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INFUSING MENTAL HEALTH IN DESIGN EDUCATION: A CASE STUDY ON TRANSDISCIPLINARITY AND EMPATHY AS MEDIUMS FOR INNOVATION

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Abstract

Riane Eisler's partnership model capitalizes on mutual respect and benefit to empower all relations, an approach that is instrumental to teaching around mental health. Many of the thoughts, urges or behaviors associated with Obsessive Compulsive Disorder (OCD) revolve around spatial characteristics of interior built environments. Yet little has been studied on how to infuse such complex problems into design education, which can transform the lives of patients and their families in ways that are both sensitive to students as well as empowering. This paper uses a series of introspections to unpack the lessons learned from a transdisciplinary partnership between an interior design and a product design faculty member who, through a product design studio course, tackled the challenge of designing for youth living with OCD.

Three primary themes of reflections and lessons are analyzed: transdisciplinarity, empathy, and course structure. As the analysis reveals, future pedagogical efforts on transdisciplinarity must account for fit - from course objectives to timeline – along with the time and energy needed; a more nuanced approach to empathy must be adopted where the possibility to overwhelm and instill fear in students are balanced with innovation; and fusing research into the design curriculum and course structure must be situated within a more fluid process and also centered on outcomes.

Keywords: design, mental health, obsessive compulsive disorder, design education, empathy, transdisciplinarity, innovation

Introduction

Riane Eisler's partnership model capitalizes on mutual respect and benefit to empower all relations (Eisler, 2003). This approach is instrumental when it comes to transdisciplinary teaching around mental health. Transdisciplinarity, along with empathy, have been lauded for helping spark innovation to solve complex problems (McGlohn et al., 2014; Woodcock et al., 2017). Mental health is currently recognized as one of the most pressing issues in American society, with 90 percent of U.S. adults saying the country is experiencing a mental health crisis (McPhillips, 2022). According to the National Alliance on Mental Illness (NAMI, 2022), 1 in 5 U.S. adults experience mental illness each year, with 1 in 20 experiencing severe mental illness. Among youths, the numbers are 1 in 6, with 50 percent of all life-time mental illnesses beginning by age 14, and 75 percent by age 24. Suicide is the second leading cause of death among people aged 10-14.

Obsessive-Compulsive Disorder (OCD) is a debilitating condition that ranks as the fourth most common mental disorder in the U.S. - it is experienced by close to 1 percent of the U.S. population (impacting nearly 2.2 million people) (Anxiety and Depression Association of America [ADAA], 2022). OCD becomes manifest through primarily four dimensions: contamination/cleaning; ordering/repeating; hoarding; and intrusive thoughts. Contamination/cleaning involves fears about germs and contracting an illness, and repetitive handwashing and cleaning; ordering/repeating involves checking, counting, or re-doing rituals; hoarding involves difficulty parting with objects and fear of throwing things away; and instructive thoughts involve uninvited taboo mental images about aggression, sexuality, and religion (Bernstein et al., 2013). As OCD frequently begins during childhood, early diagnosis and treatment can have life-transforming outcomes.

Many of the compulsions, urges or behaviors associated with OCD include spatial characteristics of interior built environments, such as bathroom sinks, doorways, and light switches. However, little has been studied on how to infuse such complex problems into design education, which can transform the lives of patients and their

families in ways that are both sensitive to university students as well as empowering. This paper uses a series of introspections to unpack the lessons learned from a Spring 2022 transdisciplinary partnership between Tasoulla Hadjiyanni, an interior design faculty member, and Quynh Akers, a product design faculty member, both at the University of Minnesota. Through *PDes 2772 - Product Design Studio 2*, a product design studio course, these faculty members tackled the challenge of designing for youths living with OCD. In the process, the paper elaborates on lessons learned that can inform future educational partnerships that build on mutual respect and care as well as course development.

The transdisciplinary partnership was a follow-up to a pioneering interdisciplinary study by the University of Minnesota's College of Design, the College of Science and Engineering, and the Medical School. In the 2015 study (which was approved by the University of Minnesota's Institutional Review Board – IRB), youths with OCD and healthy controls were videotaped while performing a series of tasks that required interacting with environmental parameters, including handwashing in a bathroom sink. A significant finding was that youths with OCD were considerably more likely than controls to exhibit "other" behaviors (e.g., cleaning or drying the sink, inspecting the sink, touching and tapping the sink, and rubbing the countertop) (Bernstein et al, 2016).

