2022

# An Exploratory Case Study into Understanding Teaching Practice and Towards Enhancing Transformative Learning and Graduate Employability at TU Dublin

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# An Exploratory Case Study into Understanding Teaching Practice and Towards Enhancing Transformative Learning and Graduate Employability at TU Dublin

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Submitted to the School of Business, TU Dublin, in fulfilment of the requirements leading to the award of Master of Philosophy.

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TU Dublin August, 2022

I dedicate this thesis to my boyfriend James, my parents Jan-Derk and Barbara, my friends in Dublin and in Groningen for supporting me through the process of writing this thesis.

# Acknowledgements

I want to thank TU Dublin, and The Higher Education Authority for the possibility and funding for this project. Thanks to Dr. Cormac McMahon, Dr. Philip Owende, Dr. Jennifer Harvey, and the Transform-EDU project for giving me the opportunity to pursue this research and for supporting me through the rocky start of this project through the COVID-19 pandemic. Thanks to the research-support staff at Blanchardstown Campus and in the LINC. Thanks Clodagh, Susan, Lindsay, Ruth, Mark, and Ciara.

I want to thank my fellow research students at Blanchardstown campus for their support and their recognition of the research process and its frustrations. Thanks Angelo, Kris, Glen, Claire, Fiona, and Wyndham. Honorary thanks go to Gráinne Carthy for those final weeks in the library, being positive and full of empathy for each other and what we were going through, and all the shared coffees and pints. I really think that without you going to the library with me, this thesis would not have been completed. I also want to thank Suzanne McCarthy for her voice notes of advice when I needed them. And, Charles Castro, for the conversations when we were stuck in other countries during quarantine and for the ongoing recognition of the research process. You all made the process less lonely and more doable.

Thanks to my supervisors Dr. Barry Ryan and Dr. Fionnuala Darby for meeting me three years ago and feeling like I could apply for this MPhil opportunity. Now three years later, I want to thank you for guiding me through this uphill battle that was research during covid and convincing me to believe more in myself. Thank you for being co-operative with each other as well as to me and for making sure the meetings were always pleasant and productive. This thesis would not have been completed if you did not push me onwards and upwards and guided me to focus only on the next step and not the whole mountain. I will take what you taught me further in my life, thank you for that.

Thanks to Lisa and Joe Fernandez, for giving me such a lovely room to rent out, being so generous with your space, and for being my Dublin-parents when I needed them sometimes. Thank you, Lisa, for listening and being so kind when I needed it, and thanks Joe for pushing me to keep going and not give up, you were totally right! And thanks Isabella for the yoyo and iPad games!

I want to thank my family, and especially my parents Jan-Derk and Barbara for their support through this project. It was not easy for us all when I moved back home in quarantine for nine

months, but I also appreciate the extra family time we got looking back on it now. Bedankt Mam, Pap and Michiel voor luisteren als ik het nodig had, al was het vast allemaal niet even logisch, of nodig. Hou van jullie.

Thanks to all my friends who have spent nights out with me, lunches, brunches and coffees, and long phone calls through covid, and afterwards long-distance calls to Ireland, to listen and distract me. Bedankt Rick, Marit, Maite, Lisa, Sam, Ronan, Danique, Iris en Matthijs. And thanks Jess, Prisha, Camilla, Sophie in Denmark, and Sophie in Canada.

I want to thank my roommate Johanna for all the late-nights teas and slow morning breakfasts, coffees out, and bread and cheese dinners during the second year of this project. Moving to Dublin at the same time was such a special period looking back on it, and you made it so much better with your self-grown bouquets of flowers for mental support, listening about my process, and with the pushing you did when I almost quit, I appreciate it a lot. Vielen Dank.

Finally, I want to thank my boyfriend James for putting up with the stress and struggles I had to vent over the last two years. From when I moved into your studio in Copenhagen at the beginning of the project during quarantine, to listening over the phone while long-distance, to creating little breaks for me when planning trips to Copenhagen or Dublin and allowing me to take a couple days off. To reading drafts and being there for me ‘til I finished this thesis. I love you and that we both love research ;).

# Abstract

This research focuses on understanding and enhancing the educational practice towards using pedagogies like transformative learning to enhance graduate employability at a new technological university, TU Dublin, during the coronavirus (COVID-19) pandemic. It was found that teaching practice depends significantly on the lecturer, the discipline area, the graduate skills that are sought after in each module and discipline, and the context of the delivery. The PAGE (Pedagogy Assisting Graduate Employability) framework developed from this research, aims to visualise the connection between the teaching process, pedagogy, and graduate employability. Application of the framework will offer insight into how each unique lecturer shapes their own teaching in their context and how development towards pedagogy-based teaching can be further enhanced and encouraged.

Four focus groups with lecturers and documentary analysis of books of modules were undertaken across a purposefully selected sample that included a range of disciplines and university campuses to further understand current teaching practice. The PAGE educational framework visualises the connection between lecturer-based pedagogies, such as transformative learning, and student-based graduate employability. A first draft framework was evaluated by lecturers with an affinity for educational development, to result in more insight into the application and possibility to embed and use the framework in day-to-day teaching practice. A second version of the PAGE framework was developed, and alignment was sought with local, national, and international educational policy and directions and plans towards the development of education.

