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## Designing the Transition to Higher Education for Students from Under-Represented Groups

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# Designing the transition to higher education for students from under-represented groups

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**Abstract.** Universities are increasingly seeking to open access routes and identify ways of encouraging under-represented groups to consider higher education as an option. This cohort of students often have distinct challenges associated with disability, maturity and socioeconomic disadvantage. Maynooth University, through the Maynooth University access programme (MAP) and the Launchpad Orientation Programme (Launchpad), has proven successful in supporting these groups, helping them transition into and through higher education. Unfortunately the challenges associated with under-represented groups can lead to increased, often unarticulated difficulties, resulting in greater reliance on services and higher dropout rates compared to the average student.

We discuss here a pilot study exploring the use of the design process to act as an agent of transition for MAP students entering 3rd level education. Learning was achieved through a multi-session, action based programme, where MAP students and staff, together with the University's department of design Innovation, worked together to co-understand and co-design the transition. The pilot was a success both in terms of student engagement and future programme improvement. For students, the design workshops enabled valuable sharing of experiences and allowed them to contribute their ideas based on defined problems. For MAP staff, the research data collected provided actionable insights into the unarticulated needs and experience of students, reframed their understanding of the problems and provided new tools and collateral for further use.

The positive results from this initiative indicate greater student retention and student experience could be achieved by using design thinking and co-design approaches to engagement. This offers a potentially promising model for promoting access for students to other higher education institutions, both in Ireland and farther afield.

**Keywords:** Design thinking, student transitions, under-represented groups, university education

## **Background**

Maynooth University is one of the most diverse universities in Ireland. Mature students, students with disabilities and students from socioeconomically disadvantaged backgrounds, consistently account for a greater proportion of the undergraduate population than in other Irish universities [1]. The Maynooth University access programme (MAP) was established in 1998 to increase and support students from under-represented backgrounds getting into and through university. MAP provides a variety of supports including outreach, pathways, transition and post-entry to target equity groups. In the last seven years, the Maynooth University undergraduate population has increased by 50% to an enrolment of 12,000 undergraduate students. This growth has required a corresponding response from the University in how supports and programmes are designed and delivered to maintain retention and attainment rates.

Ireland's progression rates compare favourably to international progression rates. In Ireland 2013/14, 85% of full time undergraduate new entrants progressed to their second year of study, however, over 6,200 undergraduate students did not progress to year two [2]. The reasons for this can be difficult to determine, ranging from institutional factors including size and selectivity, to individual factors including academic preparedness, financial constraints, emotional demands and social integration [3][4]. The transition to higher education is challenging for all students, but can be particularly acute for students from under-represented backgrounds [5].

Research indicates students from under-represented backgrounds are more likely to feel isolated and have limited opportunities to participate in the wider social aspects of student life [6]. Likewise, research from many countries has found that early intervention contributes significantly to putting students from under-represented backgrounds on the path to success [7][8]. A strong sense of belonging is at the heart of success, and this is most effectively nurtured in mainstream activities in the academic sphere [9]. Krause and Coates [5] show that strong orientation programmes play a significant role in first year engagement and student success at third level. Students from widening participation backgrounds need a targeted orientation programme to foster retention and progression [10].

Prior to this study, MAP was delivering four discrete orientation programmes for students entering through non-traditional entry routes, including socioeconomically disadvantaged students, mature students, students with disabilities and students from the further education training sector. The aim of the programmes were to provide students with an insight into university life, build networks and develop academic and personal skills that support the transition to third level. Previous evaluations consistently showed that orientation programmes played a critical role in supporting student progression and retention, but it was no longer sustainable for MAP to continue to deliver four orientation programmes concurrently. MAP sought to design a programme that would maintain the standard and success of the four programmes and meet the unique transition needs of students. To do so, they had to deepen their understanding of the student experience.

MAP partnered with the Maynooth University department of design Innovation

(DDI) which specialises in applying design approaches to tackling complex commercial and social issues through a human-centred, design-led approach to innovation. Arising from the partnership, MAP and the DDI embarked on a project to investigate if a design thinking approach could be used to:

1. Improve and innovate the orientation programme
2. Provide a means for new and current MAP students to share experiences.
3. Provide MAP staff with actionable insights into the unarticulated needs and experience of students, reframe their understanding of the challenges and provide new tools and collateral for further use.

