Innovation and Design Thinking in a Liberal Arts Curriculum: A Learning Process for our Increasingly Complex World

Vikas Gudhe
IPHS 484 Senior Research Seminar (Spring 2022) Profs Elkins and Chun, Kenyon College

Abstract

While interdisciplinary courses hold the promise of providing new and valuable experiences to students, their execution has been found wanting in many cases. In stark contrast to this phenomenon, Design Thinking has emerged as a way to integrate the different 'strengths' of various disciplines, and stresses effective communication as a core part of its conception. The goal of Design Thinking is to provide a framework to attack the increasingly difficult and interconnected problems our world faces. By combining the abstract problem-solving skills already present in the Liberal Arts with the constructive skills present in engineering and the arts, Design Thinking promises to take the premise of a Kenyon education and expand its horizons and applications considerably.

Introduction

In an increasingly turbulent time, the acronym "VUCA" (i.e., volatility, uncertainty, complexity, and ambiguity) has been popularized as a catch-all term for the myriad of challenges affecting our world. I argue this is partially a misnomer, as each of the characteristics described within VUCA are interdependent and intrinsically linked. Professors Michael Barry and Sara Beckman who teach need-finding and design thinking at Stanford and UC Berkeley describe these difficult problems as "wicked problems" that traditional reductive thinking approaches only continue to exacerbate.

To understand where contemporary design thinking has evolved from, I was able to invite Professor Barry to give a talk at Kenyon in which he highlighted three eras of design. The first era, now called reductive thinking, is centered around exploring a unique, unsolved use-case to create an innovative product. From there, the second era, creative thinking, began to focus on individual experience – we became very good at making innovative products, but how would we get individuals to use them? Thus, the world of need-finding, user experience, and reducing the friction of use was born. This second era brought with it incredible advancements, with companies like Apple, Google and others making products that took the world by storm. As mentioned previously, they accomplished this by making the technology created in the reductive era seamless and accessible. However, this concept has some significant flaws. Namely, Professor Barry asserts, "[when you remove] all the friction from intentionally designed, addictive experiences at scale…[there comes unintended consequences]." Bad things can happen as readily as good things. For example, Facebook is swaying elections and Apple has children spending incredible amounts of money on in-app purchases. In response to these excesses, we reach the third (and current) era of design: emergent thinking. Emergent thinking shifts the design medium from the individual to culture.

My work constructing a viable design thinking program course at Kenyon College has largely mirrored the pathways of creation espoused by Design Thinking professionals themselves. Firstly, I talked to interested faculty members and students in order to ask them about their experiences at Kenyon and interest in the program. Then, I invited Professor Michael Barry to Kenyon in order to raise more interest in a design thinking program, and to speak with our faculty members about interdisciplinary coursework. Then, I met with Sara Beckman in order to see how a real-life design thinking course is put together. And finally, after all of these cycles of information-gathering and iteration, I finally sat down and laid the groundwork for this course.

What resulted is a far cry from the original plans. Every facet has been adjusted based on feedback from students, faculty members, and my professors and peers in my senior seminar. And, through this foundation, I'm hoping to gather student opinions on the course and iterate even further. Because, at the end of the day, the skills that we claim in our courses to be widely applicable should truly be able to be applied to any situation that we may come across. So, whether potted plant or course design, the principles of design thinking should be a boon to creative endeavors across disciplines and contexts.

Prototypical Course Overview

Module 1: Build

Students will redesign a familiar and oft-overlooked object. In this case, a plant pot. This project is intended to take one week, has low requirements in terms of an engineering background, and introduces students to the concrete building and iteratation concepts.
Think-Build-Rethink-Rebuild (Solutions & Observations)

Module 2: Iterate

Students will design a solution to a small annoyance, then refine based on feedback from commiserating colleagues. For example, I often hear a seam rip when I pull clothes from a hanger – so let's design a hanger that collapses inward to reduce tension. This builds upon the solutions and obervations concepts with an introduction to frameworking and imperatives.
Identify-Think-Build-Rethink-Rebuild (Full Process)

Module 3: Experience

Students will work together as a class to determine a feeling they want to inspire in an audience with a location of their choosing. Then, each student will work in tandem to design a facet of the experience. This focuses on the abstract problems and heavily emphasizes collaboration, frameworks and imperatives. This is the first larger project with an open-ended solution.
Collaborate-Identify-Think-Build-Rethink-Rebuild (Full Process)

Module 4: Bring it Together

Students will bring all the concepts and principles learned from the previous modules to work on a final project that engages with the community. Opportunities include creating portions of a modern day playground for Wiggin Street. redesigning the student dorms, or a project proposed by the students that incorporates all elements of the design thinking process.

