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Mapping the Terrain of Design Thinking Pedagogies and Outcome: Cross-institutional, longitudinal research

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Mapping the Terrain of Design Thinking Pedagogies and Outcome: Cross-institutional, Longitudinal Research

This paper aims to spark collaborative, action-oriented research opportunities around design thinking, systems thinking, and civic engagement within higher education by 1) highlighting innovative practices emerging from overlapping fields and 2) summarizing current case study research informed by these methods.

A number of critical questions foreground this research: How have higher education institutions integrated design and systems thinking in order to address wicked problems in their local and global communities? What has this work accomplished and what might it accomplish? How might stakeholders embedded within these systems reshape the structures and cultures of higher education in order to generate more inclusive and just impact?

Theoretical Underpinnings: Design, Systems, & Public Engagement within Higher Education
As RSD points out, the fields of design and systems thinking too often fail to intentionally and deeply engage one another. Given their overlapping histories, values, and goals (Jones & Kijima 2019), as well as the need to collaboratively address large-scale wicked problems (Rittel & Webber, 1969), this lack of engagement is problematic. Taken together, these fields have the potential to not only map the historic and geographic landscape of design and engagement within higher education., but also support its goals to operate a place-based, boundary-spanning organization committed to the "public good." This is especially true given higher education's fraught and problematic history with public engagement alongside its cultural and structural resistance (Bandy et al., 2018; Long & Gibson, 2016).

However, while design thinking has been enthusiastically endorsed by many institutions of higher education, critical research on the practices being implemented and their outcomes is still in its infancy (Ware, 2019; Kurtmollaiev et al., 2018; Liedtka & Bahr, 2019). Many practices and assessment metrics thus far have narrowly focused on short-term, celebratory case studies (Calgren, Rauth, & Elmquist, 2016; Ware, 2019) and traditional return on investment numbers (Forrester, 2018). Similarly, while there is a wealth of scholarship supporting the immediate value of civic engagement, research on its *long term impact across stakeholders and systems* is lacking (Divan et al., 2017; Hill et al., 2016). Practitioners and researchers--especially those at the systemic design association--are calling for more inclusive, systemic and action-oriented practices and research (Escobar, 2018; Protzen, & Harris, 2010; Vink, 2019).

Responding to this call and hoping to spark transformative and sustainable systems change, the research described in this paper emerges from the integration of recommendations from ecosystems (Vink, 2019) and transition design (Irwin, 2015), emergent strategy (Brown 2017), cross-institiutional design research (Liedtka & Bahr 2019), participatory action research (Lykes & Mallona, 2013) and feminist pragmatism (Whipps & Lake). Informed by these fields, this research seeks to visualize how the traditional siloes of research, teaching, and service might be reimagined and harnessed towards cocreating collaborative engagement projects.

Case Study

Geographic Asset-Mapping: institutional service requirements can be leveraged to provide opportunities to build the relationships necessary for participatory action research that is grounded in systems awareness. In this case, service at a liberal arts mid-sized university in the United States supported the creation of a "Coalition for Change" and the visualization of a campus-wide changemaker map. Shared efforts to create the map prompted "aesthetic disruptions" in participant frameworks, generated awareness of informal and formal opportunities for changemaking, and sparked opportunities for new pathways. In this case, the inclusion of this work as service led to relationships that generated cross-stakeholder frameworks and essential support for cross-institutional research.

Figure 1: Coalition for Change Process Visual

Actionable Systems Research: The relationships built through this network supported mixed methods research (Leavy, 2017) examining the historic and geographic terrain of design thinking within 35 courses and programs across the university (visualized in the figure below). Building upon prior research (Liedtka 2018, Liedtka & Bahr 2019), the study was designed to address three interlocking research questions:
  ➔ What DT practices are being implemented across the curriculum?
  ➔ What kinds of outcomes do faculty observe?
  ➔ What, if any, are the significant relationships between particular practices and observed outcomes?