## **METHODOLOGY**

An action-research approach was chosen and design thinking was selected as a guiding methodology and tool set. Co-design was selected as an overarching approach. Design thinking is defined as a human-centered 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 [11]. While there are many approaches to implementing a design thinking project, they all broadly follow the same key phases - *framing* of the problem, *empathising* with key stakeholders, *re-framing and defining* the problem to be solved through synthesis and analysis, creating choice through *ideation* and *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. Traditionally, and almost unanimously, the focus of design thinking has been on creating outcomes, but in this study, the social and collaborative aspects were also seen as an important and additional benefit of the process. For this study, the process and tools themselves were used as an agent of transition to guide the participants into and through the first weeks of University life.

In co-creation, the users of the service are recognised as the expert of their experiences [12] and therefore central and equal in the early stage definition, conception, design and decision-making process. Importantly, co-creation differs from other forms of human-centered 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 [13]. Co-creation is recognised as bringing value to the design process, and according to Kristensson et al. [14], involving users as co-creators, produces 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 [15].

The co-creators of this study, were new University students participating on the existing orientation programme 'Launchpad.' Of the 200 students, approximately 100 participated in this study. Two workshops were run with approximately 50 students in each.

Prior to Launchpad, a cohort of 20 MAP student ambassadors were trained in basic methods and tools of design thinking. This allowed for the refinement of the main study questions and prepared the ambassadors to assist in the facilitation of the workshops.

All participants in this research were informed and consented to be involved in the workshops. Trained members of the Maynooth access office were present at all time and Images and identity's were ammonised.

### Empathy Workshop

The first workshop was an empathy mapping exercise. The empathy mapping tool was developed by Gray, Brown and Macanuso [16] as a framework to allow the designer to gain a deeper understanding of a customer or service user in a context [17]. The empathy map, through dialogue, asks participants to consider what the subject *hears, sees, thinks & feels* and *does* in his/her daily life. Working in groups of five, participants were instructed to draw on their own experience as an incoming student, and complete the empathy map, capturing salient quotes, feelings and opinions on sticky notes. Each section was timed for approximately 10 minutes and participants reflected aloud on completion of each section.



Figure 1. Participants and MAP Ambassadors during the Empathy Mapping workshop. Taken from the Launchpad Orientation Programme. Copyright 2016 by Maynooth University.

## **Experience Mapping workshop**

The second workshop, again with 50 participants, involved mixed groups of five, working on an experience mapping exercise. Experience mapping is a tool commonly used in design to map the activities, thoughts, feelings and touchpoints as a stakeholder completes a task [18]. According to Marquez et. al, it is a tool that helps service providers understand the steps required to perform a given task. The mapping process can provide valuable insight into what it is like to walk in the user's footsteps, highlighting subtle experience highs and lows.

Based on the experience of the MAP staff, combined with the findings of the pilot study, a set of experience steps were provided to the participants. The specified steps were:

1. *Selecting Maynooth University on the CAO (The Central Applications Office processes applications for undergraduate courses in Irish higher education)*
2. *Waiting for your CAO Offer*
3. *Getting your place at Maynooth University*
4. *Arriving on campus for the first time*
5. *Staying overnight in the campus apartments*

The participants were instructed to discuss the steps of their experience and capture salient quotes, feelings and opinions on sticky notes. Participants placed notes under the step in a position that represented a high, neutral or low experience (-5 to +5).

## **Synthesis and Analysis**

The data collected on the ten empathy maps and ten experience maps was organised thematically using an affinity diagramming - a process to externalise and meaningfully cluster observations and insights from research, keeping design teams grounded in data [19]. Over two weeks, the data was synthesised and analysed by the core team and two MAP interns (authors 2 & 3).



Figure 2. Creating the Affinity diagrams & synthesising data taken from the Launchpad Orientation Programme. Copyright 2016 by Maynooth University.

### **Problem narratives**

A goal of this project was to share the findings with a broad audience, therefore the challenges needed to be understandable, actionable and transferable. To do so, a persona was amalgamated with a problem statement and a number of “How Might We statements” on a visual one page problem narrative. The concept of persona in design was introduced by Alan Cooper [20], describing it as a precise description of a user and what he/she wishes to accomplish.

