Linking Experiential Learning and Real Life: A Design Case Featuring Immersive Learning

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This paper defines the value and best practices of immersive learning and how a Midwest University initiative implements immersive learning practices to enhance students' educational experience. Literature reveals that immersive, or experiential, learning experiences are critical because "experiential learning provides the necessary link between formal education and adult life; it is a mechanism for integrating education and work, for recognizing the validity of all learning that is relevant to a college degree and for actively fostering recurrent education" (Kolb, 2014, pg. 3). Immersive learning is an essential component to ensure that students are fully equipped with the skills and knowledge needed in their future careers. Using a design case, the concept of an immersive learning is explored. Findings reveal that this immersive program is well-implemented and well-executed, allowing community partners to support the University, students to obtain real-world design experience, and allows educators to stay connected to design while teaching; it is a winning partnership for all three stakeholders**.**

Introduction

The immersive learning program: This program is comprised of students enrolled in a Midwest University's College of Architecture and Planning. Under the close supervision of department faculty members, the students offer professional design services, from initial consultation to design development with clients, in an interior design focused immersive learning program. The faculty members and students work closely with businesses, corporations, and universities across the country to provide and document the experiences of research, design, and space planning. Projects are assigned to knowledgeable faculty members and engaged students. Each student team provides pre-design and design services that are practical, memorable, and effective for participating clients. Typically, the fall semester of the students' third year at the University, marks their initiation to the department's professional practice and participation in the University Design Center (UDC). After two years of study in the interior design program and mastering the fundamentals through studios and lectures, the third-year interior design students immersively learn as they work and design with real clients. From identifying the clients' wants and needs, to arriving at alternative design solutions, to graphically and three-dimensionally communicating their ideas, this serves as the educational experience of a lifetime.

The immersive learning program mission is to deliver the best educational experience in interior design through teaching, research, and service activities, which is achieved by focusing on both student and client experiences and needs throughout the process. It is vital that students are provided with learning opportunities to build skills and professional growth for their future in the interior design profession. The processes of design and creative problem-solving techniques are instilled in participating students by deliberately incorporating practice, coaching, and mentoring for each student. It is important to simultaneously ensure that clients are provided with economically feasible designs that are distinctive, functional, aesthetically pleasing, and satisfy the desires of the client and users of the space.

The immersive learning program offers professional design services, from initial consultation to design development. The program design process begins with defining the scope of work based upon the client's needs. Next, students gather and analyze data from relevant users and from observation of workplace needs. This includes methods such as onsite inspections, stakeholder interviews, online surveys, focus groups, and more. Throughout the process, students present multiple concepts and design options to the client for feedback. Students revise solutions and develop additional documents and drawings for all aspects of the project, including photo realistic three-dimensional renderings and animated walk-throughs to visually clarify the remodeled interior.

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Framework

"Experiential learning is participative, interactive, and applied. It allows contact with the environment, and exposure to processes that are highly variable and uncertain" (Gentry, 1990, pg. 20). Experiential, active, or immersive learning involves learning on the behavioral and affective dimensions, as well as the cognitive dimension. "Educators have long recognized that, although students can learn from receiving information passively, they fare much better by learning actively" (Chi & Wylie, 2014, pg. 219). One of the major expected benefits of experiential learning is the development of students' interpersonal and non-cognitive skills. Experiential learning criteria includes participative and interactive activities, contact with the environment, aspects of variability and uncertainty, and student evaluation and feedback. Participative activities require analysis and decision making, while interactive activities require that students have interactions with people outside of their instructor. Contact with the environment entails "real-world" experiences, which will inherently present aspects of variability and uncertainty to which students must adapt. Students' self-evaluation of the experience is important for them to analyze what they have personally learned, but faculty and client feedback throughout the process and in the outcome is even more vital to the effectiveness of experiential learning. "Methods and techniques that utilize learners' previous experiences, link conceptual foundations to practice, and encourage reflection are pivotal to the learning process" (Lewis, 1994, pg. 1). Requiring learners to simply engage in experience is not enough. Experiences, whether field-based, simulated, or on the job, must be processed through reflection and debriefing in order to maximize their value.

