Analyzing Research in Design Education: Studio Practice as Legitimate Inquiry

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This study investigates how undergraduate design studios function as research environments that cultivate inquiry-based learning and knowledge production through making. A key problem addressed is the disparity between recognized research in STEM fields and the undervaluation of research-through-design within interior architecture education. The central research question asks: How does the design studio facilitate research as a form of inquiry in undergraduate interior architecture curricula? Participants included senior-level students engaged in capstone studio projects emphasizing iterative design prototyping and contextual analysis as applied to an intensive year-long project. Results indicate that students demonstrate higher levels of critical inquiry and self-directed research when engaged in approaches of iterative making and reflection. This allowed for the transformation of spatial problems into evidence-based design propositions that still employed creativity and feasibility. These findings suggest that undergraduate design education can indeed be more widely recognized as a legitimate site of scholarly research.

Keywords: undergraduate design education, research through design, design inquiry, iterative design process, capstone studio

Introduction

In the broader discourse of undergraduate research, it can be inferred that institutions offering degree paths in interior architecture and associated design fields have often situated themselves at the crossroads of unfettered creativity and documentable research. This is demonstrably appropriate at the author's institution, primarily because design is a knowledge-producing discipline in and of itself.

Students are tasked with solving complex design problems that, through a combination of iteration, talent, research, and luck, provide novel solutions to the ways in which we utilize and occupy space. This approach aligns with experiential learning theory and inquiry models that position practice as a method for generating knowledge (Kolb, 2014; Pedaste et al., 2015). There is an important contrast here between traditional design approaches (which can be understood as approaches primarily oriented toward producing artifacts or experiences) versus research-driven design. It can be argued that both require a level of analysis in order to produce an outcome, but the feedback loop that occurs through the observation of individuals using a designed space, reacting to it, and changing it to best suit their own mannerisms is quite unique to the world of architecture – in essence, one that generates knowledge through the acts of observing, making, and reflecting (Frayling, 1993). This submission reflects upon the methods and rigor utilized through the undergraduate senior capstone studio experience at the author's institution, demonstrating the significance of a thorough understanding of research and its effects at varying levels of thought and application. Furthermore, this study positions undergraduate design studios as legitimate research environments where knowledge is generated through iterative making, reflection, and inquiry.

It is no surprise that undergraduate research is dominated by STEM fields which prepare students for the challenges of the real world through hands-on experiences in their particular fields of study, helping them to build crucial developmental skills that are relevant to their discipline. In design, undergraduate research is still underrecognized, despite being essential to the educational development of students. While data related to undergraduate research in design fields is growing, many of the same learning outcomes and criteria from STEM fields apply, such as the development of skills sought by today's employers (Kistner et al., 2021). With sustained engagement in teaching and research within the realms of architecture and interior architecture, the author has focused on instructing junior and senior-level undergraduate students with the aim of developing these very skills that guarantee

recognition in the workforce: thinking, drawing, and documenting. Reviews of active-learning methods indicate clear benefits for engagement and skill development, while also calling for a more attentive approach to assessment design, which is an important consideration to note when positioning design studio outputs as research (Prince, 2004).

Over the past four years, the author's institution has had a large variety of student cohorts in the Interior Architecture and Design (IAD) program, each with their own skill levels and areas of interest. Most notably, the author instructed the senior capstone studio that was just returning to in-person instructional modalities after the COVID-19 pandemic. This student group had some particular challenges that were great markers for the methods in which the IAD program developed learning outcomes and deliverables suited for capstone studios. In particular, faculty members were reminded of the importance of the peer group and how they each contributed to the research and development of their cohort. These students lacked the socialization skills that naturally developed through working and growing together, and they also missed out on the professional relationships that formed between student and instructor working together in the same space. In short, the experience just could not be translated through a screen, and employers reflected the same sentiments. As an institution, the faculty are still picking back up to speed with the subsequent generations of students from 2020 to the present—most importantly, the graduating class of 2026 represents the first cohort to fully re-engage with the physical studio as a collaborative laboratory. This return is significant for design research because the socialization lost during the pandemic is, in fact, the foundation of the peer-critique cycle—a vital form of informal peer review that validates iterative making as a scholarly activity. By examining a student from this transitional period, this study captures how the restoration of the physical studio environment facilitates the deep, embodied inquiry required for successful research-through-design.

Along with this return comes a reboot of how design studios are approached, and how educators can identify the most actionable strategies for training the next generation of designers and researchers. This study adopts an exploratory single-case study approach to examine how research-through-design is experienced within these undergraduate capstone design studios. Single-case designs are particularly appropriate for investigating complex, process-driven educational phenomena where depth of insight is prioritized over breadth (Yin, 2017). By closely examining one student's reflective experience, the study aims to generate conceptual insights and methodological groundwork for subsequent, larger-scale investigations with future cohorts of this capstone studio experience.