CENTER FOR
DESIGN THINKING
**Ecosystem
Study
Participants**

Adventure Basesd Learning — ABL 410
Anthropology — ANT 112
Art Administration — AAD 220
Communication Design — COM 318
Communications — COM 258
Computer Science — CSC 371 / GAM 201 / ECF 212
Core Capstone — COE 320 / IDS 470
Core English — ENG 110
Doctorate of Physical Therapy — DPT 800
Engineering — EGR 121 / EGR 221
Entrepreneurship — Elon 101 / BUS 171 / COR 402 / ENT 460 / ENT 250
Environmental Studies — ENS 101 / ENS 366 / ENS 461
Exercise Science — HNR 230 / HNR 250 / ESS 495
Human Studies Services — HSS 111 / HSS 213 / HSS 461
Leadership Studies — LED 210 / LED 373
Leadership Sidies & Core Curriculum — COR 110
Marketing — MKT 412
Masters of Higher Education — MHE 799
Periclean Scholars 2022 — IDS 225
Philosophy — PHL 112
Physician Assistant Studies — PAS 540 / PAS 670 / PAS 672
Psychology — PSY 242
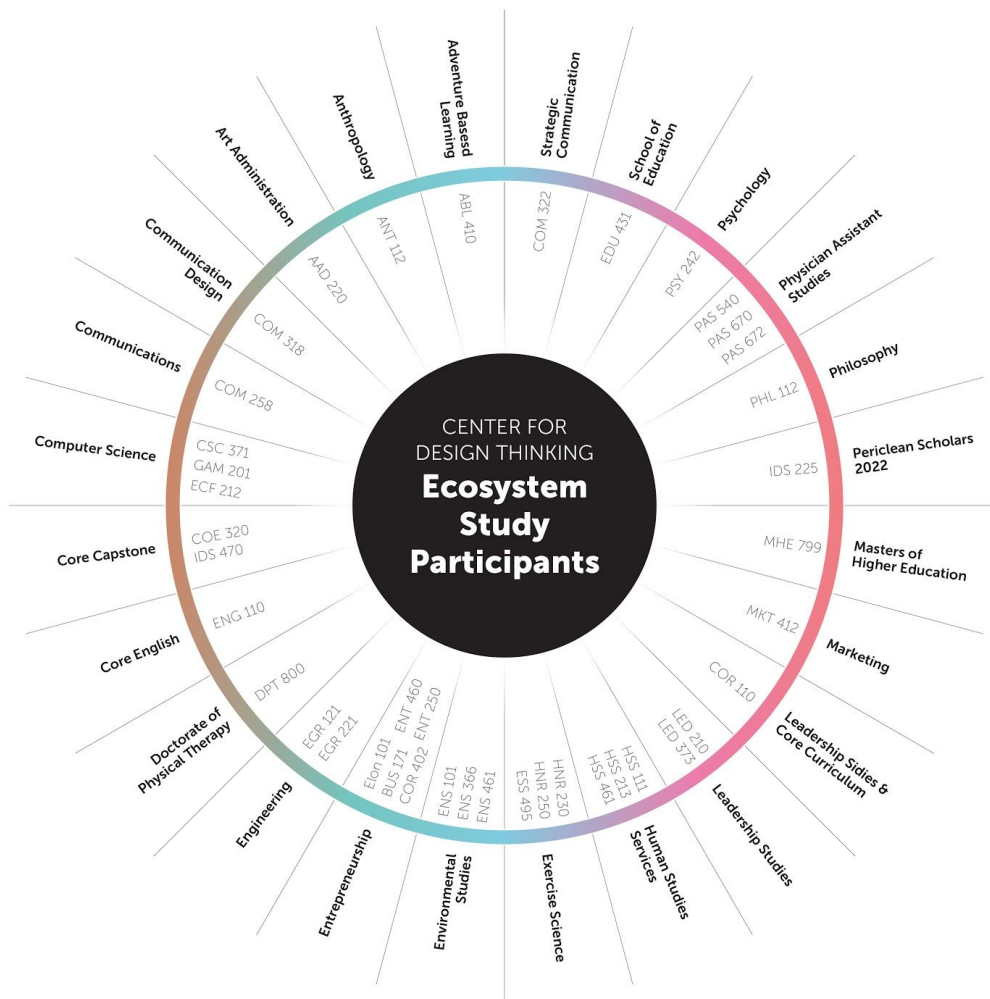School of Education — EDU 431
Strategic Communication — COM 322

Figure 2: Design Thinking Courses / Programs in study

This research included the adaptation of a previously validated survey assessing design thinking practices and outcomes, semi-structured interviews, and document analysis of course materials. The semi-structured interviews were designed to clarify survey findings, acquire and further assess the design thinking practices being implemented, their challenges, and the perceived outcomes.

This study has not only supported the visual mapping of various theories and methodologies around design practices, it has also visualized opportunities for critical, systemic interventions. Findings further clarify the way in which disciplinary frames and faculty experience inform the application of design thinking and civic engagement endeavors. They also highlight the value of holistic, systemic design for generating sustainable, transformative and impactful learning projects.

While this first study supported the mapping of the geographic terrain across campus, a secondary

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study has supported excavating the pathways towards current practices. This study responds to the need for more critical research examining the long-term outcomes of design thinking and community engagement practices across stakeholder groups (Bandy et al., 2018; Hatcher et al., 2016). The study tracks outcomes from students, community partners, and faculty during, immediately following, and three years after involvement with the Design Thinking Studio program. As an immersive community engagement program, the Studio sought to break traditional college models for teaching, using design thinking processes for collaborative social innovation projects on local wicked problems. Findings indicate that high stakes immersive "real world" learning experiences, when not supported by flexible, intentional scaffolding and relational accountability exacerbate efforts towards wellbeing across stakeholder groups.

Collectively, these studies map the geographic and historic terrain across diverse groups, generating actionable pedagogical recommendations that are feeding into the design of new curricular structures and processes designed to foster changemaking skill sets and resilience. Taken together, findings also highlight widespread challenges emerging from dominant university structures and processes (i.e., semesters, course credits, instructor expertise).

Emergent Teaching: Making these findings actionable, a "Pathways to Changemaking" curricular design working group is creating pathways to more holistically prepare students for upper-division, high-impact changemaking opportunities, including community engagement projects, undergraduate research, and internships. Proposed courses focus on improving students' self- and community awareness, deepening skills in community interactions, and building creative capacities through design-driven principles. Examples of proposed courses include place and place-making, the maker mindset, intergroup dialogue, agile project facilitation, and design thinking, among others.

Call for Collaboration

In general, this case study research seeks to visualize both present barriers and opportunities for inclusive and expansive design and systems thinking pedagogies. By highlighting an array of relational, critical, and creative engaged research practices I hope to expand the possibilities for more inclusive, imaginative, and actionable practices and research on changemaking.

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