"Experiential learning provides the necessary link between formal education and adult life; it is a mechanism for integrating education and work, for recognizing the validity of all learning that is relevant to a college degree and for actively fostering recurrent education" (Kolb, 2014, pg. 3). Experiential learning methods create critical links between the classroom and the real world by developing competence-based methods of instruction and assessment that are meaningfully related to the world of work. In competence-based education, experiential learning allows for the assessment of prior learning and for the design of competence-centered curricula. "In experiential classrooms, students can process real-life scenarios, experiment with new behaviors, and receive feedback in a safe environment. Experiential learning assignments help students relate theory to practice and analyze real-life situations in light of course material" (Lewis, 1994, pg. 9). The rapid pace of change today demands lifelong learning, so it is becoming increasingly important that students know how to and assume responsibility for their own learning. "Research suggests that when students engage in active learning experiences such as experiential and service learning, they should perceive personal outcomes that include changes in motivation, self-regulation, self-identity, and learning outcomes" (David, 2016, pg. 7). Immersive learning opportunities allow students to take charge of their education and in turn, develop skills that are imperative for self-driven continued education and lifelong learning.

Bonwell and Eison (1991), outlined active learning through the following conditions:

- Students are involved in more than listening
- Less emphasis is placed on transmitting information and more on developing students' skills
- Students are involved in higher order thinking (i.e., analysis, synthesis, evaluation)
- Students are engaged in activities (e.g., reading, discussing, writing)
- Greater emphasis is placed on students' exploration of their own attitudes and values (p. 2)

Behavioral engagement encompasses participation, effort, and investment in tasks (Gibbs & Poskitt, 2010). Lens et al. (2001) found that students who perceived course material as more contributary to their future success engaged in deeper learning strategies.

There are studies which have reported that academic self-efficacy and academic grades move in tandem (Lent et al. 1984; Bong 1999; Hsieh et al. 2007).

The experiential learning cycle (Figure 1) incorporates four key phases including concrete experience, reflective observation, abstract conceptualization, and active experimentation (Kolb & Kolb, 2011).
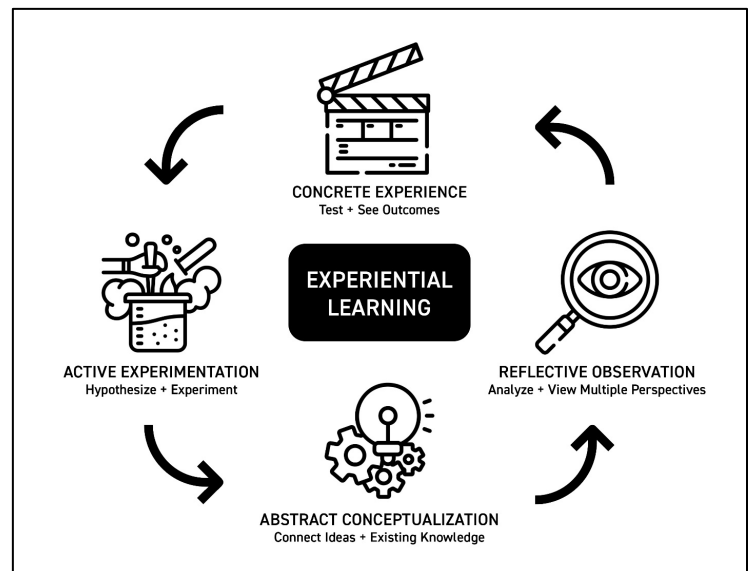

Figure 1: Kolb's Model of Experiential Learning

The Midwest University immersive learning projects are high-impact learning experiences that involve collaborative, student-driven teams, guided by faculty mentors. Students earn credit for working with community partners such as businesses, nonprofits, and government agencies to address community challenges through the creation of a product that has a lasting impact. The UDC has the resources to help students, faculty members, and community partners prepare for and engage in immersive learning projects that blend interests and educational focus with societal needs.