Conceptual Framework: Research-Through-Design as a Mode of Knowledge Production

The pedagogical framework of this study aligns closely with established discourse on research-through-design (RtD), which aptly situates design practice as both the process and the product of inquiry (Frayling, 1993; Zimmerman, Stolterman, & Forlizzi, 2010). As such, knowledge is generated through the iterative process of making, testing, and reflecting rather than sole speculative reliance on abstracted theories or empirical measurements which allows for actionable and hands-on prototyping that leads to more robust design inquiry. Frayling's (1993) distinction between research *into,* research *for,* and research *through* design reiterates how the act of making itself can serve as a primary mode of knowledge generation. The latter emphasizes the production of knowledge through the act of creative practice, and as such this framing proposes that drawings, models, or any other relevant artifacts function beyond their initial purposes as design outcomes: they instead transform into epistemic instruments that embody and communicate a new understanding of the subject matter at hand. Subsequent scholars have expanded upon this line of thinking, arguing that RtD constitutes a distinct epistemological stance that is grounded in action, reflection, and situated experimentation (Findeli, 2001; Zimmerman et al., 2010).

Designerly Ways of Knowing and Reflective Practice

Cross (2025) and Findeli (2001) emphasize that design thinking fosters a unique epistemology where iteration, reflection, and synthesis are integral to meaning-making: what Cross calls designerly ways of knowing and thinking. Cross's concept of "designerly ways of knowing" further reinforces the epistemic legitimacy of design practice that is inherently distinct from traditionally explored scientific or humanistic research approaches. Rather than prioritizing linear problem-solving or the testing of hypotheses, designerly knowing can be characterized as demonstrating abductive reasoning, synthesis, and iterative reframing (Cross, 2025). Schön's (1983) conception of the reflective practitioner supports this view, positioning reflection-in-action as a critical mechanism through which practitioners can generate insight through their work while directly engaging with complex and indeterminate situations. Together, these frameworks suggest that design studios do not end at being instructional settings: they instead serve as cognitive environments within which students learn to think through making and allow for the delicate dance of negotiating between intentionality, action, and—sometimes—consequence.

Experiential Learning, Inquiry-Based Learning, and Design Education

Experiential learning theory serves as an important pedagogical foundation for how one can begin to understand the ways in which research-through-design operates in educational settings. Kolb's (2014) experiential learning cycle, proposed in four parts as concrete experience, reflective observation, abstract conceptualization, and active experimentation, quite closely mirrors the iterative workflows that often demonstrate successful outcomes within design studio pedagogy. Within this cycle, learning moves beyond the passive absorption of information and becomes a learning that occurs through embodied engagement and a critical reflection of one's own experiences. This supports the argument that students can develop research literacy by engaging in cyclical modalities of inquiry that are intrinsic to design practice itself rather than by just replicating disciplinary methods from other fields.

Inquiry-based learning (IBL) further extends explorations into this pedagogical framework by emphasizing student-driven questioning and exploration as central to the construction of knowledge. Pedaste et al. (2015) conceptualize inquiry as a phased process – orientation, conceptualization, investigation, conclusion, and discussion – which closely resembles both design workflows and research-through-design methodologies. This approach also parallels similar inquiry-based learning models (Galford et al., 2015), where students are able to learn through questioning, testing, and self-directed investigation. A key takeaway here is that the design studio needs to operate as a site where inquiry and making operate in tandem: within design education, inquiry-based learning enables students to frame spatial and social problems as open-ended questions worthy of exploration and experimentation.

Positioning This Study

Primarily situated at the intersection of these theoretical perspectives, this study positions the undergraduate capstone studio of an interior architecture and design program as a hybrid research environment where design functions simultaneously as method, process, and outcome. This work contributes to the larger discourse by demonstrating how established frameworks can manifest themselves in the undergraduate studio practice by tasking students with internalizing research-oriented thinking through iterative design processes. Within the capstone studio, the combination of research-through-design, experiential learning and inquiry-based learning puts forth a pedagogical environment where students produce artifacts required for a furthered understanding of the transitions between the educational realm and professional practice while also constructing theoretical and methodological awareness through design practice.

Methodology

This study employs a qualitative, exploratory research design approach to examine how undergraduate students internalize research-through-design principles within a capstone studio context. Semi-structured interviews were selected as the primary data collection method because they allow for more in-depth explorations of participants' reflective experiences and interpretations of design as inquiry. Interviews are particularly well suited to capturing reflective practice in design education, where criteria such as iterative reasoning and experiential learning might often be more difficult to access through quantitative measures alone (Schön, 1983; Groat & Wang, 2013). Because this interview was conducted after the capstone project's completion and after the student's graduation, the participant had the opportunity to holistically reflect on their capstone experience as well as draw connections to its relevance in professional practice – within which they were newly involved.

The inaugural participant for this study is a recent graduate of the undergraduate Interior Architecture and Design program at the author's institution. They completed their senior capstone studio during the 2024–2025 academic year and successfully integrated research-driven methodologies into a year-long design project focused on healthcare environments. The participant was selected through purposive sampling as a representative case demonstrating strong and thorough engagement with research-through-design processes.

