

Design & Technology Education: What can we do to Influence Transdisciplinary Undergraduate Learning?

Abstract

Creating new ways to position Design and Technology (DT) teacher preparation programs in higher education can be considered critical today. For example, in the United States, the few remaining DT-related teacher programs can be in jeopardy of supporting the school subject as a result of teaching workforce declines. But, while some may view that DT programs are no longer relevant in parts of the world today, there can be an opportunity to leverage and make pertinent DT content/practices beyond teacher preparation. New DT approaches can be important to consider, not only to just sustain the remaining programs, but to also create new educational experiences that provide valuable skills/knowledge as well as transdisciplinary learning opportunities to a broader audience. In doing so, teacher programs can deliver DT experiences across college campuses that many students may no longer have access to in secondary schools—due to the aforementioned teacher workforce concerns. These DT learning experiences can involve the content/practices related to designing/making/innovating as well as the pedagogical approaches that support transdisciplinary learning through relevant design contexts. Transdisciplinary learning can be viewed as the pinnacle of integrated teaching, whereas the acquisition/application of knowledge/skills are driven by compelling socio-scientific problems that demand the transcending of disciplinary boundaries and the blending of diverse viewpoints/practices to develop innovative solutions over time. With a variety of educational transformation initiatives happening at universities, DT programs can help shape the way that undergraduate learning occurs. So how do DT programs leverage their value related to transdisciplinary learning through design/innovation practice to reach new audiences while also sustaining programs that develop teachers? To provide an answer, this poster will highlight a transdisciplinary program, titled Mission Meaning Making (M3), that was developed to provide a new cross-college learning experience for undergraduate students focused on design and innovation. The M3 program has been created to synergize the key strengths of three partnering units/disciplines (DT, anthropology, and business) to prepare undergraduates for addressing contemporary challenges in innovative, and transdisciplinary ways. The poster will provide details/research related to the M3 program and explore how DT can strive to make a broader impact on campuses.

Key Words: Transdisciplinary Learning, Undergraduate Education, Design & Technology Teacher Preparation.

Conference Themes	Select
STRAND 1: Diverse and inclusivity ways of knowing and being in design and technology education (philosophy, and culture)	
STRAND 2: Exploring and advancing teaching and learning for design and technology education (curriculum, pedagogy and assessment)	X
STRAND 3: Measuring impact of design and technology education in and beyond the classroom (evidence-based practice)	
STRAND 4: Approaches to teacher preparation and development in design and technology education (teacher education and development)	X

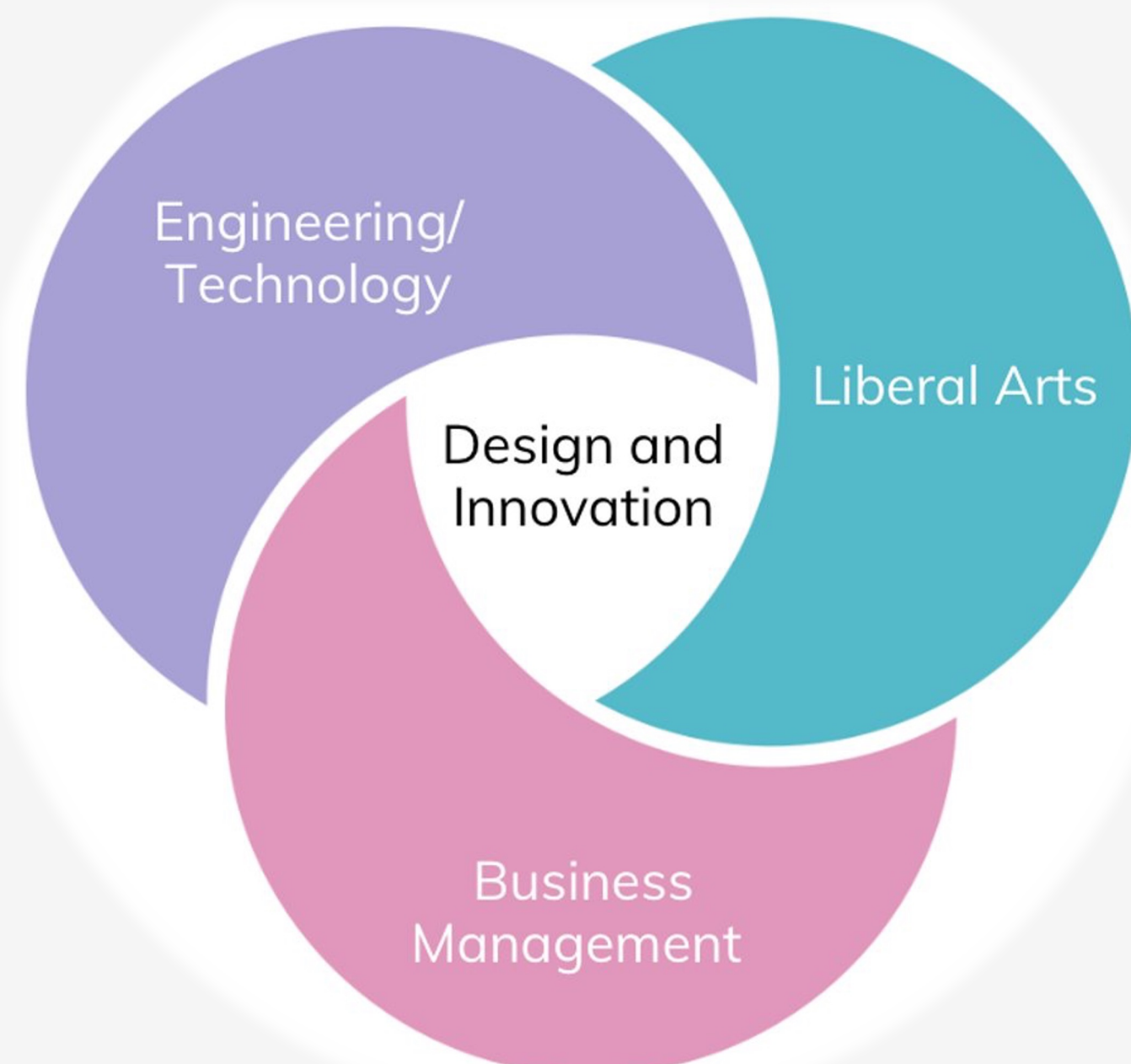
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WHAT ARE WE DOING?