As a next step to the 2015 study, the transdisciplinary partnership team pursued the development of design interventions that could support youths with OCD compulsions during handwashing. Such a partnership with product design was seen as an effective means to jumpstart the process of exploring how mental health can be incorporated into design-related curricula and what design interventions could look like. Partnering of teachers and of students across disciplines breaks barriers of domination and sets a trajectory for innovation and care for those whom design is meant to serve. Teaching about mental health within the design fields, however, implies a decision-making process that is replete with questions: Where in the curriculum should mental health be addressed? What does that mean pedagogically for both students and faculty? And how should such a complex topic be tackled empathically?

When the project involved is part of ongoing faculty research, questions abound. Students benefit from faculty enthusiasm and expertise, while at the same time, their critical thinking skills and approach to learning are sharpened (Prince et al, 2013). Knowledge and best practices on how to insert a research project into the classroom, and the criteria that can help determine a good fit, are not well defined, leaving faculty with little direction into how and when to attempt to bridge research and teaching.

The faculty introspections that are the basis of this paper unraveled three primary themes of reflections and lessons: transdisciplinarity, empathy, and course structure. As the analysis reveals, future pedagogical efforts on transdisciplinarity must account for fit - from course objectives to timeline – along with the time and energy needed; a more nuanced approach to empathy that aligns with Eisler's theory of partnership must be adopted where the possibility to overwhelm and instill fear in students are balanced with innovation; and fusing research into the design curriculum and course structure must be situated within a more fluid process that is centered on concern for "users" (in this case, people living with OCD) as much as design outcomes. Below, we delve deeper into each of the three lessons.

Transdisciplinarity

Transdisciplinarity refers to people of different disciplines working together. Benefits include exposing design practitioners to new ways of working (Baratto, 2020), along with increasing creativity and innovation (Costantino, 2018; Gluth, 2010). In design education, transdisciplinarity has been linked to students having increased respect for other fields, ability to think more holistically, collaborative design skills, improved design outcomes,; and preparation to work with other fields upon graduation (Baratto, 2020; Biberhofer & Rammel, 2017; Doerfler & Dong, n.d.).

As noted earlier, the 2015 study found that youths with OCD were significantly more likely than controls to exhibit "other" behaviors during handwashing (Bernstein et al, 2016). As the partnership's goals included developing design interventions that could provide support to youths with OCD through a product design studio class, identifying a

studio that would be a good fit was required. The question of fit is multi-dimensional and includes the following considerations: course objectives, student learning, project goals, timeline, and faculty expectations.

- Course objectives: Each course in a design curriculum has particular objectives and expectations, and aligning project expectations with course objectives is instrumental to students' ability to manage expectations and also skill-building. *PDes 2772 - Product Design Studio 2* was identified as a potential partner for this project because it focuses on ergonomics and the development of one piece of hardware.
- Student learning: Once a course was identified, dialogues ensued among the two faculty members. The partnership model of respect and care pointed to students being the faculty's equals in this effort. In parallel, student learning is a priority behind all course development. A question around fit: What would be the benefit to the students from having exposure to this project's questions and challenges?
- Project goals: The benefits of the partnership to youths with OCD, the end users, were also accounted for as the development of design interventions were meant to be used by such youths during handwashing. Two critical questions arose: Can the project's goals be met by the course's objectives and the students' skill levels? How would students with OCD taking the course be supported in cases of triggers?
- Timeline: The question of fit extended to the timeline. Although the semester is 15 weeks, only the last five weeks could be devoted to this project. In the weeks before, students would be tackling other smaller assignments that would prepare them and give them the skills needed to complete this project. Early in the dialogues, it became clear that designing the whole sink set-up would be beyond the course's objectives and would overwhelm students. As a result, it was decided that students would be able to select a particular piece of hardware on which to focus from three high-touch objects: towel dispenser, soap dispenser, and faucet handle or combination faucet/handle.