Approach

The basis for this research design is founded on a design case approach. This design was selected based on a need that was seen through gaps in current research surrounding the implementation of successful immersive learning programs in higher education. As established, the literature outlines the benefits and importance of immersive learning as the link between formal education and future real-world experiences. If educators can understand more clearly how to implement immersive learning projects and programs, greater steps can be taken towards providing an impactful immersive learning experience which reaches beyond the bounds of standard classroom-based formal education. By pursuing a design case approach, a theory is established on this topic that currently does not exist.

A diversity of data collection was key in this research to cast a wide net around the subject matter. Beyond the initial literature review, the data collection process included observation of student design work, client interviews, and document reviews. If a larger study were to be conducted regarding this research, additional interviews and analysis of student work should take place to further discoveries and build a larger sample.

Observation-Student design work: In order to truly understand the level of active learning taking place within the project, observations were necessary. Examining how students approached the scope of work, built client relationships, outlined design solutions, managed deliverables, and relied upon their instructor were critical to understanding the ways that the immersive project impacted learning outcomes for the students. The observation was conducted of students and their design process as they worked with a Midwest Library client. This particular library location was chosen both because of their need for design services and the Library's interest in partnering with the Midwest University immersive learning program. The Library was also selected due to its proximity to campus which allowed students to participate in site visits to conduct circulation analysis, furniture and equipment inventory, and surveys. The goal of the observation was to assess the student's interaction and response.

Document-Student photographs, floor plans, and design drawings: Several documents were obtained for review including student photographs, floor plans, and design drawings. The review intent of documents was to examine the way students-initiated programming and implemented schematic design. The assumption was that the documents would bring light to the students' decision-making process as they identified client needs, arrived at design solutions, and graphically communicated their ideas.

Client interviews: Several interviews with the client were carried out throughout the project timeline. Interview questions were developed to systematically evaluate the client's values, goals, facts, as well as the needs of a client's organization, library patrons, and the surrounding community. The intent was to better understand the students' ability to interpret and deliver solutions based on client's perception of the project. Interviewing the client offered great perspective on how well the student work was meeting the goals and needs of the real-world project.

Recording: The interviewee was informed of the research intent prior to the interview. Audio of the interview was recorded for later transcription and accuracy of quotations, after gaining interviewee permission.

Handwritten notes were taken to document the experience and note significant findings. The researcher took photographs to capture the physical space within the built environment. Field notes were recorded for the observation in the form of a chart and list based on the outline in the observation procedure form. Descriptive notes were recorded about the geography of the space, relationships between students and objects, atmosphere, and tone of observation site. Notes were taken on how particular details related to the research subject matter.

Document details, notes, and keywords were organized and recorded in the form of a chart and list to outline the document review findings as they related to the research topic.

Analysis: A coding system was developed by the researcher to uncover common themes among all of the data that had been collected. Although the sample sizes were small, there was still a significant amount of information gathered which needed to be analyzed. The coding system helped organize the raw data into categories as the researcher completed the data analysis by hand. This allowed the researcher to gain a better understanding of the data that had been collected.

The Program

Programming is the first phase of the design process; it is a method of inquiry that is used to make informed decisions

prior to schematic design. Programming is the thorough and systematic evaluation of the interrelated values, goals, facts, and needs of a client's organization, facility users, and the surrounding community. It is an iterative and systemic process that focuses on the collection and organization of data that meet a project's requirements. This process involves research and information gathering from the client and the workplace to establish goals and objectives of the project. The design programming fits within a larger context of planning efforts which also can be programmed. Typically, this involves six-steps: research the project type, establish goals and objectives, gather relevant information, identify space planning, materiality, and operational strategies, determine quantitative space requirements, and summarize the program, goals, objectives, and aspirations.