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# List of abbreviations

| Abbreviation | Definition |
|---|---|
| **BN** | Blanchardstown Campus |
| **CAO** | Central Application Office |
| **CareerEDGE** | Career, Experience, Degree subject knowledge understanding and skills, Generic skills, and Emotional intelligence |
| **CC** | City Campus |
| **CoCREATE** | Collaborative Curriculum Reimagining and Enhancement Aiming to Transform Education |
| **COVID-19** | Coronavirus disease (COVID-19) is an infectious disease caused by the SARS-CoV-2 virus (World Health Organization, 2022). |
| **ECTS** | European Credit Transfer and Accumulation System |
| **ESD** | Education for Sustainable Development |
| **HEA** | Higher Education Authority |
| **HEI** | Higher Education Institution |
| **ICT** | Information and Communication Technologies |
| **ISCED** | International Standard Classification of Education |
| **OECD** | Organisation for Economic Cooperation and Development |
| **PAGE** | Pedagogy Assisting Graduate Employability |
| **SDGs** | Sustainable Development Goals |
| **STEM** | Science, Technology, Engineering and Math |
| **STLR** | Student Transformative Learning Record |
| **The five E's** | Engaged, Enterprising, Enquiry-based, Effective, and Expert |
| **TL** | Transformative Learning |
| **Transform-EDU** | Transformative Student-Centred Learning Record |
| **TT** | Tallaght Campus |
| **TU Dublin** | Technological University Dublin |
| **UEM** | University Education Model |

| | |
|---|---|
| **UNESCO** | United Nations Educational, Scientific and Cultural Organization |
| **USEM** | Understanding, Skills (subject and generic), Efficacy beliefs (and self-theories), and Metacognition (including reflection) |
| **VLE** | Virtual Learning Environment |

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# Chapter 1: Introduction

# 1 Introduction

The focus of this investigative case study was to attempt to understand how teaching and learning practice shapes and informs employability, and correspondingly, how transformative learning can be (further) incorporated into the curriculum at TU Dublin. The output of this project, both the practical understanding and conceptual framework, will add to the previously designed TU Dublin Quality Curriculum Framework developed by the CoCREATE[1] project. This investigative case study also formed part of the TU Dublin Transform-EDU project[2], which proposed to develop and pilot an innovative transformative approach to learning at TU Dublin, using co- and extra-curricular events and frameworks. It is important to appreciate the scope and reach of this multifaceted project initiated at a time when Technological Universities began to emerge in Irish higher education.

Following the establishment of TU Dublin in January 2019, a project was founded to create a curriculum framework produced by, and for, the students, staff and stakeholders of TU Dublin that would align with their new identity as a modern Technological University. This *CoCREATED* Curriculum project was aligned to the HEA funded *Transform-EDU* project focusing on incorporating transformative learning practices into teaching and learning (Technological University Dublin, 2020). The focus on this new learning and teaching experience was strongly correlated to a belief in the link to employability in the curriculum along with necessary graduate attributes (Institute of Technology Blanchardstown, 2018). It is against this backdrop that this research study was completed.

Transform-EDU focused on bringing student-centred transformative learning to IT Blanchardstown (ITB) in 2018. The main work package focused on bringing a student transformative learning record, or STLR, to ITB, originally developed at the University of Oklahoma by Jeff King (Brunstein & King, 2018; Cunliff & King, 2018; Owende et al., 2018). This study was part of a different work package that concerned itself with the current teaching practices at the now TU Dublin. The merger of ITB with ITT and DIT occurred between Transform-EDU's arrival and it's completion (Institute of Technology Blanchardstown, 2018).

This thesis consists of seven chapters. Chapter 1 is a general introductory chapter and sets the scene for the subsequent research. Chapter 2 is a review of the literature and focuses primarily on university education in its current shape, academic graduate employability, and pedagogies

[1] *CoCREATE* stands for: *Collaborative Curriculum Reimagining and Enhancement Aiming to Transform Education*

[2] More information on https://transformedu.ie (Transform-EDU, 2022).

of teaching and learning, among which sits transformative learning. Chapter 3 details the lens of the researcher within the research presented to understand how the researcher views the research process, and how their background informs their decisions. Chapter 4 describes the design of the research methodology and explains the rationale underpinning the research questions. Chapter 5 illustrates the analysis of the data collected through the methodology, and describes how data collection occurred, and what trends were found. Chapter 6 describes the development of the educational framework as per the research design and the evaluation of the framework towards an iteration for further application. Chapter 7 synthesises the findings to address the research questions and connect the premise of the research to the outcomes identified. Chapter 8 serves as an extension of the conclusion, detailing recommendations as found during the research. Finally, Chapter 9 expands on the future work that could be performed to further develop the field of study towards graduate employability and use of pedagogies like transformative learning in Higher Education. There are six appendices detailing sampling ethical approval, information sheets and consent forms sent out to participants of the focus groups and evaluation interviews.

# Chapter 2: Literature Review

# 2 Literature Review

This chapter will discuss relevant and recent literature needed to introduce and contextualise the topics of graduate employability and pedagogies to enhance employability. First the history of vocational education in Ireland in general, and the goal of education (Section 2.1) will be explored.

Subsequently, graduate employability (Section 2.2), popular employability models and accounts existent in literature (see Section 0), and the local TU Dublin context will be highlighted (see Section 2.2.2), along with a summary in Section 2.2.3.

Next, pedagogies that have been proven to enhance employability will be explored (Section 2.3). Including transformative learning (Section 2.3.2), student-centred learning (Section 2.3.3), and experiential learning (Section 2.3.4).

Finally, a short summary of the literature review is provided in Section 0, and the research questions will be described in Section 2.5.

## 2.1 Overview of the development of an Irish Technological University sector

In Ireland in the 1970's there was a need for developing regional technical colleges teaching local vocational skills to the population, developing technician type of education at the certificate and diploma level (Mulvey, 2019; Murphy, 1996). However, over the 25 years they have provided higher degrees, becoming responsible for the largest part of higher education in Ireland (O'Brien, 2018). Regional Technical Colleges (RTCs) fulfilled this purpose until 1996, when the HEA issued a report on the future of Higher Education, for RTCs to be called regional technological institutes going forward. The emphasis on 'technological', which has a more international connotation and honouring the current level of education more than 'technical', related to previous vocational schools (Murphy, 1996).

The Minister of Education suggested the development of RTCs into Institutes of Technology (IoTs), a format that already existed for DIT and across Ireland (Mulvey, 2019; White, 2001). In Dublin there was Dublin Institute of Technology, that was formed from five City Technical Schools in 1978 and awarded an autonomous institution in 1993 (Duff et al., 2000). Blanchardstown Institute of Technology was established (ITB) in 1999, (The Minister of Education and Science, 1999), and Tallaght Institute of Technology (ITT), established in 1993, (InTallaght Magazine, 2012), along with 14 other Institutes of Technology in the late 1990s (Mulvey, 2019). IoTs became part of the higher education landscape officially through

legislation by the Institutes of Technology Act 2006 (The Minister of Education and Science, 2006).