Data were collected through a semi-structured interview organized around six thematic areas: (1) understanding the capstone experience, (2) research methods and process, (3) translation of research into design, (4) learning outcomes and skill development, (5) institutional support and constraints, and (6) broader reflections on design as knowledge. The ordering of these themes was meant to simulate the student's experience navigating through both semesters of this capstone studio as well as their initial experiences with applying these learned concepts in the professional field post-

graduation. Similarly, interview questions were designed to align explicitly with the study's conceptual framework, drawing contextual relevance from the theoretical frameworks. Prompts encouraged the participant to articulate and expand upon how research informed design decisions, how iterative making supported comprehension and understanding, and how reflection shaped both process and outcome. The provided questions were intentionally open-ended to allow the participant to describe their experiences in their own terms while still addressing the core research question of how design studios function as research environments. The interview was conducted asynchronously via electronic correspondence to accommodate the participant's professional schedule, and the interview protocol was shared in advance to ensure clarity and consistency across question prompts.

Ethical considerations for this study were addressed through informed consent to the participant in addition to maintaining their anonymity. The participant voluntarily agreed to contribute their insight and was informed of the study's purpose and intended submission and consideration for publication. Institutional review board approval was determined not to be required for this preliminary study as it involved a single former student reflecting on their completed coursework in the form of an interview; however, ethical guidelines for educational research were followed throughout the process and no identifying information was included within this manuscript.

Qualitative Analysis and Thematic Construction

The qualitative analysis for this study followed an inductive thematic process in which the collected interview data was systematically reviewed to identify any recurring patterns related to learning, reflection, and knowledge formation within the design studio. Initial themes were generated through a close reading and analysis of the transcript, with particular focus applied to moments where the participant articulated shifts in understanding, problem framing, or design intent. These were then refined and grouped based on their recurrence across the interview, particularly through their alignment

with the conceptual frameworks outlined and their capacity to explain how knowledge was constructed through iterative design activity and reflective practice.

Excerpts included in the Findings section were selected for their capacity to represent each theme and clearly illustrate the relationship between experiential processes and reflective learning outcomes. Given the single-participant scope and the author's pedagogical proximity to the study, interpretive bias was addressed through iterative comparison of coded segments with the complete transcript and through sustained engagement with existing literature revolving around design education. This reflexive approach emphasizes analytical transparency and supports the study's positioning as an initial, replicable stage within a broader research agenda.

Teaching Framework

The capstone studio experience in Interior Architecture and Design is meant to simulate the real-world process that one might come to expect upon their entrance into the workforce. The course structure is divided between two semesters of an academic year (Figure 1), and students are tasked with taking both semesters sequentially. The first semester, typically in the Fall of the calendar year, focuses on the following items:

- definition of a problem or question of interest
- development of varying research methodologies that can begin to clarify or bring information to the problem or issue
- precedent studies to assist with identifying strategies or solutions that might have been tested
- a literature review that requires evidence-based and scholarly publications of work
- some form of resolution with the framing of the student's inquiry leading to further development of the proposal

The second semester, held in the Spring, then takes all the rich information collected and shifts to the application of research through the design itself. Students work on prototyping various schemes through drawings and models, iterative testing, and evaluation between peer groups as well as through self-analysis. This is similar, if not identical, to the procedures followed in the professional world: concept development, schematic design, design development, and construction documentation. This mirroring of project phasing allows students to develop career-ready research and production skills as they prepare to enter the design workforce.
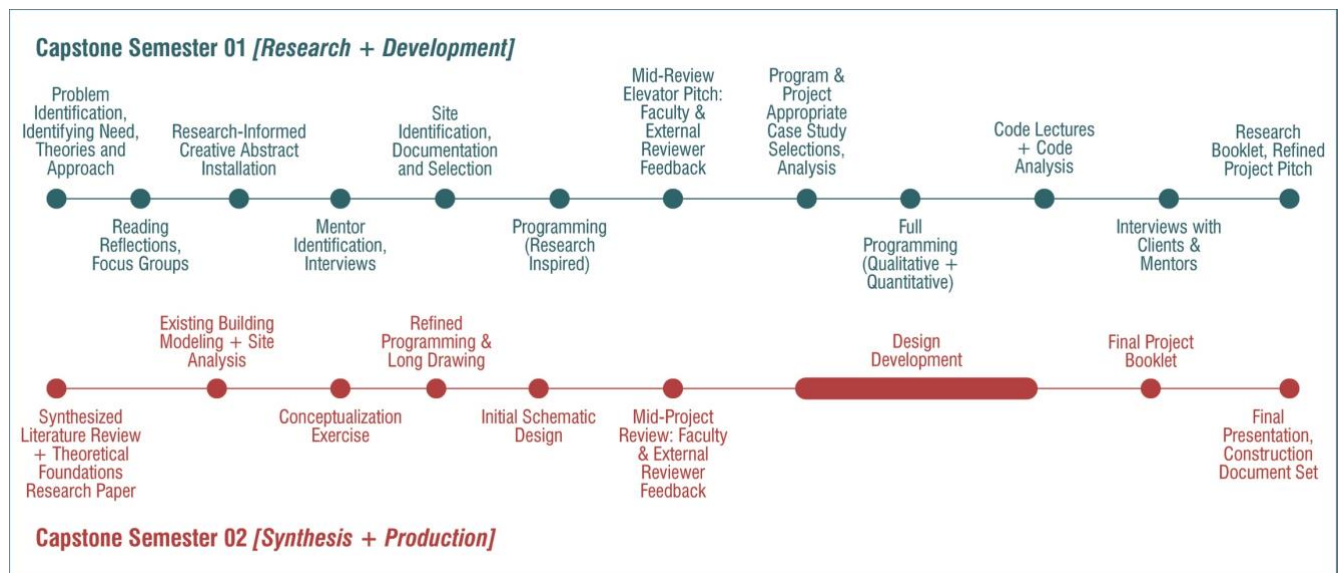

Figure 1. Capstone timeline breakdown over the course of two academic semesters.