During this phase of the design, students discuss and define the scope of work, determine the budget and timeline of the project, establish a concept for the design, and take inventory of the existing furniture. Students also review relevant literature including building codes and ADA requirements, collect images of similar facilities for inspiration, and increase communication with the client. Other tasks during this phase may include branding, traffic and circulation analysis, existing furniture and equipment inventory, and surveys. The UDC branding process is a research-based strategy that will develop a unique personal brand in order to promote a business and inspire employees and customers. Through a combination of research, visioning sessions, and stakeholder interviews, the UDC refines and strengthens the client's brand, making brand interaction more valuable and ultimately, more enjoyable for the intended audience. Whether introducing a new brand to the marketplace or reinvigorating an existing one, the students' research and analysis, strategic planning, and market positioning is used to craft a strategy that will allow the client to achieve their long-term business goals and enhance the brand experience. The traffic and circulation analysis involve creating a sense of orientation by creative use of colors, landmarks, signage, cues, materials, and more. During the inventory process, students collect data and create a list of existing furniture and equipment in the space that can be reused or refurbished. Depending on the scope of the project, students may develop a survey or questionnaire to be distributed to employers and/or users of the space. This provides an opportunity to further their knowledge of what is and is not working in the space and how they can improve the space for the clients.

Pre-design and programming are the most time-consuming phases in the design process. Design firms often streamline the process and offer few options to clients. The UDC empowers clients by offering multiple concepts/design solutions thus they may choose what feels and looks right

for them. Ultimately, clients select or narrow down the solutions to one concept and then can pass the solution to a professional design firm to create the final Construction Documents for construction and installation. In turn, UDC clients are creating an invaluable experience for the participating students to learn in an immersive setting from the real projects. Client-created opportunities enable UDC to provide students with access to supplies, field trips to the site, printing expenses, and other necessary equipment.

The Illustration

Client: The Midwest University's immersive learning program partnered with a Midwest Library to provide student-led design services under department faculty mentorship. Two interior design studio classes participated in the project in which students worked in groups of two or three — each group contained one third year interior design student and one or two second year interior design students. The following is an account of the experience.

The scope of the Midwest Library immersive learning project focused on the south portion of the ground level. This included the lobby, transit area, offices, public circulation desk, public meeting spaces, and the audio/visual section. All students visited the site together to observe and talk with employees and visitors to get a sense of which spaces functioned well verses underutilized, as well as the client's needs and desires for the new design. The clients expressed concern over the entrance and transit areas, as neither one was fully utilized. The entrance did not showcase the library or provide gathering space for patrons. The transit area, like the entrance, was also underutilized, and did not provide enough storage for expansion of the interlibrary loan program. As the role of libraries in communities transitioned to be use as a gathering space and collaborative environment, they wanted an updated aesthetic that was lighter, brighter, and more inviting to patrons rather than a stuffy center for research.

After visiting the site and learning the clients' needs and desires for the design, the students visited a few other libraries to serve as case studies. The students noted the layouts of these libraries, where patrons chose to sit, what interactions took place between patrons or patrons and librarians, and any additional or unique spaces that were available to patrons and employees. These case studies, along with literature reviews and additional research helped the students make informed design decisions for the Midwest Library.

Next, the students selected a concept for the design: *connections* – focusing on connecting people to people, patrons to the library, the library to the community, and reflecting all those connections in our space planning and design aesthetic. Below, a concept statement is highlighted:

The connection concept was inspired by the interest of the library to create meeting spaces where people can connect, and also by the library's history that connects it to the surrounding community. There are four types of connections represented in the design: connecting people to people, connecting patrons to the library, connecting the library to the community, and connecting room to room within the library. Creating seating areas near the entrance of the library immediately **draws people into the space** and provides a place for meeting and **connecting with others**. Providing this gathering space will not only connect people to people but will also help to connect patrons to the library, as they will be drawn into the space by a more **open**, **inviting** entrance. Connecting the library to the community will be accomplished through the use and reuse of **historical** elements and finishes. Brick will be used throughout the project as a connection to iconic brick streets of Zionsville. The mural that is currently in the entrance of the library will be relocated, so as to keep a piece of the library's history and blend it with the **updated, contemporary** elements of the new design. Connecting room to room will be achieved by creating more interior windows to allow **natural light** to filter through the entire space and also by specifying

complementary finishes to create **continuity** in the space as a whole. Furniture in the seating areas and the meeting rooms will be **flexible** to allow for easy reconfiguration and provide **multi-functional** spaces.

After finalizing the concept and goals for the project, the students developed a preliminary presentation for the clients to share their ideas. This presentation allowed the students to get direct feedback from the clients about the concept, overall aesthetic, and preliminary space planning ideas. It was a very beneficial meeting which helped the students to better tailor the design to specific needs and desires.

With the feedback in mind, the students continued to develop the design in Revit, revised their original plan to better serve the client's needs, then selected and applied materials, and then created renderings to showcase the final design. See the final student design presentation below:

The primary design goal was to meet the needs and desires of the Midwest Library employees and patrons, which we aimed to achieved through our concept of connections: connecting people to people, patrons to the library, the library to the community, and room to room within the renovated space. As patrons enter the library,
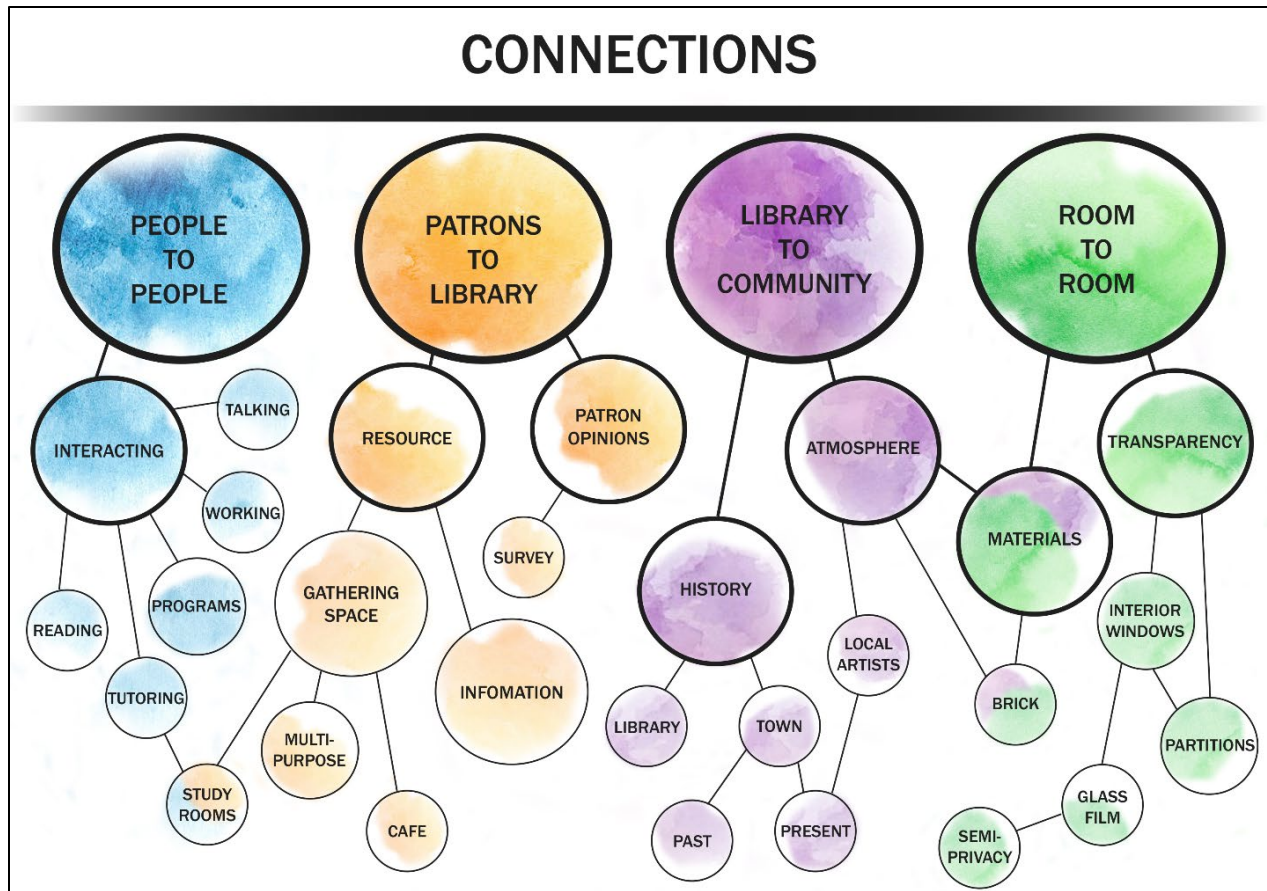