- Faculty expectations: Parallel discussions revolved around expectations from each of the faculty partners: What resources would be shared, when and how faculty partners would attend review sessions, and the pedagogical styles to be followed. Hadjiyanni, the faculty member from interior design, was a researcher and the product design studio was led by Akers, an adjunct faculty member from practice. Dissecting what it means to infuse a research-based project into the curriculum, and having both faculty members committed to the project, were essential parameters for a successful partnership. At the same time, building on Eisler's model of partnership as mutual respect and benefit to empower all relations, questions emerged around how this approach informs faculty relations.

Determining fit and what can be the foundations of a constructive partnership take time and energy on the part of faculty, so this must be accounted for and recognized when considering trandisciplinary partnerships and their value to higher institutions' missions and visions. Empathy and course structure are the next two lessons that are unpacked.

Empathy

Empathy has long been positioned as a promising pedagogical tool that can help students navigate complex problems as well as build connections to users. In design, empathy has been shown to increase innovation by revealing user experiences and needs, along with potential design limitations (Woodcock et al., 2017). Empathy's role in recognizing, understanding, and sharing emotions comes particularly handy in situations with conflicting needs (Gasparini, 2015; Köppen & Meinel, 2014; Michalec et al., 2018; Paron, 2020). With respect to teaching, empathy's benefits go beyond the users, carrying over to students as well as the teachers themselves. Teachers can help "identify and remove obstacles to learning" for students without lowering standards (Meyers et al., 2019, p. 162). When teachers have empathy for themselves, otherwise known as self-compassion, it can help them take care of themselves and their mental health (Kramlich & Beck, 2017), which is critical when teachers feel tired or stressed (Jordan & Schwartz, 2018).

Empathy can be cultivated through a variety of mediums. Apart from engaging with actual people living with OCD, students can increase empathy by reviewing recorded information, such as videos or stories (Cargile, 2016; Gasparini, 2015; Heylighen & Dong, 2019). The same goes for completing mindfulness activities, such as journaling (Christian, 2018). Narrative inquiry, defined as "interactions and insights that occur when we read, write and listen to, and tell stories," increased empathy in interior design students by helping them focus on users rather than products (Danko, 2008, p. 11). Lastly, empathy was found to increase through simulations that mimic the users' experience (Stiffler, 1990).

On the first day of the studio course, April 4, 2022, the project was introduced through a series of exercises that were designed to set the stage for a partnership around mutual respect and care by helping students connect with one another and the users, and thus cultivate empathy. At that time, there were 29 sophomore students enrolled in PDES 2772. Of them, 19 identified as male and 10 as female. Four of the students noted having ancestors from countries outside the United States, and one student identified as an international student from Korea. One student shared that she lived with OCD.

Two of the techniques – mindfulness and videos – documented in the literature review were used in the process of building connections. The series of exercises was structured in a "before" and "after" format so faculty members could assess the use of videos of youths with OCD in this partnership approach, and look at whether students were connecting with users living with OCD.

- Exercise 1: Students were asked to write six words that came to mind when they heard "mental health." Common terms related to descriptions of disorders, such as depression and anxiety; ways to deal with mental illness, such as therapy; and impacts of mental health problems, such as suffering, stress, and pain.
- Exercise 2: Students were asked to write six words that came to mind when they heard "OCD," as a way to garner how much they knew about the condition. Responses noted attributes of compulsions, including organization, perfection, and repetition, along with the difficulties associated with OCD, using such words

as hard and painful. Examples of these descriptors: Organized, specific, and stressed; doing something over and over; unable to resist repeating patterns; needs to be perfect; hyper-aware of surroundings; and overstimulated.