The capstone's delivery sequence maps onto established phases of inquiry—orientation, conceptualization, investigation, conclusion and discussion—providing a clear pedagogical logic for research-through-design (Pedaste et al., 2015). This structured approach is designed to intentionally mirror the logic of scholarly inquiry as well. Students begin by defining a question, collecting data, and conducting analysis before moving on to testing, synthesis, and application. In doing so, they get to experience how design functions as both a research process and a form of knowledge production. This allows them to test out their ideas through spatial and material experimentation rather than a written hypothesis alone (Zimmerman et al., 2007).

The pedagogical orientation for this course structure emphasizes critical thinking and problem-based learning, which, when used as an additional tool in the studio environment, may help students to learn to engage outside factors and perspectives as they define their own design process (Galford et al., 2015). Problem-based learning has strong empirical support for fostering flexible knowledge, collaborative problem solving, and self-directed learning, which are all outcomes that are closely aligned with capstone goals (Hmelo-Silver, 2004). Students are encouraged to utilize the vast variety of tools at their disposal, inclusive of both analog (sketching, modeling) and digital (AI, rendering, data visualization) tools. Through self-reflections and peer assessments, students develop the ability to critically analyze both their own work as well as the work of their peers, allowing for more objective viewpoints to develop, thus reinforcing reflection as a part of the design process.

Analysis of Student Reflection and Interview Findings

To evaluate the efficacy of the capstone as a research site, a thematic analysis of the semi-structured interview with participant A. C. was conducted. By cross-referencing the participant's reflections with established theories of design inquiry, four key dimensions emerged. This synthesis serves as a pilot for future cross-case comparison. (The full transcript is available in Appendix A).

Redefining Research: From Phase to Mindset

Analysis of A. C.'s experience highlights a critical shift in how undergraduate students perceive research. Initially viewed as a preliminary exercise in "studying past projects," the participant's understanding evolved into a continuous "iterative process of unpacking the reasoning and evidence behind each decision." This aligns with Cross's (2025) characterization of design as a way of knowing, where understanding emerges through engagement rather than predefined answers. A. C. noted that the capstone's self-directed structure required a "higher level of independence," transforming research

from a curricular requirement into a "deeply human-centered" investigation driven by personal investment in pediatric care.

The Feedback Loop: Iteration as Research Mechanism

The integration of analytical research data (medical literature and stakeholder interviews) with creative exploration created what A. C. described as a "constant back-and-forth process." The participant reflected that "each iteration raised new questions that changed how I understood the problem," a sentiment that reinforces Dewey's (1997) inquiry-based learning principles. In this context, the design artifact is not just a result, but a testing ground for evidence-based theories. The participant further reflected:

> I often paused during design development to check in with my research findings, asking myself, "Does this choice actually align with solving the problem…?" Research informing design, and design pushing me to seek a deeper understanding.

Spatial Translation and Embodied Cognition

A central challenge in design education is the translation of abstract data into spatial form. For A. C., the research findings manifested as three guiding pillars: sensory, supportive, and human-scale design. A. C. observed, "I didn't fully understand my research until I started translating it into space." This observation highlights the role of embodied cognition within design learning, suggesting that spatial reasoning and material engagement facilitate a deeper comprehension than abstract analysis alone. The "strings of connection" between data and space were revealed through the act of making and receiving critique, confirming that spatial reasoning is a primary method of knowledge production.

Post-Graduation Impact and Professional Identity

The study's findings suggest that treating the studio as a research environment directly impacts

professional preparedness. A. C. articulated moments of decision-making where feedback from drawings or peer conversations prompted an immediate reassessment of research assumptions, embodying Schön's (1983) reflection-in-action. Four months into their professional career, A. C. identified "peer-to-peer communication" and "intentionality" as the most valuable skills gained. By framing design as a series of "better questions" rather than "right answers", the capstone experience provided the participant with the "mindset and resilience" to navigate the complexities of professional practice. A. C. concluded that design research is valuable because of its "tangibility and its ability to make abstract ideas visible and experiential," placing it on equal footing with STEM-based inquiry.

Design Artifacts and Visual Evidence

To substantiate the thematic findings, selected excerpts of A. C.'s work from their second semester of the capstone studio illustrate the physical translation of research insights into spatial decisions. These visual outcomes demonstrate how reflection and iteration act as tangible forms of research validation.