Problem statements are a method used in design thinking to frame the challenge and describe the user, the need and an insight. In processing theory literature, Jonassen [21] describes this process as mapping the problem onto prior knowledge and constructing a personal interpretation of the problem.

The final component of the problem narrative was the “How Might We” statements based on research insights. This approach, attributed to former creative manager at Procter & Gamble, Min Basadur, ensures designers are asking the right questions and using the best wording [22]. Used in conjunction with insights, each of the three words have a key framing function. Tim Brown, CEO of Innovation consultancy IDEO (as cited by Berger [22]) explains that, The *how* part assumes there are solutions out there - it provides creative confidence, *might* says we can put ideas out there that might work or might not - either way, it’s OK. And the *we* part says we’re going to do it together and build on each other’s ideas.”

### **Results**

The experience, empathy mapping and insight workshops, together with the problem narratives, provided MAP and DDI with rich insight into the experiences and unarticulated needs of students entering University from under-represented groups. Through the synthesis and analysis process, a number of repeating patterns emerged that had not previously been heard through existing means of feedback. Table 1 highlights the key findings. The rich conversations observed during the workshops and

feedback conveyed after Launchpad, demonstrate that the workshops had an impact on participants, with one noting:

*“I now feel like I belong in Maynooth and I can be myself and not be afraid of who I am.”*

Participants were repeatedly observed sharing information and forming close bonds throughout the workshops, providing a sense of connectivity and decreasing feelings of isolation and alienation, which can be factors in the retention of students [24]. The workshops created a safe space for participants to express their needs and feelings. By empathising with a “typical” student, participants were able to share with one another and have their concerns vocalised with reduced intimidation.

*“You meet people just like you and you feel better that you are not the only one.”*

Table 1  
Findings from synthesis and analysis used to construct Problem Narratives

Identified Student characteristics	Identified needs
Eager to do well	To be aware of resources and how to access them
Enthusiastic about the possibilities	An understanding of self and their role at the University
Nervously excited	To cultivate independent-living skills and confidence in those skills
Afraid of failing and letting themselves and others down.	To foster a sense of belonging to the University and create a community and social network.
Expectant yet cautious	To feel secure in their educational decisions and outcomes
Extremely diverse in background and ability	To feel confident in the personal value of a University degree and the University experience
Inquisitive about what's open to them	

The student characteristics and needs that emerged from the workshops led to the creation of three problem narratives representing a cross section of the Launchpad cohort. Paul (Figure 3) is an enthusiastic student from a disadvantaged socioeconomic background who needs to feel secure in his educational decisions, foster a sense of belonging to the University and create a community and social network. Kate (Figure 4) is a student with a disability who is inquisitive about what is open to her and eager to do well. Kate needs to be aware of the resources available, how to access them and how to cultivate independent living skills. Jane (Figure 5) is an expectant yet cautious mature student who needs to feel confident of the personal value of a University degree and experience and to create a social network.



## Paul

An enthusiastic and energetic school leaver from Eastwall, needs to be sure he has made the right choice going to University. By the way, Paul is the first in his family to go to 3rd level and feels under pressure to make it work, especially since many of his mates are all taking apprenticeships. Although he is confident, he is also a bit nervous that he won't really fit in.

*How might we help Paul make an assured and well informed decision on whether to enter 3rd level education or not?*

*How can we help Paul to see he belongs in university every bit as much as everyone else?*

*How might we relieve pressures and change expectations about college within families and communities?*

Figure 3. Paul's problem narrative



## Kate

Is a shy, reserved and studious 1st year Maynooth student with a physical disability that requires personal and academic supports. Kate is living away from home for the first time and is worried about how she will cope without her family nearby. Although she is smart and does well in class, Kate feels under pressure to achieve high grades. By the way, Kate, although not sporty, really admires the idea of teamwork, healthy competition and reward for performance that it promotes. She loves the idea of a team but how?!