- Exercise 3: Students were asked to leave the classroom and wash their hands mindfully - that is, paying attention to how they felt. Upon returning to class, they shared thoughts using the chat function on Zoom. Most of the responses highlighted steps in washing hands: getting soap, scrubbing hands, and drying hands. An example: "Washed 10 times back and forth before soap, 10 times again after soap, shake off hands three times after washing." Comments also referred to the automatic equipment in the room, including difficulty with automatic faucets, the lack of control over water temperature, and the slow speed at which paper towels were dispensed. For example, one student noted, "Everything is automatic, no control of water temperature, water flows for a short time."
- Exercise 4: Students watched three videos from the 2015 study, recording their thoughts in chat. Examples of comments that demonstrate connecting to the challenges users face:
    - Very detailed washing, rubs hands thoroughly. She also puts effort in making sure the amount of water that comes out of the sink is just right, which was interesting.
    - The amount of repetitive actions leading to wasted time is definitely one of the hardships of OCD.
    - She had clear steps to washing her hands and seemed really meticulous. She wiped off the faucet afterwards. Rolled her sleeves up to begin.

  Additional comments pointed back to the assignment and what it could involve, such as, "I would imagine the whole soap, sink, towel holder improvement would be game [possible]."
- Exercise 5: The question, "What comes to mind when you hear OCD?" was repeated as a way to garner whether the videos strengthened understanding of the condition and helped cultivate empathy. Responses were now much more

evocative and broad. Language became more concise with such words as "ritualistic" and "meticulous." Of particular significance to the design disciplines is that the word "environment" appeared often in the "after" reflections, when it was non-existent in the "before" ones. Examples of comments:

    - Designated, meticulous, and repeated activities during a simple day-to-day task. There are specific parameters that need to be met for individuals to mentally be at ease with their task.
    - A lot more careful and meticulous with their actions, pay close attention to their surroundings and environment that they are in.
    - A perfectionist who doesn't allow mistakes which would lead to a very tiring life because they are always conscious of their environment.
    - It is a multifaceted condition, affecting individuals with obsessive and repetitive physical and metaphysical interaction with their environment.

- Exercise 6: Closing the session was the question, "What excites you about this project?" Students talked about the ability to make a difference in someone's life and how their designs could help mitigate stress and suffering. As noted by one student: "The ability to design and support an important cause is very exciting. Additionally, the realm of OCD doesn't really have a product market or backing, making this a fresh problem to solve."

Exposing students to a mindful awareness of handwashing, along with the videos of youths with OCD, helped solidify many students' empathic lens and commitment to the project. Important to the partnership was the empowerment of the student who lived with OCD who offered insights that drew on her own experience to help strengthen her classmates' awareness.

As students delved into their project in the week ahead, concerns started to weigh some down. For some students, the empathy and excitement to make a difference transformed into fear and an added sense of responsibility from worrying about "doing more harm than good." The frustration and confusion of these students often hindered their ability to innovate and push their creative side. In their minds, safe design proposals would not trigger the condition - everything else was too risky. One student,

for example, froze: "I'm afraid…I'm not sure…I don't think we have any right to be designing for youth with OCD."

Studies have shown that empathy can lead to exhaustion and burnout (Guidi & Traversa, 2021; Halpern, 2003). Empathic overarousal captures the feeling when fear and emotions overwhelm a person, causing them to stop empathizing entirely (Leake, 2019). Techniques noted for helping create a balance that prevents designers and medical personnel from getting lost in empathy include differentiating between themselves and the user or patient (Leake, 2019; Neumann et al., 2009).

During class discussions, the questions students raised as part of this studio course expose a more nuanced understanding of the multiple layers beneath empathy that can lead to fear and exhaustion. Most of the concerns were tied to lack of clarity across a wide spectrum - from what living with OCD implies to treatments and the role of design, user differences, and costs. With a more solid understanding of how empathy can overwhelm, teachers who embrace partnership as care can be better prepared to plan ahead and intervene, empowering students as problem-solvers.

In terms of lack of clarity on what living with OCD implies, students in the course struggled with such questions as, for example: How do we know that the behavior that this youth is exhibiting is not just them being hyperactive, as little boys do? Faculty members offered further elaborations on the 2015 study and clarified that the videos shown were of youths with OCD who participated in the study and gave consent to be filmed. Additional questions came up: Where in the handwashing process do patients experience the most pain? How does OCD manifest on a neurochemical level, or how does it relate to behavior, and how could our objects reward new behavior? What motivates a youth to do something different? How do rewards work in the brain? What is responsible for behavior change in the brain?