- Evidence of Inquiry-Framing: Figure 2 demonstrates the result of the "programmatic long drawing" assignment. This deliverable required the student to synthesize site analysis, narrative, research frameworks, and design intent into a holistic and graphically evocative format. It represents the "Mindset" shift discussed previously, where the student must document the "why" before the "how".

- Conceptual Iteration: Figures 3 and 4 show the beginnings of conceptual ideation. The inspiration of "kelp forests" were not merely aesthetic; it functioned as a thematic framework for sensory and supportive design while holding deep significance to the participant through their upbringing along the Oregon coast. These vignettes and sketches (Figure 4) serve as evidence of the "Feedback Loop," where thematic material studies directly informed the organizational usage of the building footprint and its subsequent spatial development.

- Spatial Translation: Figure 5 captures the final floor plan, while Figures 6 through 8 provide rendered perspectives and technical drawings (elevations and ceiling plans) of the sensory rooms and patient units. These final deliverables are the culmination of the "Spatial Translation" process, where abstract research into pediatric well-being is manifested through conceptual design intent, material finishes, lighting, and spatial layout.
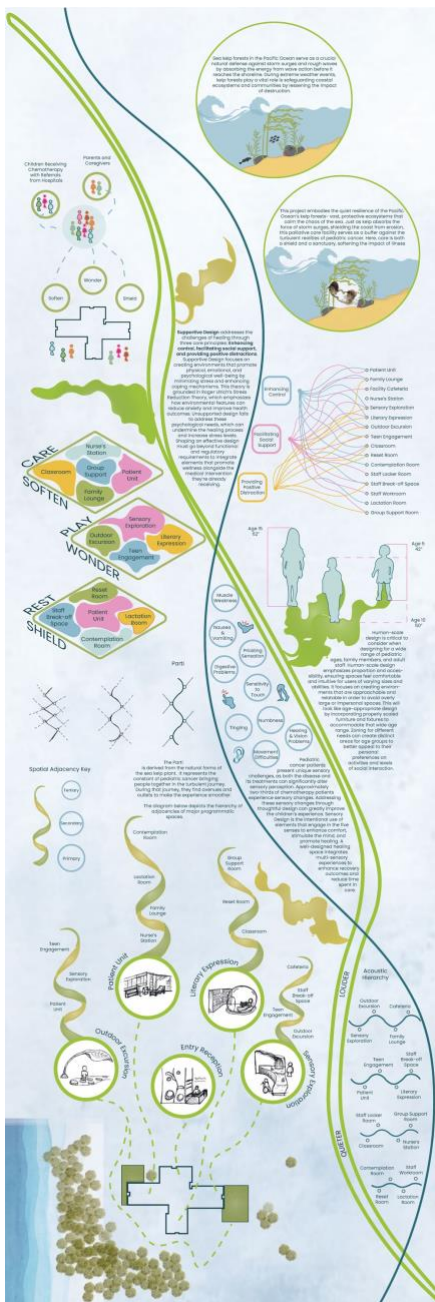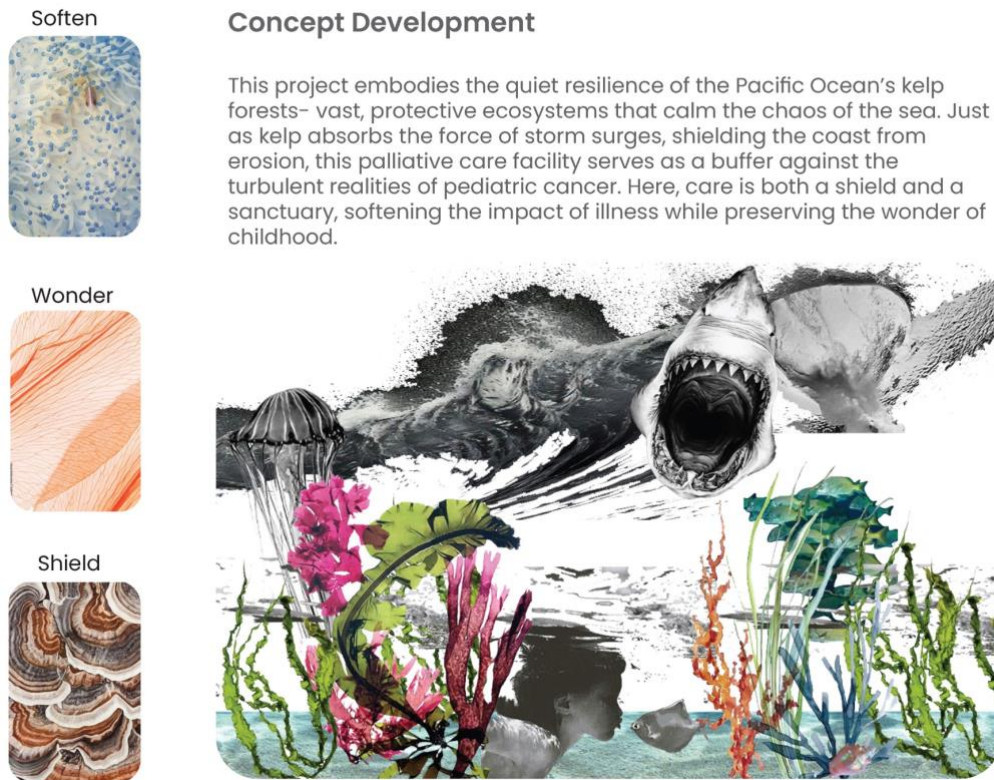

Figure 2. Programmatic long drawing created by A. C.