In 2018, 10 of the 14 IoTs were part of plans to form four Technological Universities (TUs) (O'Brien, 2018). The first established Technological University is TU Dublin, a merger of DIT, ITB and ITT on the 1st of January 2019 (Technological University Dublin, 2022b).

The development of education through a vocational background and simultaneously the traditional theoretical universities provide two angles to the goal of education, explored in the next section.

### 2.1.1 The goal of education

There are two angles to the goal of education: Education in Ireland at RTCs, IoTs and now TUs developed to teach craft and vocational skills that were needed in the area (Mulvey, 2019). On the other hand, there are also universities focusing more on general education, that originated in medical studies and liberal arts (Bod, 2013), for example Trinity College in Ireland (Luce, 1992).

Most recently, the United Nations defined the sustainable development goal 4, Quality Education, as giving people the knowledge and skills, they need to stay healthy, get jobs and foster tolerance (United Nations, 2022b). Echoing that in modern times the role of education is somewhat in between general education and vocational, including both aspects of knowledge development and preparation for the labour market (Brooks et al., 2021). Furthermore, a complete focus on vocational efforts has become more prevalent and reflects the increasing perception of universities transitioning into corporations (McKenna, 2018). Correspondingly, it has been noted that students have developed a consumer type behaviour in recent years, which has been shown to connect to lower academic performance (Bunce et al., 2017). It is not clear which came first, the corporation or the consumer-type behaviour.

The negative effect of this employability focus in education is echoed in a study by Boden and Nedeva (2010). They found that in the UK employability has become a performative function of universities. The increasing focus on employability within higher education resulted in three implications: (1) intervention of government in the labour market gives more power to employers, (2) focus on employability may create two types of university; one that creates impressionable employees and one type that creates employers and leaders, and, finally, (3) employability focus is dictating pedagogies and curricula at higher education institutions, which limits potential of students, employers and general society (Boden & Nedeva, 2010).

To further understand the demands on modern day education and the link of programmes to the outside world and industry, the next section will develop an understanding of academic graduate employability and how it is developed in higher education.

## 2.2 Graduate employability

Employability has been a topic that has attracted growing attention in higher education (Artess et al., 2017). Employability can refer to the probability for a student to be employed upon graduation and is used as a metric for success of a degree (Boden & Nedeva, 2010; Hillage & Pollard, 1998). Embedding employability in Higher Education is important for students as they are investing in their futures by taking a degree, and they are more and more focused on how their higher education institution can support their immediate employment prospects and longer-term employability (Advance Higher Education, 2019). On the other hand, embedding employability in Higher Education is important for institutions as graduate employment and graduate employability enhances their global standing and reputation, engagement with employers and prospective student recruitment. Employability of students thus functions as a performance metric for a higher education institute. (Advance Higher Education, 2019; Artess et al., 2017).

So how do we define employability exactly? A definition was proposed by Yorke (2006) as

> *"Employability is a set of achievements – skills, understandings and personal attributes – that makes graduates more likely to gain employment and be successful in their chosen occupations, which benefits themselves, the workforce, the community and the economy"* (Yorke & Knight, 2006, p. 8).

To further understand Yorke's definition of employability it is necessary to unpack the three items from the definition, as done below in Table 2.1.

Table 2.1: Understanding Yorke's definition of employability

| **Point** | **Elaboration** |
|---|---|
| **The emphasis on personal attributes as opposed to the discipline knowledge only.** | The first point is also explained in a review by the Higher Education Association, (Artess et al. 2017) on employability in the literature from 2012-2016. The point of personal development and the connection to successful employment as an important development in the field of employability research in academia. There is an ongoing debate if education functions to further students' thinking or if it is to produce employees ready for work, aligning with thinking that universities are |

| | |
|---|---|
| | becoming large-scale companies themselves. Developing oneself during a degree is, however according to Artess et al. (2017), concluded as relating to successful employment. |
| **The emphasis is on the probability for a graduate to gain employment, instead of gaining employment itself.** | Second, the use of the term employment and the term employability are not the same thing and need to be differentiated. Employment is the status of having work as a graduate, whereas employability is the personal probability or likelihood of being employed by a desired employer. Setting either employment or employability at the forefront as a metric for a HEI is an important difference. The focus of this literature review will be on employability. |
| **Finally, there is a mention of being successful in employment which will benefit all stakeholders involved.** | Third, the emphasis on benefitting all stakeholders by promoting successful employment due to self-development is found to be more beneficial over focusing solely on employers' needs and the need to create lists of graduate attributes for students. There is a dichotomy of focusing on what students should develop for employment and focusing on what students want to learn. To cater to all needs and desires for education, universities should focus on creating self-confident and aware students that in turn will be more successful in employment due to these universal skills that will even carry on beyond the discipline of study, benefitting all stakeholders. |

However there has been discussion and contention on this definition of employability since 2006 (Artess et al., 2017). Yorke (2006) adds the contention already that employability is a work in progress throughout one's working life. In the eyes of the Higher Education institutions and their connected reputation to graduate employability, they approach the definition of employability with a different stake. Places of higher education usually define their own definition of employability and the connected focus on graduate attributes to improve graduate employability (Imperial College London, 2023; Maynooth University, 2023; Technological University Dublin, 2022c; Trinity College Dublin, 2018). Artess et al. (2017) recommend however that despite the drive to improve their reputation, Higher Education institutions will need to think carefully about how they are defining 'employability' and how this integrates with their wider mission. Furthermore in 2021, defining employability in a modern context meant to focus on the holistic set of achievements without the distinction of types of skills (Dalrymple et al., 2021). Forgoing the previously popular distinction to discipline-based skills and 'soft' skills that were transferable to other disciplines.