Course Description

This course is about collaboration, interdisciplinary thinking, and creativity. Its goal is to bring together the different approaches and content of the work at Kenyon, and to allow students to work together with people of different backgrounds toward a shared goal. Alongside their classmates, they will be tasked with creating new objects, new experiences, and new futures. This is because the world's worst problems are beyond the ability of individual people and disciplines to solve. This course will challenge students to think in ways that they may be unfamiliar with, and to create to an extent that they might not have been asked to previously.

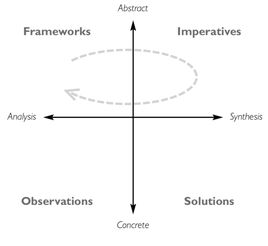
The course will ideally be co-taught by professors across the constellation of disciplines here at Kenyon. Whether in the Humanities, the Arts, or the STEM fields, everyone will bring something unique to the discourse. Topics will include:

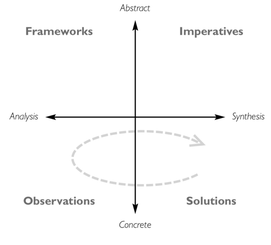
- How members of different disciplines think about and solve problems.
- Discovering the problems that you are passionate about solving.
- How to incorporate the views and feedback of the people you're designing for.
- Using different tools and methods in order to create new things
- How best to talk through ideas with members of different disciplines
- How differences between fields emerge and why they're essential
- Why collaboration is so important to the process of creation
- How best to respectfully engage with those of different backgrounds.

The breadth of content represented by this class ensures that there will be different challenging components of this class for each student. However, by becoming proficient in the areas outlined above, students will gain new understandings that will prove valuable to their collaborative efforts both at Kenyon and in their efforts in the wider world.

Integration

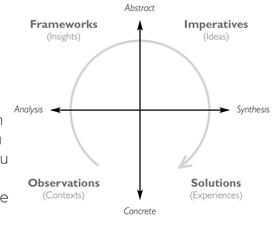
There is growing recognition of the need for interdisciplinary approaches to solve complex problems. New technologies and discoveries are increasingly blurring the lines between traditional disciplines. Also, a number of colleges such as Minerva and Olin universities have taken steps to encourage interdisciplinary work, such as creating interdisciplinary research centers and hiring faculty with joint appointments in multiple departments. What's more, the presence of the unimaginable amount of information on the internet has made it easier than ever for students to acquire information beyond the scope of what's taught in the confines of a classroom. Traditional divisions by department and incentives for faculty to pursue research funding and publication opportunities within the silo of a single academic discipline have been critical to the academic experience that focuses on how best to approach a problem. Vocational and engineering schools, on the other hand, have been focused on how best to optimize solutions from continual observation and iteration. Professors Barry and Beckman have had great success in integrating a four-quadrant approach in which the best parts of two seemingly disparate elements in order to create a discipline that can tackle the increasingly complicated problems of our modern world.





To dive deeper into the quadrants that make up the innovation and design thinking process:

Frameworks come from observations and entail abstract thinking that relies on making sense of what these concrete observations reveal. The more creative your framework, the more unique the solutions that can be made. After your framework is complete, imperatives provide the opportunity to solve the problem – in which you distill the framework into tangible and useful goals for implementation. The next component, solutions, brings the process back from the abstraction phase of problem solving into the concrete portion in which you test out your solutions. Which then returns you to observations in which you see which parts of your solutions have worked and which have not. Though the most important part is that the process does not end and it requires you to repeatedly return to the framework and build an abstraction around the parts in which the solution did not function. This continual process moving between the abstract and concrete aspects of the problem is at the heart of the process. Kenyon College and other liberal arts institutions have done an incredible job at building a web of abstraction around the problems and design thinking naturally expands on this process, providing a clear pathway to bring the abstract solutions into concrete work. Ultmately, Design Thinking requires the student to learn by doing, and by constantly iterating – placing emphasis on bringing the abstract thoughts into concrete solutions.



Discussion & Future Work

This course requires extensive collaboration from Kenyon as well as from professors across various departments. The instructor will have to be knowledgeable about the design process and the principles behind design thinking. A large portion of being a project-based course requires an instructor to be engaged and willing to support students through a kind of course and thinking style that many have likely not encountered before. The course outlined is designed to allow students across disciplines and class years to be able to come in with little to no previous experience in the field and may even allow students to explore different disciplines that they feel they would like to experience more in depth. Future work given a successful course requires the sort of investment by the college and continued student interest, that only having a successful course can justify.

Acknowledgements

I would like to thank Professor Elkins and Professor Chun for their continued guidance in this project. I would also like to thank Professor Barry for coming to Kenyon to share his knowledge with us, Professor Beckman for sharing her course design philosophy and resources. Finally, I would like to thank Dan Frank for his help in ideating on the course and proofreading.