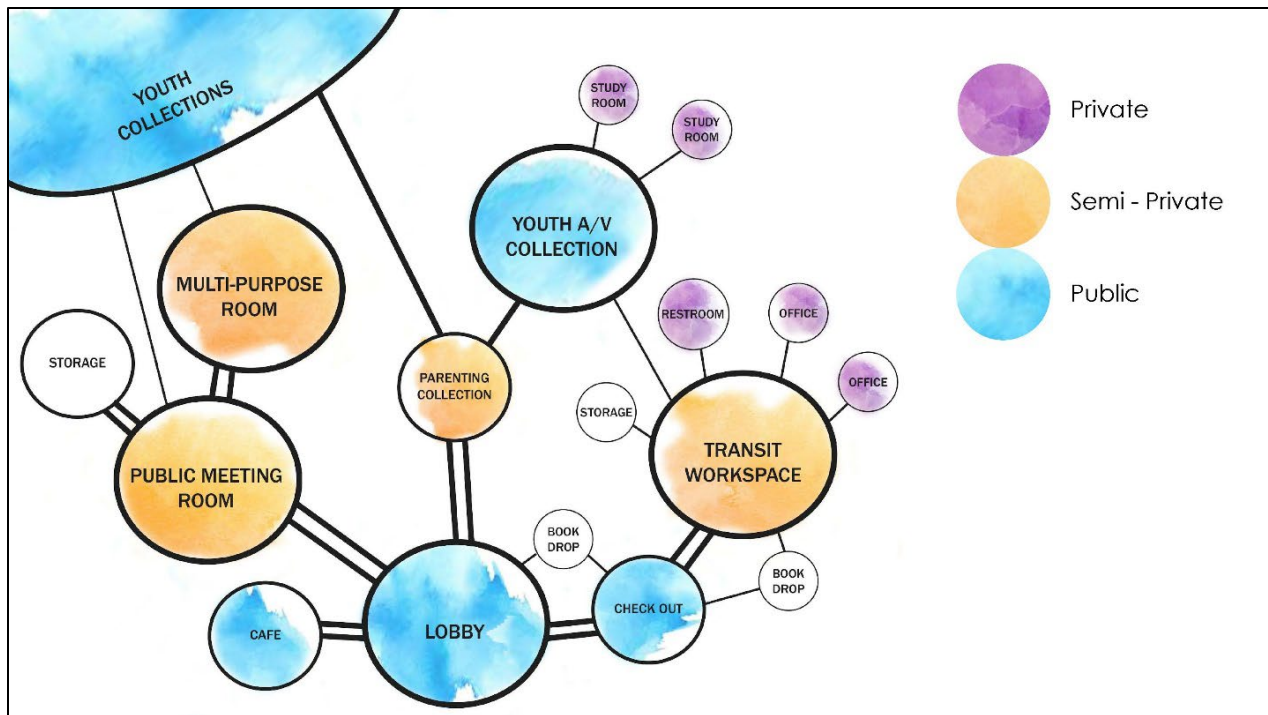**Figure 2. Established connections for client.**

