

**Maynooth University Innovation Lab – Furthering
Sustainability in the Higher Education Sector
through Design Thinking**

Abstract

The Higher Education (HE) sector in Ireland is facing a crisis point. More students than ever are seeking to avail of HE. Class sizes are growing faster than ever before. The post-degree employment landscape is changing dramatically. Financial and social pressures are mounting. In order to ensure the sustainability of HE as a whole, it is essential that we address these challenges directly, to create an education system which responds to the needs of all its users.

This practice paper outlines the mindset that drove the foundation of Maynooth University Innovation Lab (Mi:Lab), which received funding from the Higher Education Authority's Innovation and Transformation Fund 2018. The mission of the lab is to unlock the collaborative creative potential of the University to co-create solutions to the challenges facing HE. Through Design Thinking, and adopting a collaborative approach, where students and staff work in partnership, Mi:Lab aims to use the collective creative talent of the HE system to create innovative solutions to ensure the sustainability of HE in Ireland, and on the wider, global level.

Keywords

Design Thinking, Co-Creation, Innovation, Sustainable education.

1. Introduction and Motivation

Higher Education (HE) is critically important for the development of the nation's citizens and workforce. Although the Irish HE system has served us well up to this point, today the sector faces challenges arising from decades of underinvestment, a demographic bulge, and a competitive international environment (Higher Education Authority, 2018). We believe these challenges represent “wicked problems” (Buchanan, 1992); their complexity and scale require structured approaches developed by interdisciplinary teams with innovative methodologies. In terms of Irish education, and indeed education globally, policy and business leaders agree that creativity, agility, diversity and co-creation with user communities is the most appropriate way to tackle complex challenges and to deliver transformative solutions. While the Irish education system has an abundance of talented and passionate individuals, it does not possess an infrastructure devoted to exploring in an agile way the multitude of challenges that it faces, and ensuring its sustainability into the future.

This paper details our response to the challenges facing the HE system: the development of Maynooth University Innovation Lab (Mi:Lab) - a creative, agile and design-led workshop environment dedicated to identifying, prioritising and tackling challenges in HE. It will show how Mi:Lab intends to deliver tangible, validated propositions ready for piloting, to help ensure the long-term sustainability of the HE system.

2. The core of Mi:Lab

Imagine a scenario where the very best talent in the HE setting – students, faculty and administration – come together with the shared ambition to tackle HE's most intractable problems. Imagine if they combined their collective ambition, creativity and agility. Imagine how powerful such a coalition would be, if our best minds were united in this objective and were expertly facilitated to solve real problems or to exploit potential opportunities for the student and HE sector in general. Then add Design Thinking - a proven methodology for delivering breakthrough innovation (Liedtka, 2018). This is the heart of Mi:Lab.

Co-creation of curricula between teacher and student has been deemed best practice when attempting to ensure student engagement with HE (Bovill, 2013). While HE

institutions certainly have the knowledge, capabilities and ambition to foster co-creation, many factors impede staff and students' abilities to work collaboratively, such as: organisational complexity, ways of working, and research and teaching priorities. In order to foster collaborative education system design, Mi:Lab sets out to answer the following three key questions which are detailed in the below:

1. How might we utilise and align the knowledge, creativity and ambition held within an education institution to explore and tackle the near- and long-term challenges facing HE, while also delivering transformative propositions?
2. How might we better prepare students for the changing world and foster in them the skills and mindsets required by industry and needed by 21st century society?
3. How might we use design approaches to innovation to create a “step change” (Harewood & Thornton, 2011) in education delivery and experience, and together, build an innovative, sustainable and excellently designed education system?

These questions are at the centre of all research conducted in Mi:Lab. Some of the practical problems arising from these questions include:

- Widening access to education for both Undergraduate and Postgraduate students from all socioeconomic and cultural backgrounds.
- Addressing the network of challenges facing HE students, such as accommodation, funding, part-time work, balancing academia and family.
- Creating awareness around the post-graduation possibilities for students.
- Innovating modules using a Design Thinking approach to meet the needs of the students and the capacity of the lecturers.

While investigating these challenges we emphasise not only the value of creating an engaging education experience for students, but also on equipping them with the skills they will require outside of their degree. By doing this, we create an education system that is both relevant and sustainable in a time of unprecedented social and technological change.