Soften

Concept Development

This project embodies the quiet resilience of the Pacific Ocean's kelp forests– vast, protective ecosystems that calm the chaos of the sea. Just as kelp absorbs the force of storm surges, shielding the coast from erosion, this palliative care facility serves as a buffer against the turbulent realities of pediatric cancer. Here, care is both a shield and a sanctuary, softening the impact of illness while preserving the wonder of childhood.

Wonder

Shield

Figure 3. Concept statement, collage, and thematic material studies created by A. C.

Figure 4. Schematic design sketches and initial spatial explorations created by A. C.

Figure 5. Final floor plan demonstrating designed spaces and material finishes, created by A. C.

Figure 6. Rendered perspective of the sensory exploration room created by A. C.

4 Nurse's Station

Positioned along the central artery of the facility, the nurse's station acts as a point for care, communication, and support. Visibility and efficient workflow are prioritized to allow staff to easily monitor activity while staying closely connected to patients and families. This serves as the immediate point of assistance for questions, concerns, or urgent needs. With Space dedicated to documentation, collaboration, and quick access to resources, the nurse's station ensures that care is always close and responsive.
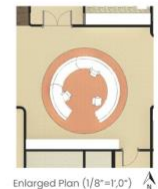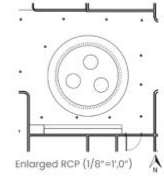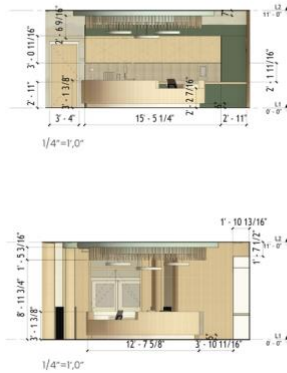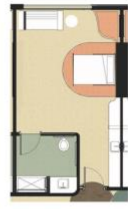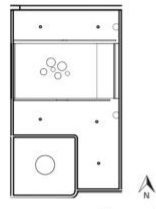
Figure 7. Perspective, elevations, floor plan and ceiling plan of the nurse's station created by A. C.

3 Patient Unit

Each patient unit prioritizes comfort, dignity, and family connection. A full-sized patient bed allows for parents or caregivers to rest alongside their child, offering closeness and emotional support. An adaptive sleeper sofa serves as a couch by day and easily transforms into a second sleeping space at night. Natural light fills the room through large windows with adjustable blinds, giving patients control over their environment alongside dimmable LED lights. Each unit includes a fully accessible bathroom and a discrete staff counter for quick hand-washing, supply access, and seamless caregiving. Integrated patient storage ensures the space remains organized yet personal.
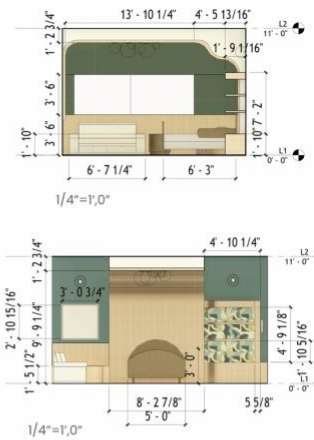

Figure 8. Perspective, elevations, floor plan and ceiling plan of a patient unit created by A. C.

Discussion and Implications for Design Pedagogy

The reflections above reveal that when students are taught to treat design as inquiry, the studio environment morphs from a space for production and into a site of discovery. This aligns directly with Schön's (1983) concept of reflection-in-action, where practitioners think through making, and Cross's (2025) assertion that designers operate though distinct epistemological modes that prioritize synthesis, iteration, and situated judgement. In this context, students working through these methodological practices reinforce their ability to test iteratively and reframe design decisions, which function as core research practices embedded within studio pedagogy. Congruently, empirical studies have shown that mentored undergraduate research in the arts/humanities strengthens professional preparedness (Kistner et al., 2021). The capstone's framework demonstrates how making, testing, reflecting, and communicating function together as research processes in both educational and professional settings: this dual identity of the designer as both creator and investigator prepares students to engage critically with the ever-changing social, cultural, and environmental contexts of their work.

Institutionally, integrating design-based research into undergraduate curricula demands significant structural support: dedicated time, mentorship, and recognition of design outcomes are needed to quantify student efforts as valid research outputs. Doing so bridges the historical divide between creative practice and academic inquiry, positioning interior architecture as a discipline capable of producing both knowledge and impact, as demonstrated in the real world. This single-case interview functions as a pilot stage validating the interview protocol and coding scheme, consistent with recommended mixed case replication strategies before broader cohort studies (Prince, 2004). This also serves as a limitation and constrains the generalizability of the noted findings. Since the perspectives presented reflect one student's experience with a specific institutional and pedagogical context, it therefore cannot be assumed to represent all undergraduate design students or studio environments.