Secondly, the inclusion of the students' self-perception of employability, became more important towards 2021 as the identity of the student and graduate were included to focus on their own development and self-perception of their employability (Dalrymple et al., 2021). Fostering confidence in a students' own skills and abilities makes a difference for employability (Bandura, 1995).

Finally, it was shown in the review of the literature by Dalrymple et al. (2021) that including diverse and inclusive work-integrated learning experiences to develop awareness of growing employability, that is not only defined by Western career ideals, helps to foster employability. Real work experience incorporated during a higher education degree helps create awareness in students on their skills and prospects (Dalrymple et al., 2021).

Having considered graduate employability as a term and the connection to the influence in Higher Education, relevant accounts and models for graduate employability will now be discussed that show how skills lists and fostering graduate employability can be connected in the next section.

### 2.2.1 Relevant accounts and models for developing graduate employability

Improving employability at a higher education institution is typically achieved by defining the specific skills the students need to possess at graduation, called graduate attributes. This list of skills can be determined by a higher education institution (e.g., TU Dublin), with input from relevant employers and from higher education guidelines set by governing and regulating bodies as based on research (e.g., the HEA or Advance HE in Ireland).

This research focuses on how these skills lists, no matter the definition of the skills, are related to fostering graduate employability in a student. In the literature related to employability, there are existing models and accounts for defining and describing the relationship of defined skills to graduate employability. The exploration here will focus on two of the most cited and well-established models and accounts as examples of how the field of graduate employability developed. First, the USEM account by Knight and Yorke (2002) and, subsequently, the CareerEDGE model by Pool and Sewell (2007) will be unpacked. The models will also be influential for data collection in this study on the importance and incorporation of employability skills in teaching practice at TU Dublin (Section 4.2).

### *2.2.1.1 The USEM account*

The USEM account was developed in 2002 by Yorke and Knight, to introduce the factor of self-belief and self-theories into the discussion around employability. In the UK at the time, academic graduate employability was measured by the number of graduates obtaining employment.

USEM stands for Understanding, Skills (subject and generic), Efficacy beliefs (and self-theories), and Metacognition (including reflection). The visualisation in Figure 2.1 involves a network of interconnections between the relevant components based on mutual support and mutual developmental potential. For example, obtaining key skills (S) can facilitate subject understanding (U), but also the other way around, as can be seen in Figure 2.1 by a two-sided arrow.

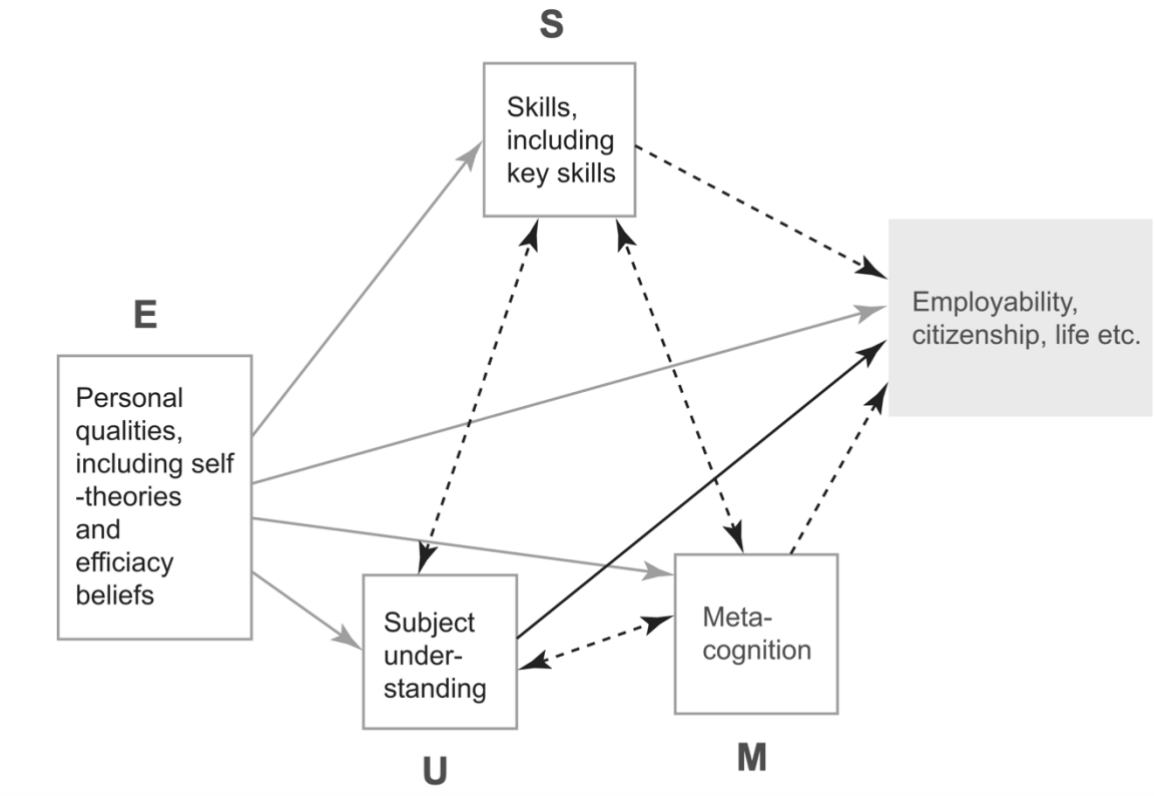


Figure 2.1: The USEM account: understanding, skills, efficacy, and meta-cognition (Yorke & Knight, 2006a)

This account shows that employability is related in different or mutual ways to skills, subject understanding and the personal qualities of the student and their ability to be meta-cognisant. This representation does not show any hierarchical dependence, rather shows interconnected terms. Thus, this account is insightful but does not leave a clear action plan on how to aid students in developing their graduate employability.