3. Mi:Lab's Unique Methodological Approach

Mi:Lab implements an “action-research approach” (Kemmis, 2011), with Design Thinking being the guiding methodology and tool set. Design Thinking is a human-centred approach to innovation that draws from the designer's toolkit to integrate the needs of people, the possibilities of technology, and the requirements for business success (Brown, 2009). While there are many approaches to implementing a Design Thinking project, they all broadly follow the same key phases:

1. Framing of the problem,
2. Empathising with key stakeholders,
3. Re-framing and defining the problem to be solved through synthesis and analysis,
4. Creating choice through ideation, prototyping and validating solutions into existence.

Design Thinking is now a proven methodology for delivering innovation and positive experience outcomes across products, services and processes in all manner of situations (Liedtka, 2018). Traditionally, the focus of Design Thinking has been on creating outcomes, but recently the emphasis has broadened (Liedtka, 2018). Mi:Lab have realised the value of both the social and collaborative aspects of Design Thinking, especially in fostering communication between students and teaching staff, and harnessing this as an important and additional benefit of the process. Ultimately, by using Design Thinking, Mi:Lab helps to break down the siloed approach to education design, by encouraging co-creation across HE.

Co-creation between students, staff and experts is an important and highly innovative element of this project. In co-creation, the users of the service are recognised as the “expert of their experience” (Visser, Stapper, van der Lugt, & Sanders, 2007) and therefore, both central and equal in the early stage definition, conception, design and decision making process. Importantly, co-creation differs from other forms of human-centred product development, as it sees the user as a true development partner; it is about the “joint creation of value by the company and the customer (Prahalad & Ramaswamy, 2004). Co-creation is recognised as bringing value to the design process. According to (Kristensson, Matthing, & Johansson, 2008) involving users as co-creators leads to the production of ideas that are more creative, more highly valued by customers, and more easily implemented. A co-creation approach influences the designer to view projects from a needs perspective as opposed to a solution perspective

(Vaugh & Ryan, 2015). The co-creators in Mi:Lab include undergraduate and postgraduate students, staff, Mi:Lab researchers, project experts and applicable companies.

4. Mi:Lab's Research Process

Mi:Lab is unique as it fosters an iterative design approach, where research is completed quickly with students and staff, solutions are developed and tested in collaboration with them, and as a result informed change can be made rapidly and effectively. A typical Mi:Lab Design Thinking project takes 1-8 weeks, and consists of seven key phases. The Mi:Lab team consists of two designers and two anthropologists, so projects are guided by these specialists. The following section outlines the unique approach Mi:Lab takes to designing solutions, to the challenges facing the HE sector:

Phase 1: Identification and framing of an important challenge

Challenges are brought to Mi:Lab by the University executive, Schools, Departments and the wider education system for exploration and validation. The problem is framed, initial desk-based research carried out and a project team of five to ten people is assembled. This team consists of students, academics, relevant HE staff, and experts with knowledge relevant to the challenge and skillsets appropriate to building a low fidelity validation prototype.

Phase 2: Discovery, Empathy and Understanding

This phase sees the team engage with key stakeholders through immersion and dialogue using a mix of Design Thinking and ethnographic tools and methods.

Phase 3: Re-framing and problem definition

Here, groups synthesise and analyse the collected user data, create personas and build problem statements.

Phase 4: Ideation and development

In collaboration with a wider group of relevant stakeholders, the team brainstorm ideas based on the reframed problem statements to develop possible solutions which are

Desirable to the target service user, *Viable* from a business perspective and *Feasible* from a technological perspective.

Phase 5: Prototyping, validation and delivery

This phase sees the team create low cost prototypes and design experiments to test and validate their solutions with relevant stakeholders.

Phase 6: Presentation of findings

The findings are presented to key stakeholders for approval and implementation. The handover of the project includes a summary of findings, innovation implementation plan, and validated learnings. Mi:Lab offer continued support in the implementation of these solutions; however, departmental staff are responsible for overseeing and implementing these solutions.

Phase 7: Dissemination

All projects are written up as case studies and academic papers for wider dissemination, with the view to making all insights discovered available to the wider HE system.

6. Conclusions and Future Work

Mi:Lab will continue to drive progress in terms of ensuring the sustainability of the HE sector. Working closely with students and HE staff helps to foster co-creation across campus and create an inclusive, engaging HE experience that equips graduates with the skills required to excel following completion of their degree. Encouraging the use of Design Thinking as a methodology for problem-solving in both HE students and staff will help to embed this mindset in the future leaders, teachers and entrepreneurs of our nation. Mi:Lab are confident that their future projects have the potential to reshape and ensure sustainability in the HE landscape, by placing inclusion, diversity and experiential learning at the centre of their innovations.

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