However, the purpose of this study is not one of statistical generalization but analytical and conceptual insight. This shifts the focus to one of a more depth-oriented viewpoint, supporting the development of new frameworks and pedagogical indicators that can be refined and applied in future studies involving larger participant groups.

Conclusion

The undergraduate capstone studio exemplifies how design functions as a mode of inquiry that is an active process through which knowledge is produced, tested, and communicated. By framing design as research, students learn to ground creative exploration in evidence, reflection, and purpose. The experience of both instructor and student demonstrates that the studio environment can cultivate research literacy without diminishing creativity; rather, it amplifies it by giving ideas intellectual and methodological depth. This initial case study represents the first phase of an ongoing research initiative examining how undergraduate design education cultivates and demonstrates research literacy through practice-based learning inquiry. Future stages of this exploration will expand the participant pool to include multiple graduating cohorts, enabling comparative analysis across diverse project types and learning trajectories. The long-term goal of this exploration is to develop a replicable pedagogical model for integrating research-through-design principles into undergraduate curricula, including investigation into fundamental skills that can be nurtured much earlier in a student's design education, thereby contributing to the formation of future design researchers. By documenting how reflective iteration operates as a generator of both knowledge and skill, this project seeks to bridge the gap between academic research and professional design practice, reinforcing design as an essential form of scholarly inquiry.

For the student who shared their reflections, design became a way to ask better questions about human experience and well-being; for the instructor and author, it affirmed that making and thinking

are inseparable in the education of future designers. As design programs continue to define the importance of their role within academia, embracing research-through-design as a pedagogical model will be essential. It bridges the gap between theory and practice, between doing and knowing—reminding us that in interior architecture, design itself is not the end product, but the method by which new understanding emerges.

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Appendix A: Full Interview Transcript with Participant A. C.

Understanding the Capstone Experience (Context & Framing)

[Author] How would you describe the overall purpose and structure of the capstone experience in your own words? When you began the research phase, what were your initial expectations or assumptions about what "research" in design meant? How did your understanding of research evolve during the first semester? What factors most influenced how you chose your topic (personal interest, social issues, site, material, etc.)? In what ways did the research process differ from earlier design studios in the program?

[A. C.] The purpose of the capstone experience was to showcase everything I had learned over the past three years of design studies and studios. It was also about taking initiative on a problem that felt meaningful, challenging myself to define it clearly, and then researching how design could play a role in solving it. The structure of this process emphasized understanding the "why" before jumping into the "how" in order to build a strong foundation of reasoning before exploring solutions.

My prior understanding of design research consisted of studying past design projects within the built environment through various methods of research. While this can be an important piece, I learned that I couldn't just focus on the final result. To me, research came down to a truly iterative process of unpacking the reasoning and evidence behind each decision along the way. It involved gathering both qualitative and quantitative data to develop a holistic understanding of the issue and its related contexts. I also realized that collecting an abundance of research early on is valuable, as it allows for more refinement and synthesis later in the process.

The primary influence behind my research topic was personal experience. With family experiencing the tribulations of childhood cancer, I was invested in exploring how design could positively impact the lives of pediatric patients and their loved ones.

The capstone process differed significantly from earlier studios in the year-long duration and self-directed structure. Unlike previous projects that followed more guided parameters, this experience required a higher level of independence, initiative, and critical thinking. It also carried a higher sense of professional responsibility. This project represented not only the culmination of my academic journey but also my readiness to transition into the professional design world. The stakes felt high, and the process reinforced my commitment to delivering a project that was both conceptually rigorous and deeply human-centered.

Developing a Research Framework (Methods & Process)

[Author] What research methods did you use to explore your topic (literature review, interviews, precedents, prototyping, site analysis, etc.)? How did you decide which methods were most appropriate for your inquiry? Can you describe a moment when your research directly changed or challenged your design direction How did you balance analytical research (data, context, user needs) with creative exploration (sketching, modeling, concept development)? Were there any tools or techniques (analog or digital, including AI or visualization tools) that helped you test or communicate your findings?

[A. C.] My research methods included literature reviews from credible medical institutions as well as stakeholder and medical professional interviews to begin identifying the underlying issue of regional disparities in pediatric cancer care, and how these inequities affected patients and families. Once I developed a strong understanding of the need, I was able to proceed with applicable precedent studies and additional interviews to work towards building the user profile and studying ways to integrate these findings into future creative explorations. I chose methods that would allow me to understand both the technical and human sides of my topics. Literature reviews gave me the data and statistics I needed to understand the problem at a broader level, while interviews offered the personal stories and emotional insight that grounded the research in reality. I found that talking directly with

medical professionals and those affected by pediatric illness was essential. They helped me see beyond what published research could offer and brought real human experience into the design process.

Balancing analytical research with creative exploration became a constant back-and-forth process. I often paused during design development to check in with my research findings, asking myself, "Does this choice actually align with solving the problem?" Those self-check moments sustained an environment grounded in purpose. It became a rhythm; research informing design, and design pushing me to seek a deeper understanding through research.