A critique of this account is also that employment is not necessarily defined as obtaining a graduate-level job. Therefore, the risk is that universities will push to improve their employment rates, rather than enhancing employability in students towards graduate level jobs. Another critique is that next to discipline-specific knowledge and skills, it was found that the majority of employers are less concerned about the subject discipline of graduates, but rather they care about their transferable or soft skills (Succi & Canovi, 2020).

The USEM account does argues for the inclusion of the personal aspect that is not included in pedagogical thinking about employability, which includes self-belief and self-theories (Bandura, 1995). Something that was confirmed in a review of the literature on employability by Artess et al. (2017), the self-identity and self-belief of students play a role in the possibility of developing employability. Employers want self-aware graduates as they are more likely to be capable employees. Capable people have confidence in their ability to take effective and appropriate action and to explain their achievement goals (Stephenson, 1998). It was found that self-confidence is a skill found important by all graduates, employers, and Higher Education Institutions (Wickramasinghe & Perera, 2010). Yorke and Knight (2006) blend the capability concept well with their interpretation of the literature on employability and with insights from psychology, to describe a dependence on personal qualities, skills, and disciplinary understanding to foster employability.

To find more detail on how to aid students in developing this graduate employability during a degree, another model for employability will be considered in the next section, the CareerEDGE model.

#### *2.2.1.2 The CareerEDGE model*

CareerEDGE (Pool & Sewell, 2007) is a model based on previous work of Yorke and Knight, on research on skills for moving on the job-market (Hillage & Pollard, 1998) and on a model of requirements for course provision in higher education (Bennett et al., 1999).

The name CareerEDGE is a mnemonic device for the five key fields students should learn about to develop their employability while in higher education, see Figure 2.2. The five main skills are Career development learning, Experience (work and life), Degree subject knowledge, understanding and skills, Generic skills, and Emotional Intelligence. The skills are then followed by reflection and evaluation, to foster three self-based values, namely, self-efficacy, self-confidence, and self-esteem. The three self-based values will develop employability to

achieve successful and satisfying employment. The stepwise pyramid to achieve successful and satisfying employment is visualised in Figure 2.2.

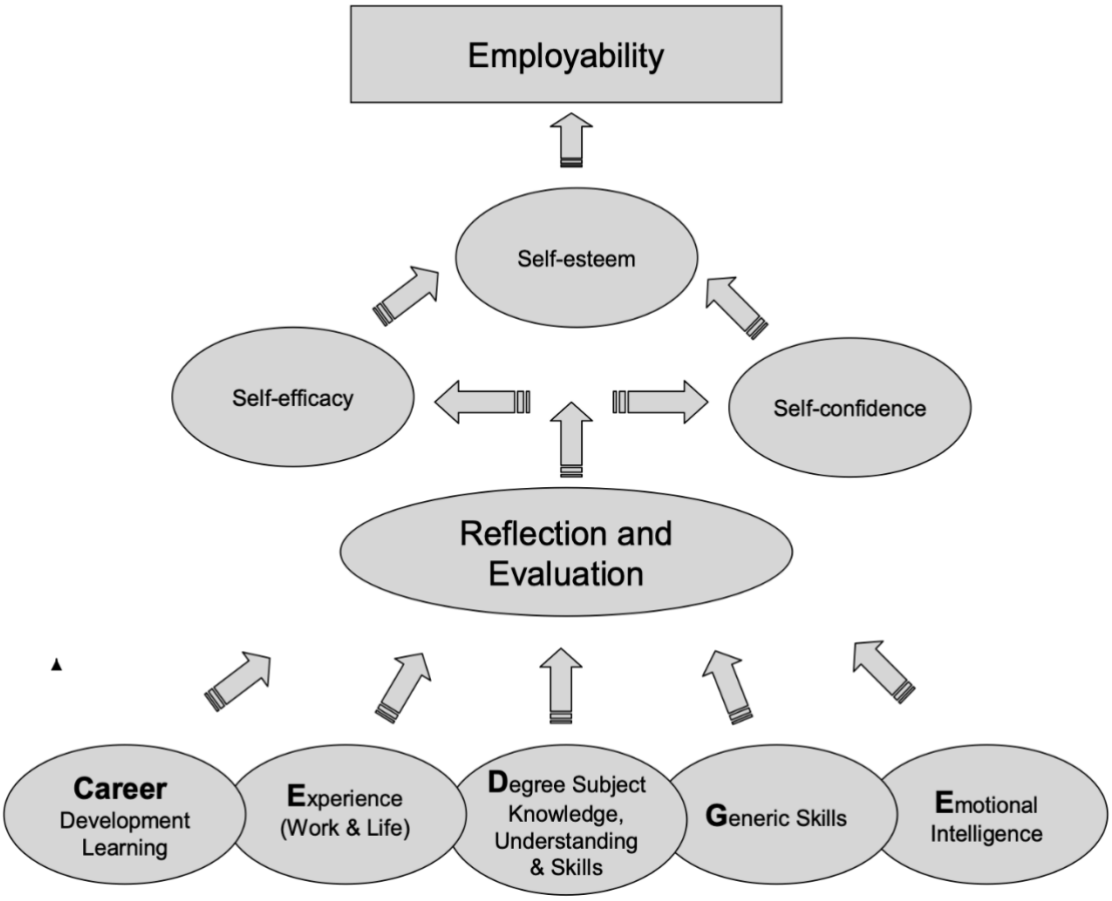


Figure 2.2: The CareerEDGE model. (Pool & Sewell, 2007)

Pool & Sewell (2007) define five key skills with clear and understandable titles, but importantly they also recognise that the skills may overlap, and that missing one of the skills will considerably decrease the potential for successful and satisfying employment. It is important that students reflect and critically analyse their own competency in these five skills, that will in turn build their self-efficacy, self-confidence, and self-esteem to improve their employability.

