Building Code (IBC) accessibility standards. The informedDESIGN EBD Research Summary format (<http://www.informedesign.org/Summaries/What-are-RSs>) is followed. Commentary Individual's perspectives are unique to a specific period of time that are not reliably transferable to all sites at all times. And, experiences and biases of panel participants are also limitations. Nevertheless, such study points to the need for future research. Collaborative work demonstrates specific examples of shifting design practices in gender neutral housing and bathrooms at a college residence hall and in applying innovative accessible design fundamentals for all campus facilities. Further evidenced design criteria are provided with supporting examples addressing design for persons with diverse gender identity and expression, large body mass, and persons with disabilities.

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**Scholarship of Design Research - Design Practice & Process**

Midwest Region

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**The Work "Place": Coworking, Collaborative Activity, and Place Attachment for the Traveling Professional**

For many individuals, the work week consists of forty-plus hours, resulting in the vast amount of their waking hours spent in the work environment. Individuals may often feel strongly attached to their work environment or extremely dissatisfied due to either negative or positive past experiences within the workplace, which may also translate to transient workplaces like hotels. While the idea of coworking spaces is an established concept with global context, the combination of coworking spaces and hotels is new. John Hardy, founder of Radical Innovation in Hospitality states, "If hotels are not considering demand for live-work spaces, they stand the risk of becoming one dimensional." This study investigates the interconnection of place attachment theory, activity theory, and coworking spaces to provide a better understanding of how social interaction influences place attachment in the transitional workplace of the traveling professional. Context Place attachment, defined as the bond between an individual and their meaningful environment (Scannell & Gifford, 2009), is influenced by factors relative to the person, place, and process. While place attachment refers to the relationship between people and place, coworking spaces rely upon a people to people connection. Moriset (2014) describes coworking spaces as "'serendipity accelerators' designed to host creative people and entrepreneurs who endeavor to break isolation and to find a convivial environment that favors meetings and collaboration" (p 2). Activity theory situates the interaction of human activity within its contextual environment (Jonassen & Rohrer-Murphy, 1999), linking place attachment with coworking spaces by providing a connection between people, place, and activity. Method and Findings This study employed qualitative methods of analysis in three case studies. Researchers conducted non-participatory observations, interviews, surveys, and spatial analyses of three workplace settings designed for coworking and collaboration. Findings indicate specific contributions that positively or negatively influence attachment to the work environment. Factors include the personal interaction that takes place within the work environment as well as physical design attributes, including the need for both public and private workspaces to support coworkers of all professions. Results were applied to a prototypical design for a hospitality venue. Advancement of Design Knowledge While the results of this study are useful for designers of traditional coworking spaces by providing designers with insight and knowledge that informs desirable and functional coworking spaces, the application to a hospitality environment further develops the concept of coworking to the temporary workplace of the traveler. "Coworking is more than just shared workspace. It is also a community of

independent workers, telecommuters, and creative professionals who interact while still getting their individual work done" (Welch, 2012, 37). In such a setting, coworking and collaboration can generate networking opportunities as well as business opportunities resulting in connections of people and place for traveling professionals.

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### **Scholarship of Design Research - Teaching & Pedagogy**

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#### **How Personal Motivations of Interior Design Students Affect Their Reactions to Instructors' Feedback**

Design instructors primarily use conversational feedback as means of interaction to improve their students' creative outcomes (Dannels & Martin, 2008; Schoen, 1983). Scholars in the field have long praised oral communication or feedback as the key instrument to facilitate the teaching and learning process (Smith & King, 2004). Ironically, current research regarding the attributes and mechanism of oral critique in educational settings are less than sufficient (Dannels & Martin, 2008). Although it is known that students' personalities affect their decisions in the design process (Asojo, 2007), studies that explore and investigate how these internal motivations interact with students' reactions to external critiques still are lacking (King, Young, & Behnke, 2000). In an attempt to address this knowledge gap, the authors conducted a pilot qualitative research which focused on students in Interior Design program of a land-grant midwest university during spring 2017. By interviewing four undergraduates who are in their sophomore and junior years, the researchers aimed to unravel and interpret how the motivations, emotions, and intentions of these participants affected their responsiveness toward their given feedback in the classrooms. The extent to which the students accepted critiques and the factors underlying their behaviors were included in the findings. Participants were interviewed using a 4-item structured protocol and visual information was collected by asking the participants to sketch out their expressions at some



points of the conversations. Transcripts and sketches were color coded, cross-referenced, and rearranged to identify major themes. Overall initial conclusions emerged from the analyzed data which showed a range of receptivity from approval to denial in the students' reactions to feedback. Related results and further discussions will be presented in the format of a poster.

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### **Scholarship of Teaching & Learning - Teaching & Pedagogy**

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### **The Role of Interior Design Education in Exploring New Spatial and Experiential Taxonomies in Higher Education**

Design education continues to be influenced by the apprentice model adopted from 1850 Ecole des Beaux Arts learning pedagogy and has evolved to what is known nowadays as Studio Based learning model (SBL). This teaching pedagogy is still the common format for teaching students in Architecture, Landscape architecture, Interior Design and other design fields. (Boyer and Lee, 1996) In most studio projects the client and users are a fictional character described in the designed problem, most studios have the ultimate goal to “design a building or space” and most of the time, the program is given as part of the syllabus. This teaching pedagogy remains a widely accepted teaching method to advance design innovation, creativity, and theoretical discourse. However, there are couple of recent reports and events that have challenge educators to re think the skills students need to succeed after graduation. First, the National Association of State Universities and Land-Grant Colleges (NASULGC) asked universities to be proactive in helping students develop life skills. “We want to stress that values deserve special attention in this effort. The highest educational challenge we face revolves around developing character, conscience, citizenship, tolerance, civility, and individual and social responsibility in our students. We dare not ignore this obligation in a society that sometimes gives the impression that virtues such as these are discretionary. These should be part of the standard equipment of our graduates, not options.” [NASULGC, 1997, pp. 12– 13] In 2003 the AIAs Studio Culture Task force report addressed the need to merge theory and practice. Over the course of the last ten years the term “praxis” has been

applied in studios as a way to integrate theory and practice working with real projects and real clients. Lately, the recession of 2007 have impacted hard the design disciplines, the way of acquiring projects changed and it became more relevant than ever before, to educate the public about the value of the design professions. All these suggest that we are witnessing an era of cultural and social change, where collaboration, critical thinking, innovation and proactivity are desired skills. This paper presents a teaching pedagogy applied in a Senior studio in which the faculty run the studio as an office to expose students to emotional intelligence and immersive learning. (Fink 2013) The studio worked in four different projects associated with the university infrastructure office at multiple levels. The collaborative and intra-professional experience exposed students to build capacity for team building and empathy while working closely with non-design stakeholders to explore the expanded field of interior design and propose a radical shift in the role of the discipline. The studio explored the role of interior design in four different approaches: (1) in the design process, (2) in exploring new taxonomies for higher education infrastructure, (3) in informing a Request for Proposal, and (4) in providing fund raising opportunities. The studio thesis was to explore how Interior design can activate Social Action and how this can be applied at multiple stages of the design process. The first task challenged the twenty-nine students to organize a dinner for all the studio to walk the talk to activate social action, followed by research about each project, multiple meetings with stakeholders, the design of the overall need and a design and built installation that could activate socially each of the existing sites.

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