*How might we better show Kate the resources that are available to her and help her make the most of them?*

*How might we better prepare Kate to cultivate independent living skills while at University?*

*How might we help a Kate discover a passion even if it's outside of her degree?*

Figure 4. Kate's problem narrative

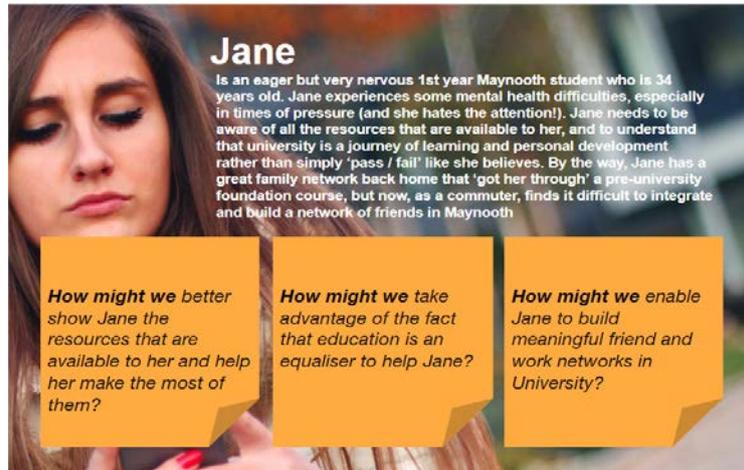


Figure 5. Jane's problem narrative

### Impact on MAP based on Insights

Aided by the findings from the workshops, four anchor actionable insights emerged from this design intervention. MAP has implemented a number of important changes as a direct result, including the shift to a universal orientation programme for all students entering the University through alternative entry routes (Table 3).

MAP gained a deeper understanding of the barriers that students had overcome to enter third level and the resilience and leadership already intrinsic to the new entrants. This has reframed MAP's approach to the design of Launchpad and the transition support needs of students.

Table 2  
Impact of the study on the Launchpad Orientation Programme

<b>Insight 1 impact on programme</b>	
MAP activities prior to the design programme	MAP School and community outreach programme focused on raising aspirations and providing good quality information about entry routes to third level.
Insight arising from the design programme	Students make an enthusiastic decision to enter third level, but are acutely aware of threats such as affordability, unsuitable accommodation, and academic preparedness which may impact on whether they stay in third level. The motivation to attend third level at this early stage outweighs these threats. Students need to be assured that they have made a well-informed decision on whether to enter 3rd level education.
Changes implemented based on Insight	MAP has enhanced its outreach programme by working with potential students in schools and communities through the

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University's budget advisory service to provide quality advice and guidance about the costs of third level. MAP now works with other university partners to enhance the information available to prospective students about accommodation, course demands and supports available at the University.

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### **Insight 2 impact on programme**

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MAP activities prior to the design programme      Students had two events in semester 1 to connect back to the sense of community and belonging that developed during Launchpad.

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Insight arising from the design programme      Students have demonstrated exceptional drive and academic ability to gain entry to their programme, however paradoxically they express a strong fear of not belonging or fitting into the third level environment. Students need to feel they have the skills, talents and mind-sets that the university needs and values.

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Changes implemented based on Insight      MAP expanded Launchpad from a three-day programme to a semester long phased induction programme called MAP my way, facilitated by MAP Ambassadors. The weekly meetings create a safe space for students to learn from experienced students and build social networks.

MAP continues to work with the University community to build on achievements to date and become a model university for equality, diversity, inclusion and interculturalism, where social justice, addressing inequality and empowering people are central to the University's mission.

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### **Insight 3 impact on programme**

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MAP activities prior to the design programme      The MAP ambassador programme was created to support the delivery of Launchpad and to support community engagement activities that took place on campus. Ambassadors received training to support the delivery of activities.

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Insight arising from the design programme      Students have taken a risk to enter university, yet they already understand the importance of breaking the cycle of disadvantage. They want to be a bridge to higher education and change expectations about college within their families and communities. students need opportunities to cultivate leadership skills.

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Changes implemented based on Insight      MAP created the 'outreach ambassador programme' where 30 experienced Launchpad Ambassadors are trained in leadership and public speaking and engage in critical thinking focused on the theme of education and social justice. This programme prepares ambassadors to visit schools and further education and training colleges to share their journey to higher education and motivate others to see third level as an option.

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### **Insight 4 impact on programme**

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MAP activities prior to the design programme      Launchpad offered a range of information talks on supports available, participants received literature outlining supports available and had the opportunity to meet one to one with a designated MAP advisor to discuss supports and ongoing needs.