Mission, Meaning, Making



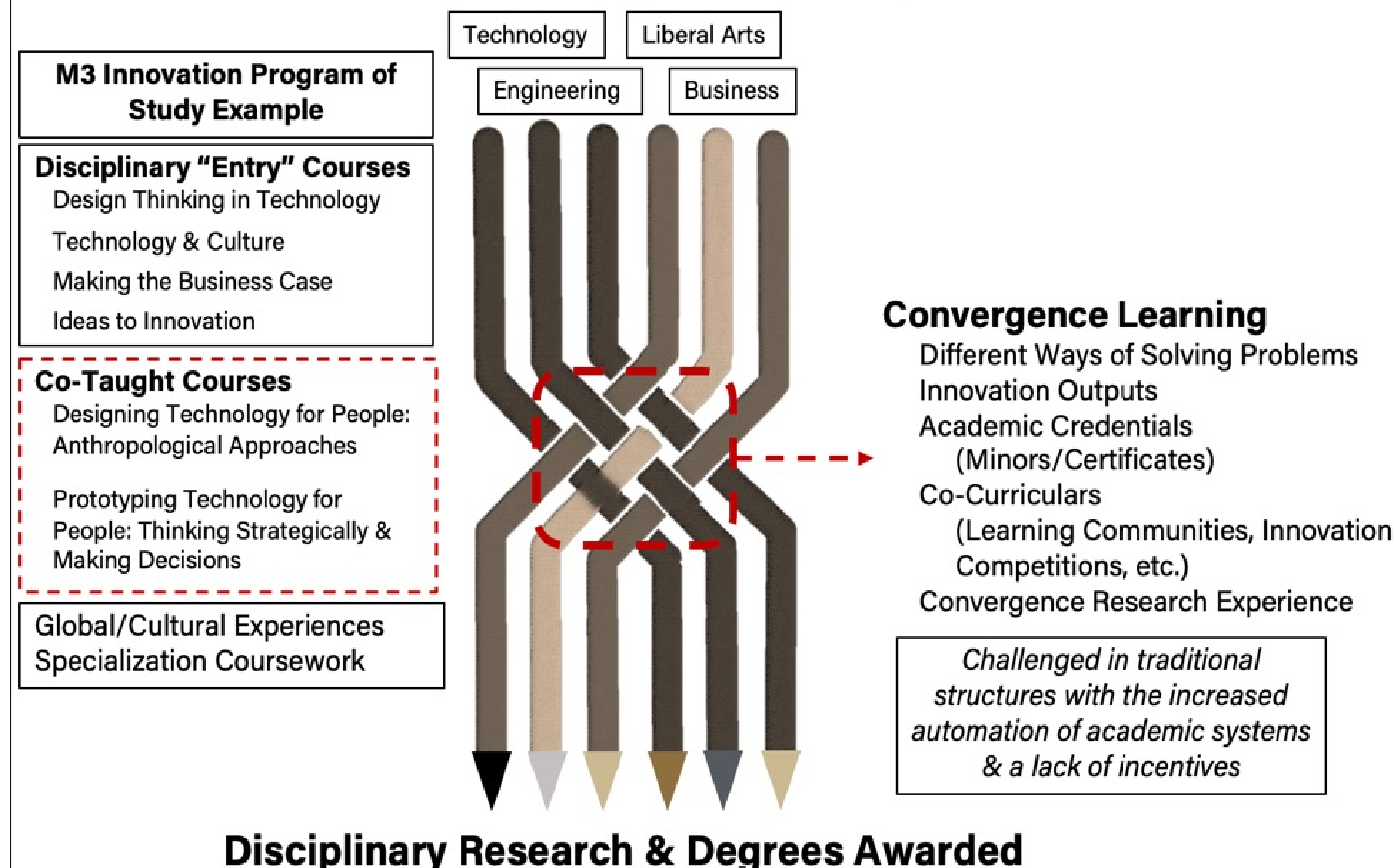
WANT TO LEARN MORE?