This model clearly adds a more hierarchical and process-based explanation on how skills lists connect to fostering graduate employability in Higher Education. The inclusion of reflecting and evaluating for students as the key mechanism for incorporating those kills has been confirmed as a key mechanism of learning (Artess et al., 2017; Bharuthram, 2018; Brookfield, 2009; Jakeman et al., 2017; Pool, 2020). This model also includes the sense of self as discussed for the USEM account. However, the CareerEDGE model further quantifies it as three interconnected concepts: self-esteem, self-awareness, and self-confidence. This specificity adds

great connection points for practitioners and students/graduates to connect to or as handles to find more research on. The addition as well of emotional intelligence shows a large incorporation of focus on the individual student/graduate developing their employability. Further emphasising the point that confidence in an ability increases the use of the ability or skill (Pool, 2020).

One criticism of this model is that employability can be further nuanced by adding the effect of labour markets to nuance between perceived employability and actual employability (Clarke, 2018). Another factor to include since its publication, would be to add in resilience as a transferable skill, and to recognise the considerable research in this area since the publication of CareerEDGE (Pool, 2020) In summary, there has been little criticism of the work.

Overall, the CareerEDGE model is a clearer model for connecting skills lists with handles on influence to fostering employability in students/graduates. The model has been used as the inspiration for many Higher Education employability models since its inception (Foster, 2016; Ginty et al., 2020; Wujema et al., 2022).

A focus on graduate attributes contextualised to TU Dublin is reviewed in the next section.

### 2.2.2 TU Dublin context

Most universities have their own set of defined skills or a vision of employability competencies that they tend to focus their educational design around. These are usually termed the graduate attributes. The university of study, TU Dublin, has defined their own list of five graduate attributes, named the Five E's. Students should be Engaged, Enterprising, Enquiry-based, Effective and Expert in chosen subject discipline (Dublin Institute of Technology, 2020). These graduate attributes were originally proposed by Dublin Institute of Technology, one of the constituent colleges of the merger forming TU Dublin. To provide students with appropriate opportunities to develop these competencies, lecturers embed them into the learning outcomes of modules and programmes using suitable pedagogies.

An objective under Ireland's National Skills Strategy 2025 is for education providers to focus on skills development, further highlighting employability for graduates (Department of Further and Higher Education, 2021). TU Dublin's strategic intent of having our graduates in demand aligns with this process (Technological University Dublin, 2021).

### 2.2.3 Summary models and accounts to connect employability skills and graduate employability in Higher Education

Improving employability at a higher education institution is typically achieved by defining the specific skills the students need to possess at graduation, called graduate attributes to be employable in the related field of employment.

The USEM account (Yorke & Knight, 2006a) shows a non-hierarchical overview of how the self, subject understanding and skills connect and interact to foster employability.

A more comprehensive model is the CareerEDGE model (Pool & Sewell, 2007) showing a clear hierarchy of using reflection to incorporate the career skills, degree knowledge and emotional intelligence into the self of the graduate through self-values. This model gives a better account for Higher Education institutes and lecturers to incorporate more opportunities that enhance employability in their teaching methods.

The next section will talk about pedagogies for lecturers that can help employability skills as depicted in the discussed model and account here.

## 2.3 Enhancing employability through appropriate pedagogies

The definition of pedagogy in The Oxford English Dictionary is: '*The study of the methods and activities of teaching*' (Oxford Languages, 2022). This section will explain several prominent pedagogies that foster employability to aid in the understanding of how pedagogies used in modern higher education can develop employability skills. A review of the literature that includes traditional learning (Section 0), transformative learning (Section 2.3.2), student-centred learning (Section 2.3.3), and finally experiential learning (Section 2.3.4) follows.

### 2.3.1 Traditional Learning

Traditional teaching and learning are related to a view of having an expert lecturer in front of an auditorium of students, where expert knowledge is passed on in a passive way to the students present. The term traditional lecturing gives a historical sense to a more passive knowledge transfer method. Since the 1980s, there has been an increasing amount of research into adult education methods and how to engage students and lecturers more in the education process (Mayo, 1998; Merriam & Baumgartner, 2020; Mezirow, 1996; Walter, 2019). Compared to the more recent activity-based or reflection-based teaching methods, the lecturer-centred style is what was traditionally seen in education and thus so described (Merriam & Baumgartner, 2020).

Knowledge transfer is favoured because of legacy, lecturers themselves were possibly also taught in a more passive way. Also, most elementary and second level schools adopt a more teacher-centred approach to teaching, so students' expectations of education might be more passive. The lecture format is also found to be an economic way to deliver knowledge to large class groups, furthering the considerations of the corporatisation of universities as discussed in Section 2.2. Multiple factors that enable traditional/passive styles of education to remain will be discussed, to show the context for lecturers and current demands on education.

#### *2.3.1.1 Teacher-centredness*

Teacher-centredness can be present in different areas of the classroom. Maryellen Weimer (2002) identifies five areas where teacher-centredness is present: the balance of power, the function of content, the role of the teacher, the responsibility of learning, and the purpose and processes of evaluation. The balance of power favours the lecturer in a teacher-centred approach. Teachers decide the material and style of education, which is what students expect. Most module outlines use statements that imply the teacher's control, like the material that will be covered [by the lecturer] and the essay deadlines will be such [as determined by the lecturer] (Weimer, 2002). So, when lecturers want to move away from this effect of teacher-centredness, the five areas can be explored, such as the balance of power, by moving to student-designed assessment, as discussed in Section 2.3.3. However, moving to a more student-centred approach needs preparation as students can initially resist student-centred learning as the increased responsibility can be intimidating to students (Doyle, T., 2008).

#### *2.3.1.2 Expectations to meet performance metrics*

Traditional learning behaviours can remain due to the pressure on lecturers through teaching performance metrics, there might be no time to innovate due to the high-pressure environment. Students are accustomed to memorising large amounts of information and will know how to perform well in traditional, written exams from prior levels of education (Brown Wright, 2011). The expectations for students are clear and this can make a programme function well resulting in good performance metrics and a reduced performance anxiety for students. There might not be enough time to let students follow their interests and discoveries about the material during a semester. In a passive teaching style, the student can tend to focus on passing the test and receiving a good grade, which remains a significant concern among students (Weimer, 2002). Stepping away from traditional teaching strategies leaves the goals of modules to be interpreted more broadly, and the path for students toward a good grade becomes less straightforward (Cornelius & Gordon, 2008). However, from an employability perspective, it has been proven

that the benefit of challenging students beyond passive knowledge retention is more autonomous thinking and growth of self-confidence, which also makes better employees as supported by employers (Pinto Molina & Sales, 2008).