Figure 3. Mood board

Figure 4. Adjacency diagram

Criteria Matrix for: Hussey-Mayfield Memorial Library	SQ Footage Needs	Adjacencies	Daylight	Privacy	Plumbing	Needs	Lighting Considerations	cial Considerations	Legend		
1. Entrance	**2,057**										
Lobby	1,267	ENTRANCE, CAFE	Y	L	N	BENCHES, SEATING, SIGNAGE, SECURITY BARS, COMMUNITY BOARD	GENERAL, ACCENT ABOVE DOOR	CURTAIN WALL LEADING TO LIBRARY			
Pastry/Cafe/Coffee??	200	LOBBY	Y	L	Y	COUNTERTOP, SEATING, TABLES, COLD CASE, REFRESHMENTS, TRASH/RECYCLE	ACCENT, TASK		- Yes		
Circulation Desk	300	KIOSK, ENTRANCE	Y	M	N	CASEWORK, CHAIRS, MONITOR/COMPUTER, SELF-KIOSK,	TASK	MAIN DESK TECH - LAPTOP, SCANNER, RECEIPT PRINTER	N - No H - High Medium/Maybe		
Public Book Drop	290	ENTRANCE	N	L	N				ow		
2. Circulation Offices	**1,582**										
Delivery Drop Off	300	TRANSIT	N	M	N	SPACE	GENERAL				
Private Offices x2	300		M	H	N	DESKS, CHAIRS, GUEST CHAIRS, COMPUTER, STORAGE, TELEPHONE,	GENERAL, TASK	HIGH PRIVACY, NEXT TO EACH OTHER			
Transit Workspace	550	DROP OFF	N	M	N	A LOT OF STORAGE, COMPUTER, DESK, CHAIR, WORKSURFACE	GENERAL	HIGH ISLAND AND STORAGE CASEWORK			
Storage	372	TRANSIT	N	H	N		GENERAL				
Restroom	60		N	H	Y	TOILET, SINK, STORAGE, PAPER, SOAP, TP HOLDER, MIRROR, TRASH CAN	GENERAL, ACCENT ABOVE MIRROR	PRIVATE AREA ATTACHED?			
3. Meeting Spaces	**2,497**										
Multi-purpose Room	620	STORAGE, PUBLIC	Y	M	Y	TABLES, CHAIRS, PODIUM, PROJECTOR, SCREEN, COMPUTER, DUAL HEIGHT SINKS, CASEWORK, TRASH CAN	GENERAL, TASK	CLEANABLE SURFACES, FLEXIBLE FURNITURE, GLASS MOVABLE PARTITION			
Study Rooms	467	YOUTH A/V	Y	H	N	DESK, 2-4 CHAIRS, WHITE BOARD, CORK BOARD, COOL LIGHT, TRASH CAN	GENERAL, TASK	GROUPED TOGETHER BUT SPREAD OUT, CURTAIN WALL			
Public Meeting Hall	1,200	STORAGE, MULTI	N	M	N	LOTS OF CHAIRS, LOTS OF TABLES, PROJECTOR, SCREEN, PODIUM, STORAGE, AV STORAGE, TRASH/RECYCLE	GENERAL, TASK, ACCENT?	PARTITIONS, FLEXIBLE FURNITURE			
Storage	210	PUBLIC, MULTI	N	L	N		GENERAL	AVAILABLE TO PUBLIC			
4. Collections	**1,517**										
Parenting	200	AQUARIUM	N	L	N	SHELVING, SEATING, SIDE TABLES	GENERAL	MAKE CLEAR AN ADULT AREA, DELINEATE			
Aquarium	50	PARENTING	N	L	Y		ACCENT	CURTAIN WALL TO CREATE CUBBIE?			
Storage	250						GENERAL				