Creating new ways to position Design and Technology (DT) teacher preparation programs in higher education can be considered critical today. For example, in the United States, the few remaining DT-related teacher programs can be in jeopardy of supporting the school subject as a result of teaching workforce declines. But, while some may view that DT programs are no longer relevant in parts of the world today, there can be an opportunity to leverage and make pertinent DT content/practices beyond teacher preparation. New DT approaches can be important to consider, not only to just sustain the remaining programs, but to also create new educational experiences that provide valuable skills/knowledge to a broader audience. In doing so, teacher programs can deliver DT experiences across college campuses that many students may no longer have access to in secondary schools—due to the aforementioned teacher workforce concerns. These DT learning experiences can involve the content/practices related to designing/making/innovating as well as the pedagogical approaches that support transdisciplinary learning. With a variety of educational transformation initiatives happening at universities, DT programs can help shape the way that undergraduate learning occurs. The Mission Meaning Making (M3) program is one example to reach new audiences while also sustaining programs that develop teachers.

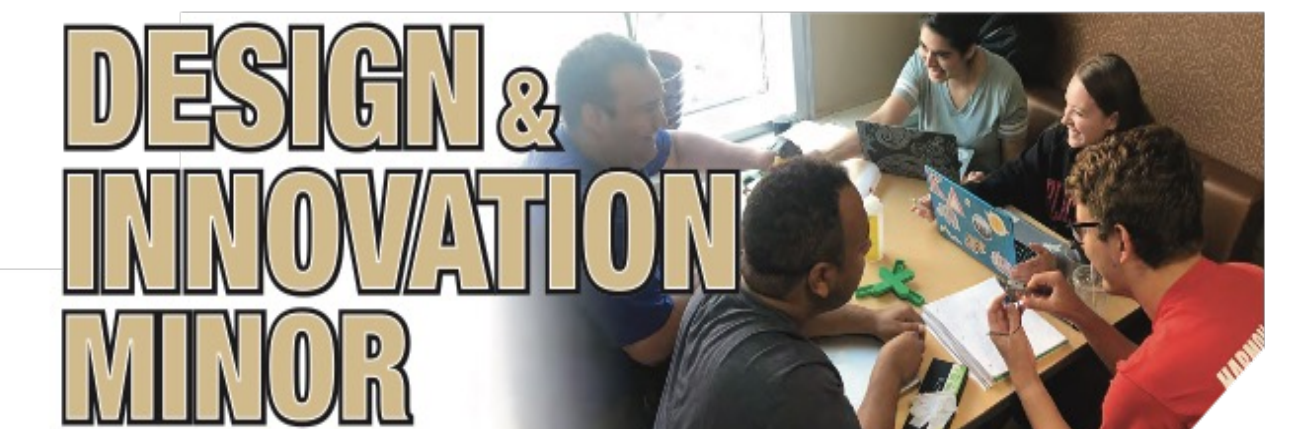


WHAT HAVE WE LEARNED?

Academic Disciplines & Majors



Your Pathway to Innovation



DESIGN & INNOVATION MINOR

The Design & Innovation Minor amplifies your major so you can create your very own innovations!

The program provides a flexible pathway to:

- Explore the practices of design and innovation
- Learn these practices through your own passion projects
- Work with peers and professors from different majors and backgrounds

Add the following skills to your resume:

- Design Thinking & Ideation
- People Centered Research
- Ethnographic Methods
- Computer Aided Design
- Business Model Development
- 3D Printing & Rapid Prototyping
- Collaborative Problem Solving
- Coding & Digital Prototyping
- Strategic Thinking & Decision Making

Here's one pathway for you:

Intro Design & Innovation (3 Credits)	• TECH 12000: Design Thinking in Tech or • ANTH 21000 Technology & Culture or • MGMT 22000: Making the Business Case • ENGR 13100 & 13200 Transforming Ideas to Innovation
Core Design & Innovation (6 Credits)	• TECH 22000/ANTH 38400: Designing Tech for People and • TECH 34000/MGMT 39100: Prototyping for People: Thinking Strategically & Making Decisions
Global/Culture Experience (3 Credits)	Options available across colleges such as: • TECH 33000 - Technology And The Global Society • ANTH 20500 - Human Cultural Diversity • AD 39500 - History Of Design
Specialization (3 Credits)	Course selection should further your expertise toward your innovation interests; advisor-approved.

Ultimately, the minor gave me the opportunity to take an idea I was working on outside of the classroom, refine it and eventually share it with a company. Today, that project I had been working on in my spare time and supported through the class, has been sold and is being distributed to classrooms across the state. — Vanessa Santana, Design Challenge Winner

WHAT CAN HAPPEN?



Approaches & Insights Toward:

- Filling the Design & Tech Gap
- Democratizing Innovation
- Reaching New Audiences
- Sustaining D&T Programs
- Establishing Shared Practice & Discourse
- Value of higher Education? Moving Beyond the Class Projects