#### *2.3.1.3 Professional development of Teaching Staff in Higher Education*

Professional development has to do with the continuous development and training available to those who work and teach in Higher Education.

Ireland's first framework to support the professional development of those who teach across the sector was published by the National Forum for the Enhancement of Teaching and Learning in Higher Education in 2016. It is underpinned by a set of core values and provides a structured outline of professional development activities for teaching and learning in Higher Education (National Forum, 2016). Most importantly the framework by the National Forum (2016), sets the domain of *Self*, of those who teach at the centre, emphasising the personal context and emotions that individuals bring to teaching. Including as mentioned in the domain of self-development is: self-awareness, self-confidence, and life experience. Further emphasising that not just students develop themselves through gaining self-awareness and self-confidence, but so do lecturers and teaching staff.

More recently, the report for Next Steps for Teaching and Learning: Moving Forward Together (2021) was published by the National Forum. Considering the effect of the COVID-19 pandemic on teaching practice, the report sets out to share recommendations for Teaching & Learning practice, ongoing development, research, and future policy during a period of change (National Forum, 2021). It was found that more support and more recognition of the commitment of staff to their professional development is needed moving forward, in their own teaching area, but also in general terms of teaching learning and assessment.

Thus overall, in the Irish landscape in Higher Education, reviewed by the National Forum, professional development focuses on the self of the teaching staff, similar to the development of students. Professional development during the COVID-19 pandemic times re-iterated that ongoing commitment to developing teaching, learning and assessment is to be supported and recognised.

Integration of more modern teaching methods does not require an overhaul of education practice and can be achieved with incremental change. Next, some pedagogies and examples

of related teaching methods will be discussed that can be used for professional development of those who teach in Section 2.3.2 to Section 2.4.

### 2.3.2 Transformative Learning

According to (Mezirow, 2012), transformative learning occurs when an existing frame of reference does not explain a new experience. A transformation in the frame of reference occurs to include the processed information. Such a transformation can result in a complete change of belief, which Mezirow described to be an irreversible process. A frame of reference consists of two aspects: a habit of mind and a point of view, as defined by Mezirow (1997). First, habits of mind are broad and abstract patterns that result from your upbringing and life experience so far and can underpin for example political and social beliefs. Secondly, points of view are the expression of the habits of mind and the points of view can be values, judgments, or attitudes (Mezirow, 1994).

#### *2.3.2.1 Mezirow's definition of transformative learning*

The transformative learning process is the last puzzle piece falling into place; where after a period of culminating information or at an encounter of a disorienting dilemma, the brain undergoes a struggle with existing beliefs and replaces these with new ones. Most famously described by (Mezirow, 1997, p. 6) as.

> *"Transformative learning (Mezirow, 1991, 1995, 1996; Cranton, 1994, 1996) is the process of effecting change in a frame of reference." ... "Frames of reference are the structures of assumptions through which we understand our experiences." ... "We have a strong tendency to reject ideas that fail to fit our preconceptions, labelling those ideas as unworthy of consideration." ... "When circumstances permit, transformative learners move toward a frame of reference that is more inclusive, discriminating, self-reflective, and integrative of experience."*

Mezirow defined the process in his initial study as having ten phases that could contribute to a transformative learning experience, by which not all ten phases need to be encountered and the order could be at random. The phases are: (a) a disorienting dilemma; (b) self-examination of assumptions; (c) critical reflection on assumptions; (d) recognition of dissatisfaction; (e) exploration of alternatives; (f) plan for action; (g) acquisition of new knowledge; (h) experimentation with roles; (i) competence building; and (j) reintegration of new perspectives into one's life (Mezirow, 1991).

Mezirow clearly defined this pedagogy from a psychological and mind development standpoint. However, in this initial definition, there is not a lot of practical teaching methods or skills that will directly foster a disorienting dilemma to occur for example. A more visual representation was offered by Nerstrom in the next section (Section 2.3.2.2).

#### *2.3.2.2 Nerstrom's four phases of transformative learning*

Nerstrom (2014) visualized the process of transformative learning as seen in Figure 2.3. Based on the ten phases defined by Mezirow, this representation uses four phases that flow in a circular process, where entry to the process can happen at any segment. After a full circle and reaching transformative learning, the circle continues becoming a new experience, a continuous process.