Treatments of OCD were also not clear to students, leading to more questions: Where do youths receive treatment? Who is involved in the treatment of OCD? What is the typical treatment for youths with OCD? Does alleviating pain mean to not trigger the

illnesses? Lack of clarity around treatments accentuated the students' insecurities as to the potential role of designers, who are not involved in diagnosing and treating mental health conditions, resulting in further introspection: How do we as designers facilitate behavior change in our designs? How far can we push someone to change their behavior before it becomes damaging/traumatizing? What are the physical requirements for a product to give feedback to the user when an action is finished? So...is the intent to design something that does not trigger them at all, like a sensor? Is this for the psychiatrist, or the youth?

The variability among users added to the confusion: What are the sociocultural and socioeconomic motivations of these three separate users [the ones in the videos]? How can a single product be able to serve individuals with vastly different experiences? If OCD affects everyone differently, how can there be a product that is going to be right for everyone? Unsure about who would be using the product and how, students expressed concerns about cost and affordability - both from the side of the families and the manufacturer.

Design interventions that would require home modifications, however, were not seen as feasible by some students: "I could see something successful being like a 'squatty potty' - like what parents use for toilet training their kids. I'm sure it would be really expensive for a family to send their kid to therapy, so I'm not sure a permanent solution would be the right decision, given the costs to hire a plumber just to install this thing." Another student added: "I don't think proposing a custom sink is economically feasible for families seeking treatment - it would be very expensive and require families to remove existing sinks and replace them for short-term use."

In summary, using empathy as a pedagogical tool in partnerships that tackle grand challenges can be a force of innovation. Faculty must be ready to support students' journeys by providing clarity across a range of issues and concerns that might arise to help avoid students' fear and sense of being overwhelmed. A flexible course structure is critical to faculty's ability to solidify partnerships that cultivate mutual respect and care.

Course structure

The development of design interventions for youths with OCD took place over five weeks in Spring 2022. Each week, students were guided along a different facet of the design process: Week 1 - course introduction and programming; Week 2 - defining the problem and narrowing down choices by focusing on one of three high-touch objects: towel dispenser, soap dispenser, and faucet handle or combination faucet/handle (Figure 1); Week 3 - design explorations and the first feedback session; Week 4 - optimization through individual and small-group critiques; and Week 5 - final critique.

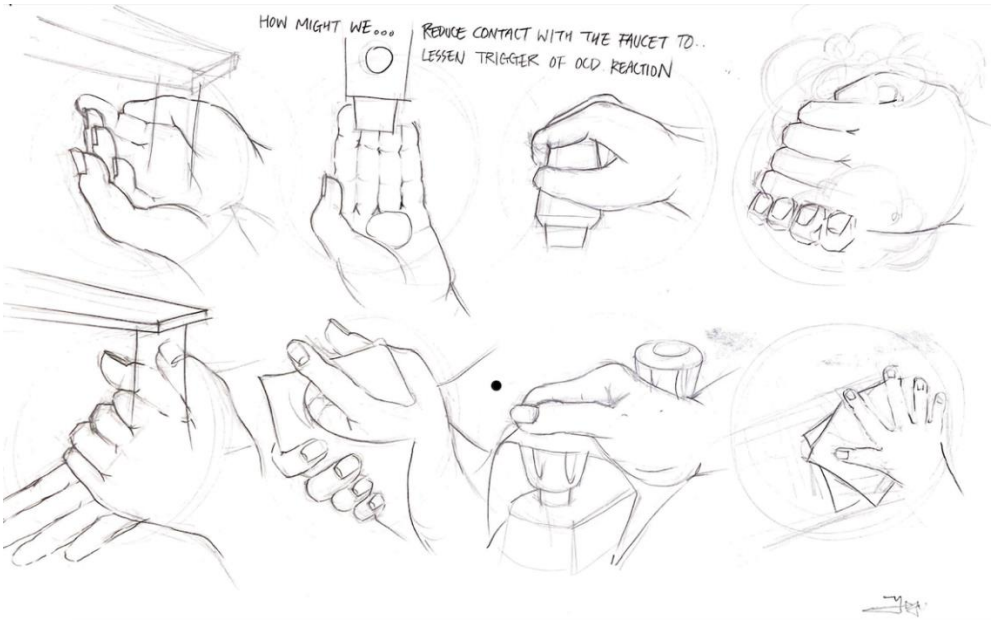

Figure 1. Week 2- Defining the problem - by Yeji Shin

Flexibility and adaptability became inherent to infusing an ongoing research project into a studio course. Expectations for studio projects to move at a fast and predetermined pace are often at odds with the spirit of exploration that is tied to forming caring partnerships around undefined problems. Typical studio courses are linked to problem statements that are prescribed and set – that is, projects where clients come with a set of requirements that the design needs to meet. This approach leaves little room for "not knowing," for questioning assumptions and perceptions, and for charting new waters on how to approach the development of a design intervention.