Translating Research into Design (Integration & Application)

[Author] How did your research findings manifest in your design proposal or final project? Did you feel that the research helped you make more informed design decisions? Were there challenges in connecting your research to spatial, material, or programmatic outcomes? If you could go back, what would you do differently in bridging research and design? How did critiques, feedback sessions, or reviews influence how you interpreted your research findings?

[A. C.] My final project- an inpatient pediatric palliative care facility- was built around three guiding pillars: sensory design, supportive design, and human-scale design, and the ways in which these frameworks manifested into the built environment for the betterment of user well-being within the existing site context. Each decision, from spatial layout to material selection, was filtered through these lenses to ensure that the design encouraged wonder, softness, and protection. Put simply, I would not have been able to make informed design decisions without research. There were moments when I had great data in front of me, but the strings of connection had yet to reveal themselves to me. Feedback and critique sessions provided an opportunity for fresh perspectives on ways to find those connections or interpret my findings in new ways. Sharing my research with others, especially those

who hadn't been immersed in it daily, compelled me to clarify my ideas and communicate them in a way that made sense to an outside audience.

Reflection on Learning and Skill Development (Outcomes & Impact)

[Author] What new skills—academic, professional, or personal—did you gain through the capstone process? How did the capstone change your perception of what design is or can do? Did the experience influence how you approach design problems now (post-graduation)? Were there moments where the process felt overwhelming or unclear, and how did you navigate those challenges? How has the capstone prepared you for real-world professional practice or graduate-level research?

[A. C.] The capstone process taught me that design is so much more than a prompt or a set of parameters handed down by a professor. It's personal, powerful, and driven by passion. I learned how much energy, emotion, and self-discipline it takes to push an idea from concept to completion. Drive is what pushes the boundaries into innovation and beautiful results. It also solidified the importance of peer reviews and peer support. There's truly nothing comparable to the power of peer relationships within the design studio environment. This is something I now see in my professional design role, just over four months post-graduation. Peer-to-peer communication is the backbone of a safe, forward-thinking, and productive design environment. I now approach design problems with a greater sense of intention and patience. I've learned to look for the "why" before tackling the "how", and to lean on collaboration rather than working in isolation. The capstone project gave me the tools and confidence to transition into professional practice. It taught me how to manage a complex project, communicate design intent clearly, and defend decisions with research and purpose. While working in the commercial design world has shown me there's still so much to learn, I don't feel intimidated by that. I feel ready for it. The foundation built through the capstone experience gave me the skills, mindset, and resilience to keep growing both professionally and personally.

Institutional and Structural Reflections (Support & Barriers)

[Author] Did you feel there was adequate institutional support for student research (resources, mentorship, access to information, time) What role did your instructor or faculty mentors play in helping you structure or validate your research? Were there economic, material, or time-based constraints that shaped your project's direction? How could the program better support future students engaging in design research?

[A. C.] In general, I felt that there was adequate institutional support for student research, particularly through access to faculty mentorship, structured feedback, and available resources. The instructor present during the second semester for conceptual and design development provided the guidance needed to ensure my project was both grounded in evidence and connected to my larger design intentions. Regular check-ins and critiques allowed for consistent progress while also encouraging independent thinking and ownership of the design narrative. With that said, it was agreed upon across the senior studio that a lack of guidance in the first semester, which focused on gathering research, was one of the greatest constraints throughout the year. Given this limitation, an extended research phase or offering research workshops earlier in the curriculum could better support future students in bridging analysis and design.

Broader Reflections on Design as Knowledge

[Author] How do you see your capstone contributing to new knowledge in interior architecture or design more broadly? What does "research through design" mean to you now, after completing the program? Do you believe design should be treated as a form of research equal to that in other disciplines (like STEM or social sciences)? Why or why not? What advice would you give to incoming students about approaching design research critically and creatively?

[A. C.] I see my capstone project contributing to the field of interior architecture by reframing how we approach healing environments, particularly in the context of pediatric care. The project aimed to bridge the emotional and physical dimensions of care by demonstrating how design can serve as both a medical and emotional intervention. By centering the user experience, I see my contribution as a small but meaningful addition to the ongoing conversation about how design can respond to the issue of health equity and well-being.

"Research through design" has come to mean more than testing a hypothesis through creative work. It represents an iterative process of inquiry. One where making, reflecting, and re-making generates new understanding. It's about using design as a thinking tool, where physical and spatial exploration become forms of knowledge production. For me, research through design is about embracing uncertainty and letting curiosity guide the evolution of both idea and outcome.

I do believe design should be treated as a form of research equal to that in disciplines like STEM or the social sciences. While the methodologies differ, the rigor, critical thinking, and pursuit of innovation are shared. Design research uniquely synthesizes quantitative and qualitative. It transforms data, behaviour, and emotion into spatial narratives that impact lived experience. The value of this form of research lies in its tangibility and its ability to make abstracts ideas visible and experiential.

To incoming students, I would say: question everything, but also trust your instincts. Let your research guide your creativity, and let your creativity push your research further. Seek feedback early and often, and remember that the process of discovery is just as meaningful as the final result. Design research is not about finding the right answer; it's about uncovering better questions.