QUARTERLY OF THE INDUSTRIAL DESIGNERS SOCIETY OF AMERICA WINTER 2024

INNOVATION

INNOVATION THE EDUCATION ISSUE WINTER 2024

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In 2022, the Massachusetts Institute of Technology launched an interdisciplinary hub, the MIT Morningside Academy for Design (MIT MAD), to celebrate the transformative power of design. According to its website, MIT MAD has three core missions related to design: reshaping how we learn, catalyzing and fostering innovation, and empowering individuals and society.

Above: Using AR in Meta Quest 3 to help clients visualize their desired quality of life in retirement through playful interactions. (Photo: Amanda Macchia)

When I think about my experiences at MIT, I immediately recall professor David Wallace's Product Engineering Processes at MIT and Professor Maria Yang's Design for Scale with MIT D-Lab and Introduction to Design. These courses exemplify creative educational methods centered on play, practice, and participation. Barry Kudrowitz's 2023 book, *Sparking Creativity: How Play and Humor Fuel Innovation and Design*, also emphasizes the often-overlooked role of play and humor in driving design education and innovation.

As both a practicing designer and design educator, I look at those principles as prompts for a variety of important questions: What drives my interest in teaching? How does teaching relate to my role as a designer? If we have design education, can we also have education design? I propose that education design is about designing a classroom that fosters play, practice, and participation to help cultivate purpose.

Here, I'd like to share how my design journey and experiences with IDSA, MIT, IDEO, and Continuum have honed my thinking on this. I propose three critical design-education-related hypotheses:

1. **Play**, through experimentation with new technologies, can create an engaging learning experience.
2. **Practice**, with tangible artifacts, can encourage collaboration and community.
3. **Participation**, during the design research process, can empower positive social impact.

Individual Level: Education for Play

While working on my longevity planning service design with MIT AgeLab (a research program exploring the intersection of aging, financial planning, and the service system), we explored how to effectively communicate with clients and users about longevity literacy without framing it as "teaching." Many clients had significantly more life and work experience than the research team or financial advisors, so we focused on engagement rather than instruction.

To bring the concept of longevity literacy to life, we used immersive technologies and gaming platforms to create experiential and playful learning opportunities. We prototyped immersive scenarios using extended reality (XR) with mobile smartphones, Meta Quest 3, and Microsoft HoloLens 2. The team developed three interactive and playful experiences to explain a longevity framework to help clients better prepare for their retirement.

First, we developed a mobile augmented reality (AR) experience that enhanced 12 acrylic three-inch square blocks called Longevity Planning Blocks (LPBs). While blocks could be stacked in towers, they also each represented a common challenge faced during retirement. By scanning a mobile tablet over the blocks, clients could see unique informative videos about this longevity planning framework. By leveraging AR, these LPBs became interactive tools, enabling users to personalize the framework based on their needs.

The team also created a learning module and exercise using Microsoft HoloLens 2. This integrated the same physical blocks with digital information and activities to reinforce concepts about designing for longevity. And finally, the team created a virtual reality (VR) experience of potential retirement homes. Our goal was to empower clients by enabling them to envision their desired quality of life in an interactive, meaningful way and to simulate potential challenges or lifestyle choices.

This concept—education as play—required us to rethink the learning environment. Here, "students" were not typical classroom learners but experienced individuals and industry leaders, often with more excellent real-world knowledge than educators. This led us to ask: How can we apply the latest technologies to foster immersive, engaging learning experiences, shifting from one-way instruction to interactive and playful simulation for experiential learning?

Though XR, AR, VR, and other emerging technologies are increasingly popular, particularly among younger generations, the experiences they provide tend to remain at an individual level. Too often, learners are confined within their personal learning bubbles. The challenge is to extend these immersive experiences beyond individual engagement and create shared, collective learning journeys.

Team Level: Education for Practice

For another research project, I collaborated with the Social Design Hub at Moholy-Nagy University of Art and Design (MOME) in Budapest, Hungary. We aimed to help vulnerable high-school students envision their future selves through a design-driven approach (Csernák & Lee, 2024). We introduced a set of 12 cards as a learning toolkit, each covering a distinct theme: communication, trust, care, community, home, mobility, family, health, education, risk, investment, and future. Each card featured a central visual and two or three thought-provoking questions grounded in real-life scenarios. These cards were used in four in-person workshops at MOME, each lasting three hours.

Initially, I felt frustrated: Each student was unique and had a short attention span, and it was challenging to keep them focused and following instructions. However, things began to change when the students were grouped into four or five teams to discuss their future selves using these

Using tangible artifacts (12 cards) to help students envision their future selves through team activities and discussions. (Photo: Sheng-Hung Lee)

12 cards. I observed how they interacted with the cards through active group discussions, such as practicing their future self by changing the cards' orders, responding to the questions on the cards, or even role-playing.

The tangible artifacts—the 12 cards—served as an anchor for navigating broad, abstract, and complex topics. When students held their cards and shared their personal experiences and life stories, engagement and learning were activated within the teams.

Society Level: Education for Participation

In 2002, I was a co-instructor and teaching assistant for the MIT graduate course "Global Aging & the Built Environment." In this course, we introduced the empathy suit—Age Gain Now Empathy System (AGNES)—developed by MIT AgeLab. AGNES allows students to simulate the physical experience of aging, including muscle loss, impaired balance, and other physical limitations (Coughlin & Brady, 2019; Lavallière et al., 2016).

One of the student groups chose to redesign the restroom experience for the aging population. We visited Kohler's showroom in Boston to conduct a field study and testing. Once at the showroom, the team wore AGNES to experience the standard in-home bathtub, toilet, and available space between fixtures (Lee et al., 2023). The students were innovative, using Post-it notes in different colors to visually track their movement trajectories, highlight pain points, and mark satisfaction areas.

Through this visit, I learned that we, as students, "experience" the design process as necessary as we "learn" design knowledge and solutions. As co-instructors, we provided students with AGNES, client sponsorship, design research methodologies, and opportunities. By actively engaging in the design process and solving problems firsthand, students were motivated and aimed to create a positive social impact.

Learnings

We are now in the era of AI and immersive technologies that have significantly reshaped our perception of the future of design education. Design education brings together fields like engineering, science, humanities, and business to create a space where design acts as a crucial catalyst for transformative change. Traditionally, design education has overemphasized "design first," but I believe it's time to prioritize "education first."

I emphasize the significance of embedding play, practice, and participation into design education to foster purpose and enrich the learning experience. Design is framed as an extension of education, rooted in a human-centered approach that touches all facets of life. The discussion underscores a shift from "design education" to "education design." By embracing playful, practical, and participatory strategies, education design can elevate the quality of learning, nurture purpose, and help individuals engage with meaningful contexts in design and creativity. This multidimensional approach aspires to inspire learners or designers, empowering them to achieve educational and personal goals.

Using AGNES, an empathy suit, to simulate physical aging experiences. (Photo: Sheng-Hung Lee)

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