Both the faculty members and the students in the course had to learn to manage "not knowing," which meant being able to pivot and adjust expectations on the go.

Examples of adjustments included expectations for design ideation. This phase of the process calls for a broad range of solutions to be explored, and students are asked to generate as many concepts as possible. In Week 2, for example, students would typically provide three pages of 20 concepts of rapid iteration of sketches based on the research provided during the course introduction. In Weeks 3-5, students would narrow down this list and focus on prototyping five refined concepts. The confusion students experienced in Week 2 impacted their ability to ideate as expected, and that implies a willingness by the faculty to empathize with the students and adjust expectations. As a result, the faculty moved away from the domination model of faculty-student relations, embodying instead partnership in the form of mutual respect and care.

Pivoting required close attention be paid to how students were feeling throughout the five weeks as intervening in a timely manner was crucial for learning. The many questions that students raised in Week 2 and students' expressions of fear prompted the teachers to urgently invite Gail Bernstein, the psychiatrist in the original 2015 study, to help answer student questions. Bernstein shared insights on the challenges of living with OCD, and how treatments contribute to quality of life. Her recommendation was for this design intervention to be a supportive tool that can be used under the supervision of a child's health care providers, during office visits, and in the home. Bernstein emphasized the importance of variability, flexibility, and adaptability to individualized treatments - that is, the design should accommodate the child during the various phases of treatment. These additional variables added complexity to the design task, while at the same time, freed the students from the fear of doing harm.

Partnership as care resulted in a more nuanced understanding of OCD. Student morale appeared to increase and their attention was turned to innovation. Visualizing OCD as an anxiety-involving cycle encouraged students to develop design solutions that were more targeted and focused, and could be used to break the cycle. Student emphasis

now shifted to incorporating variability and flexibility in their designs, along with creating designs that would feel enticing, safe, playful, and appealing to users.

Evidence of students' transformational journey came from comments that demonstrate more direct correlations between their video observations to decisions they were making in their innovations. Student's remarks reflect the growth associated with these early focused observations: "One thing I observed from the research is that the subject in the study really over-engaged with the soap pump, so I incorporated a locking mechanism, but also designed it like a toy."

Descriptions of students' solutions became more targeted and specific to what and how the design intervention would work. "I incorporated indexing into the handle and an LED light, so that youth with OCD had a visual indicator and a tactile one that helps them know when they've touched the object," said Owen Brummel, a design student who followed Bernstein's directions. Exemplifying the partnership model of working with others, Brummel's comments speak to the commitment of changing lives: "I've made my soap dispenser look like a robot to help youth 'boss back' their mental illness….One of the ways I intended this object to function was to help youth with OCD see themselves as the hero of their story - the big thing for me was empowerment, seeing themselves as powerful instead of different" (Figure 2). Brummel's design was recognized with an honorable mention from the 2022 DNA Paris Design Awards' product design of the year award in the category "Design for people" (DNA, n.d.). This annual global competition gives an opportunity to designers from the disciplines of architecture, interior, landscape, product, and graphic design to share their work and connect with other designers around the world.

Figure 2. Design by Owen Brummel, used with permission.

Fusing research into the design curriculum and course structure must be situated within a more fluid process that is centered also on outcomes. The ability to manage "not knowing" as well as impromptu pivoting are central to faculty navigating expectations during partnerships while guiding students' learning.