Figure 5. Criteria matrix

they are greeted by brightly lit, open collaboration spaces to their left and right, furnished with various seating options to accommodate multiple different postures and group sizes. These open collaboration spaces are intended to position the library as a gathering space within the community, fostering the connection between patrons and the library, as well as relationships between community members. Just past the casual collaboration space is the entrance to a large public meeting hall, which will allow the library to host and support larger community events, furthering the connection between patrons and the library. Just outside the public meeting hall are a few small seating areas, as well as two study rooms, which can accommodate up to four people. These rooms provide a quieter, more intimate setting for group work or intense study. Just past the study rooms is a multi-purpose room, which provides another sizeable space to host library or community events, specifically related to children's programming due to its proximity to the children's book section and its somewhat isolated location in the back of the library. Equally important to meeting the needs of library patrons was meeting the needs of employees. The renovated employee area includes a larger, function-focused workroom to increase efficiency and allow for expansion of the inter-library loan program. The employee area also includes a break room and two offices, providing a comfortable place for employees to recharge during the workday. The use of natural colors and materials throughout the space creates a cohesive, comfortable, and updated atmosphere, while still being sensitive to the integration of historic elements, thereby preserving the connection between the library and the community.

After each team of students presented their final designs, the clients selected their favorite designs to use for future fundraising.

Unforeseen Obstacles

From the onset of this project, the educational gap between the second-year design students and third year design students were considered a challenge. There was simply a level of maturity that the third-year students had over the second-year students. The third-year students had an entire year's worth of specialized classes to prepare them and even real-world projects under their belt via internship experiences. Given this was a real-world project, the client was assured professional results thus the gap in team maturity needed to be limited. And although this was an educational setting, all students learning as they design, the output required was going to be used to fundraise for future development.

As design teams were developed, faculty considered multiple team orientations in order to close the educational gap and afford professional results. Pairing students with equal strength per level (i.e. those with best rendering skills from second and third year together, those with best space planning skills from second and third year together), pairing students with opposite strengths per level (i.e. pairing an exceptional space planner with a student who needed more time to learn space planning), and even random pairing (i.e. draw from a hat) were considered. Eventually, the faculty decided the most successful results for the client, and best team dynamics, would occur by teaming those from second and third years with likeminded skillsets.

By selecting teams in this manner, a high level of individual team member happiness was achieved. The teams and partners knew they were equally suited (balanced) to design thus could count on one another and even respected one another. Ultimately, the team selections based on the equal skillsets between second and third year yielded a high level of design success for the client.

Discussion and Conclusion

Overall, the interior design students gained real-world design experience including interpersonal skill development, creative problem solving, and practice of the design process. Students shared, "It's exciting and a change [from typical college coursework]. This is what we've been waiting for." Educators provided mentorship and stayed connected to current design while teaching in the immersive environment.

The UDC completes projects every year, providing professional design services from initial consultation to design development. Project types include retail, hospitality, healthcare, educational, community, office design, places of worship, institutional, and residential. The UDC program works closely with these entities to provide pre-design and design services that are practical, memorable, and effective for participating clients. The UDC program allows clients to support the university and provide students with an invaluable immersive learning experience. As students work with real clients, identifying the clients' wants and needs, arriving at alternative design solutions, and graphically and three-dimensionally communicating their ideas, they get the educational experience of a lifetime. The UDC provides learning opportunities for students to build skills and professional growth for their future in the interior design world and instills the processes of design and creative problem-solving techniques. The UDC program also allows educators to stay connected to design, ensuring that their knowledge of the industry and its practices is up to date. As a result of the UDC experience, a thriving immersive program has developed to afford Community partners to support the University, students obtain real-world design experience, and educators stay connected to design while teaching. A winning partnership for all three stakeholders**.**

Acknowledgements

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Appendix

Figures 6a and 6b: presentation boards for client