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Insight arising from the design programme	Students have a limited understanding of many supports available at University to increase retention. Students are overwhelmed by the many changes they experience during the transition to University and lack confidence to ask for help. Students need ongoing information about the supports available to them and opportunities to cultivate self-advocacy skills to access supports when required.
Changes implemented based on Insight	<p>'Map my way' provides the opportunity for the Launchpad participants to gather once a week, learn about supports and resources available from other students and university support providers. The semester long induction is designed around themes relevant to the first year student life-cycle such as budgeting, essay writing, work life balance, and exam preparation.</p> <p>MAP also introduced a daily drop-in advisory service where students can drop-in and meet an advisor Monday-Friday from 12-2. The provision of this service daily and without appointment allows students to seek assistance when they need it.</p>

### **Impact on MAP based solely experience Maps**

While the primary synthesis and analysis of data resulted in the 4 driving insights outlined in Table 2, there was an obvious abundance of “low hanging fruit” highlighted on the experience maps. These provided areas for immediate attention and action. Significantly, the overnight in the residential apartments was viewed by incoming students as a positive experience. Comments describing the overnight on campus as “reassuring, fun, and confidence boosting” were prevalent. MAP committed to the continuation of the residential element of the programme based on these insights, despite the increased cost implications to the expanded programme.

Arriving on campus for the first time was captured as a negative experience. Many of the salient quotes related to the nervousness and anxiety surrounding coming to the University for the first time, or concerns about what to expect from Launchpad. Students described the experience of arriving on campus as “lines and loneliness” and “terrified and petrified.”

MAP implemented changes to the programme based on this new understanding, including an all day registration process to reduce queues and a new communication strategy including explainer videos featuring relatable student role models and highlighting the benefits of the programme. The strategy also includes a social media space administered by MAP Ambassadors and direct contact by email from MAP ambassadors to invited participants. These measures have been introduced to increase the students’ feelings of belonging and reduce anxiety about the programme.

### **Discussion**

Based on this study and from working with the experienced MAP advisors, it is clear that a design-led approach to understanding and improving services and student experience is beneficial. The design approach has allowed MAP to generate insights and understanding of the often unarticulated needs of under-represented groups as they

enter university. Collaborating with students to co-create the offerings was seen as crucial in understanding student needs, and the co-creation process helped MAP to implement, now successful service improvements and innovations. An unexpected additional benefit of the process was also observed - The design workshops created a safe space for students to discuss and explore difficult to articulate feelings, concerns and experiences through group dialogue. This helped build a sense of community and belonging, factors that are found to be critical to the retention and engagement of students.

Based on this, the authors believe the tools and process of design thinking can be transformative and help better understand a diverse student population. This study has demonstrated within diverse group of students, there is a commonality in the unarticulated needs and experiences at the point of transition to University. This insight supports the movement towards universal design in higher education and its potential to benefit the entire University student population. It may also help reduce the documented high dropout rates.

There are limitations to this study. The aims of the study reflect the focus on programme design and student experience at Maynooth University and the development of a University specific response. Inferences can be drawn from this study to gain insights into the feelings and experiences of this group of students, however this study cannot conclude that all students from diverse backgrounds have these same unarticulated needs. Participants in this study self-selected the experience and Empathy mapping workshops. The participants (n=100) represent 4% of the full-time new entrants to undergraduate degree programmes at Maynooth University (n=2698). This study does not propose to reflect all new entrants at Maynooth University or into third level in Ireland. To address these limitations, further broader and longitudinal work is required. Based on this study, the authors believe there is potential for this study to be replicated by other third level institutions and policy makers in a variety of contexts.

## **Conclusion**

Overall the study was highly successful. The insights gained from a design approach to research and action informed the experienced MAP team, and provided them the understanding to reframe their challenges based on the issues and unarticulated needs of students transitioning to university from under-represented groups. The project also helped them to better understand the supports required to increase retention and attainment of these students. A number of the identified opportunities have now been implemented successfully, with evidence of improved student experience and retention already reported. Feedback from students participating in the programme, and staff involved in the programme has been extremely positive.

Employing a design thinking approach allowed students to engage with one another in a new and innovative way, creating safe spaces for them to openly share experience and learn from one another. This sharing of experience in turn provided MAP with deep insight into the diversity of the student population and the similarity of their concerns and experiences, not seen before through traditional survey and focus group methods. Following the success of this initiative the design approach has been

used in subsequent programmes by MAP to inform the ongoing development of Launchpad and innovation of new transition supports.

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