Conclusion

Four guests from the Twin Cities' professional network of product design were invited to comment and engage with student work for the final review in Week 5. Their insights point to three fundamental contributions of this transdisciplinary partnership that can

inform the future of design education and how partnerships as care are approached. First, the importance of tackling grand societal challenges, such as mental health care, in design – a focus that was lacking in the guests' own educational journeys. Second, the value of turning attention to under-represented in the design fields users, and the role that empathy can play in broadening understanding of these users' lived experiences. And third, the impact that design interventions and partnership approaches, such as the ones developed in this studio, can have not just for users, but also for designers of all ages and career experiences.

The analysis above brought forward lessons on transdisciplinarity, empathy, and course structure that can inform the infusion of complex problems into the design curricula. Questions around what this would take to materialize, however, remain. Transdisciplinary teaching and the development of learning innovations need space and time - from planning sessions and interdisciplinary dialogues among the faculty to constant communication on expectations and the ability to pivot. Annual performance evaluations, and tenure and promotion guidelines, must thereby account for faculty time in developing pedagogies and setting expectations for transdisciplinary teaching and aligning goals with partnerships that thrive on mutual respect and care.

Fusing research into the classroom implies flexibility and adaptability, characteristics that do not easily conform with student and faculty expectations, along with rigid course schedules, objectives, and outcomes. Strict expectations about skills and what is to be taught in each studio course limits opportunities to expose students to grand societal challenges. Any deviation often risks being perceived as "disorganization," perceptions that can distract and dilute the learning process, situating the growth that occurs in a place of stress versus one of creative endeavor. The risk of poor student evaluations might be too much for a tenure-track or term faculty member to handle, limiting their ability to push the limits of teaching into unchartered waters. The question of how risk-taking on the part of the institution, how faculty, and students can be honored and valued, and how the notion of "failing" in design education can be reframed, warrant further elaboration (see for example, Hadjiyanni, 2012).

Innovating, when the problem at hand is fluid and not well-defined, implies being open to pivoting and experimenting, and being committed to investing the time and energy needed to conceive and structure new approaches to problem-solving. This openness carries through from the process followed to the hierarchical structure of higher education that can be reframed – what Eisler calls "hierarchies of actualization," where people with power and influence use this privilege to lift others up to their highest potential (2003). The design process is a powerful mechanism for innovation. The "double diamond" design process model, popularized by the British Design Council, is described in four distinct phases: Discover, Define, Develop, and Deliver. Mapping the divergent and convergent stages of the design process, the model shows the different modes of thinking that designers use (Design Council, n.d.). Repositioning the design process as a set of tools versus a series of steps to be followed opens opportunities that would otherwise be unexplored for partnerships that move toward empowerment for all.

In parallel, valuing and recognizing the collective knowledge and experiences in the room is also critical to overcoming the domination model and embracing a partnership model when teaching fluid problems. The model of the faculty "passing down" knowledge does not work in scenarios where a shared space for learning is created, and who is learning and who is teaching are as fluid as the problem at hand. Tied to this are grading criteria that also need rethinking. Embracing risk-taking implies moving beyond the assumption that solutions proposed are "right" and "wrong." One would need to imagine a grading system that redefines accomplishments and standards, freeing students from the fear of failure when projects require slowing down or when parameters for evaluation are not fully known. The emphasis of the design process on end products and deliverable "solutions" would thereby need to be mitigated.

Empathy in design teaching can be a powerful tool to raise awareness and build commitment that can spark students' creativity. At the same time, empathy can be overwhelming by placing an undue burden on students to understand all details surrounding users' life experiences, and exacerbating fears about doing more harm than good. Teaching with empathy implies allocating time and energy to pivot, sidetrack,

and brainstorm ways to connect to the students and help guide them through what can be turbulent waters. Empathy that spreads to all constituents, users, students, and faculty, can strengthen resilience and provide a solid foundation for partnerships around learning. As much of the emphasis on the scholarship of teaching tackles the student experience, future studies are needed on what different pedagogies and topics mean to faculty in terms of time, energy, and stress levels.

Lastly, future studies can explore whether access to youths with OCD undergoing treatment, along with therapists, would bolster the partnership's experience and students' empathic connections. With access to actual users, the prototypes can also be tested in ways that can inform the development of more effective products. Another possibility comes in the form of conceiving Virtual Reality systems that can be used by actual patients to test these design interventions.

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