Pivoting Pedagogy: Adapting Multi-Disciplinary, Project-Based Learning To A Virtual Platform In Real Time (Poster)

By: Chelsea Helms, D. Jason Miller, Jamie Russell, Foster Ramsey, and Chris Schoonover

Abstract

The IDEXlab (Integrative Design Experience Laboratory), originally funded through a National Science Foundation (NSF) Transforming Undergraduate Education in STEM (TUES) grant, is a curriculum program redefining traditional pedagogical approaches by integrating academic curriculum content through an applied project in an office/studio/lab environment. Working across disciplines; students design, build, and commission projects for community and regional partners. The program has successfully completed a farmer’s market, a welcome center, an exhibit space, a teaching pavilion, a mobile classroom, and more. In the past, each of these project-based experiences has demanded in-person access to physical space for collaboration, physical technology for production, and fabrication tools for construction. In six years of operation, we have expanded and evolved the IDEXlab concept, expanding into multiple departments, rotating faculty in and out, and delivering many community partners tangible products, both through design and construction services.

Adapting Multi-Disciplinary, Project-based Learning to a Virtual Platform in Real Time.

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WHOM ARE WE?
The IDEXlab (Integrative Design Experience Laboratory) originally funded through a National Science Foundation (NSF) Transforming Undergraduate Education in STEM (TUES) grant, is a curriculum program redefining traditional pedagogical approaches by integrating academic curriculum content through an applied project in an official student/staff environment. Working across disciplines, student design, build, and commission projects for community and regional partners. The program has successfully pivoted to a virtual model in response to the COVID-19 pandemic.

WHAT WAS THE PLAN FOR SPRING 2020? With the largest and most multidisciplinary diverse student group IDEXlab has operated with, the Spring 2020 cohort had the opportunity to work with two service-learning projects, both design outcome focused, as well as a construction based project for another university supported program. When selecting potential partners, the IDEXlab committee decides that the projects give students rounded experience in both design/build services and community driven impact. The following projects were chosen for Spring 2020:
1. Design for a Play-based Learning Outdoor Classroom for Cove Creek School. In collaboration with the Lucy Brock Child Development Laboratory Program.
2. Conservation Mobile Retreat for Metamorphic Design Consulting
3. Construction of a Demonstration Landing for The Nexus Project in collaboration with Appalachian Energy Center

WHY FLIP THE CURRICULUM DUE TO THE PANDEMIC?
As the concerns for COVID-19 grew in the beginning of March 2020, the faculty advisor team became aware of the implications COVID-19 might have on our project sequence, and more specifically our methods of communication. Proactively, we strategized a response to the possibility of a non-physical environment and determined that we could employ several new communication methods that might help restructure the cultural and collaborative benefits of a physical design/fabrication space. How would our audio-visual connection important to a team, while Miro a virtual whiteboard, would help facilitate the development of a solution and accountability you achieve with desk meetings and group reviews. However, even with all of the early planning of how we keep our cohort connected to fulfill our contractual obligation, the emotional impact became an increasingly critical factor in how we chose to move forward with our projects.

Without the ability to meet face-to-face, our students would not be able to fulfill the construction portion of the Demonstration Landing for The Nexus Project. In addition, the extension of Spring Break began to encroach on the time required to meet the project goals for our other two clients. However, the deciding factor that changed the trajectory of our semester was that our students when empowered to support their community in a time of crisis. To address this social responsibility, we refocused on the pandemic, giving our students opportunities to use design thinking to be part of the solution to a shared problem.

HOW DO WE RESPOND TO COVID-19?
In multi-disciplinary teams, students began collaborating to identify opportunities and challenges resulting from the growing pandemic. Exploring project opportunities by collecting information and data through interviews, surveys, articles, and observations, student groups began to recognize the impact the virus had on the community, the state, the nation, and the world. Awareness and empathy expanded as the students embraced the research. Narrowing in on a specific topic led to each of the 9 teams defining a focused project statement to carry forward into synthesis and conceptual development. Teams sought to provide conceptual solutions for topics ranging from retail, to healthcare, to education, to housing, to agriculture. This need for change from the planned curriculum to a flexible real-time project, provided a chance to pilot virtual collaborative workflow in multi-disciplinary teams, while still providing clear outcomes for reflection.

Looking at the outcomes of CoPs in online and blended learning, Smith et al (2017) provide a detailed overview of previous research studies within the online/blended learning environment. Regarding the study of the use of CoPs in online and blended learning environments, Smith et al (2017) present a detailed overview of previous research studies within the online/blended learning environment. Regarding the study of the use of CoPs in online and blended learning environments, Smith et al (2017) present a detailed overview of previous research studies within the online/blended learning environment.

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