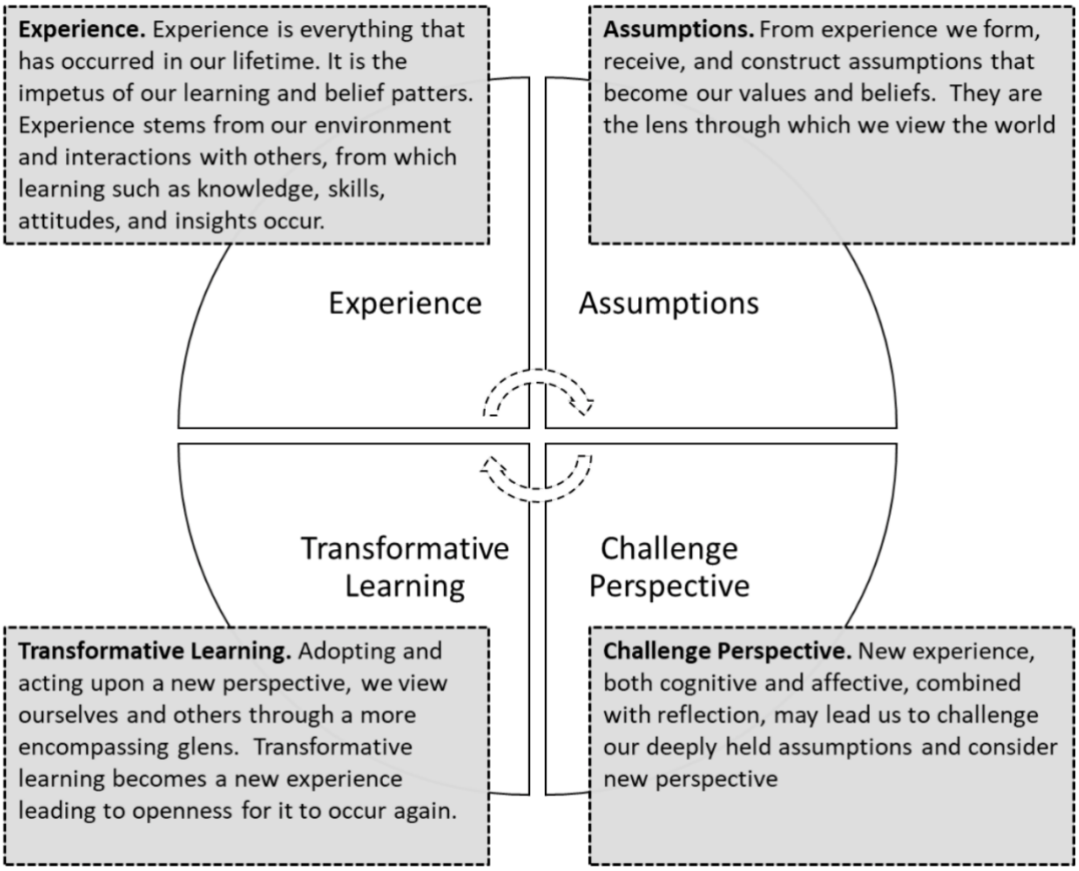


Figure 2.3: Nerstrom's transformative learning model

Once transformative learning happens this means that people are more likely to experience another full circle process, making it a one -way process, with people hardly going back on a learning experience (Nerstrom, 2014). Both Mezirow and Nerstrom describe an experience-driven process for reaching transformative learning which is inherently irreversible.

Transformative classroom activities contain more reflection, collaboration and discussion among students and teachers than traditional teaching.

The Handbook of Adult Learning published by Merriam and Baumgartner in 2020 included a chapter on transformative learning. The teaching methods connected to more collaboration in transformative learning through discussion, group work and critical reflection (Merriam & Baumgartner, 2020). More importantly, the lecturer takes on the role of facilitator of education rather than the more conventional subject matter expert. This distinction changes the direction of knowledge transfer to come from more than the conventional source of the subject matter expert and related reading. The student in this case will be more involved in finding and creating knowledge through collaboration and reflection.

Reflection is also a skill encountered in the Career EDGE employability model in Section 2.2.1.2. It is here, in the reflection as a teaching method, where transformative learning and employability skills overlap. Using reflection as part of transformative learning can foster all sorts of skills the students' needs and encounters, such also as employability skills.

Another pedagogy that shifts the focus from the lecturer to the student is Student-centred learning, discussed in the next section (Section 2.3.3).

### 2.3.3 Student-centred learning

In a student-centred learning environment, the student determines what material is relevant and takes control over their learning (Trinidad, 2020). Doyle and Zakrajsek (2019) add that student-centred learning and teaching is more in harmony with how the brain is learning new information. Namely, students only construct new neural networks when their brain is actively working with the new information by practicing, reading, thinking, collaborating, and reflecting etc. (Doyle, T. & Zakrajsek, 2019).

This student-centred learning method is the opposite of traditional learning, in the way the main responsibility of education design now lies more with the student rather than the lecturer. Doyle (2008) found that teachers who know how to create a community, engage students actively, teach students how to learn material and give students a choice in education style positively impact students' learning tend to engage in student-centred learning. The pedagogical literature also supports that moving toward learner-centred teaching will lead to good marks for students and increased job satisfaction for teachers (Brown Wright, 2011). There is recognition that the affective and cognitive domains interact to determine classroom effectiveness (Weimer, 2002).

Student-centred learning can be resisted upon first introduction as it is not what students expect of education as based on their typical prior educational experience. However, taking time to introduce the concept can lead students to take on more responsibility of their own learning.

Student-centeredness focuses not on the individual learner and their learning processes, but it also considers the whole learning context. Thus, a range of teaching methods can provide student-centred learning since it is not defined by the activity a student does, but the quality of the knowledge that is constructed by the student themselves figuring out what works (Doyle, T. & Zakrajsek, 2019; Mayer, 2009).

Compared to transformative learning, the student-centred aspect is independent from certain teaching methods as long as they foster a sense of responsibility in the learner. Transformative learning aims to create an environment where a disorienting dilemma or experience can give a sudden relation with which deep learning occurs. These learning theories are not mutually exclusive, and both can foster employability skills. For student-centred learning autonomy, and self-awareness, belief and confidence are also included.

The next section discusses a third example of a learning theory that is prevalent in modern education, experiential learning.

### 2.3.4 Experiential Learning

Experiential learning is learning from experience, related to the belief that all genuine learning occurs through experience (Kolb, A. Y. & Kolb, 2017). The key is connecting learning from experiences to prior knowledge and experience. The experiences can be set in the educational space, but also in the life outside of that with a high focus on the individual context of the learner. Providing real-life experiences in education that prepare for the line of work after graduation, is a method to provide relevant experiences to foster employability in students (Aarup Jensen et al., 2019; Savery, 2006).

#### *2.3.4.1 Kolb's four phases of experiential learning*

Kolb (2014) defines learning as a process that creates knowledge by a certain transforming experience. Again, the four phases of experiential learning are described through a cyclical process—first, there is the concrete experience, followed by reflective observation second and abstract reconceptualization third, resulting finally in active experimentation (see Figure 2.4). For the classroom, this means that developing a welcoming and comfortable situation is

essential for promoting learning, where linking to students' past and future experiences (Merriam & Baumgartner, 2020).

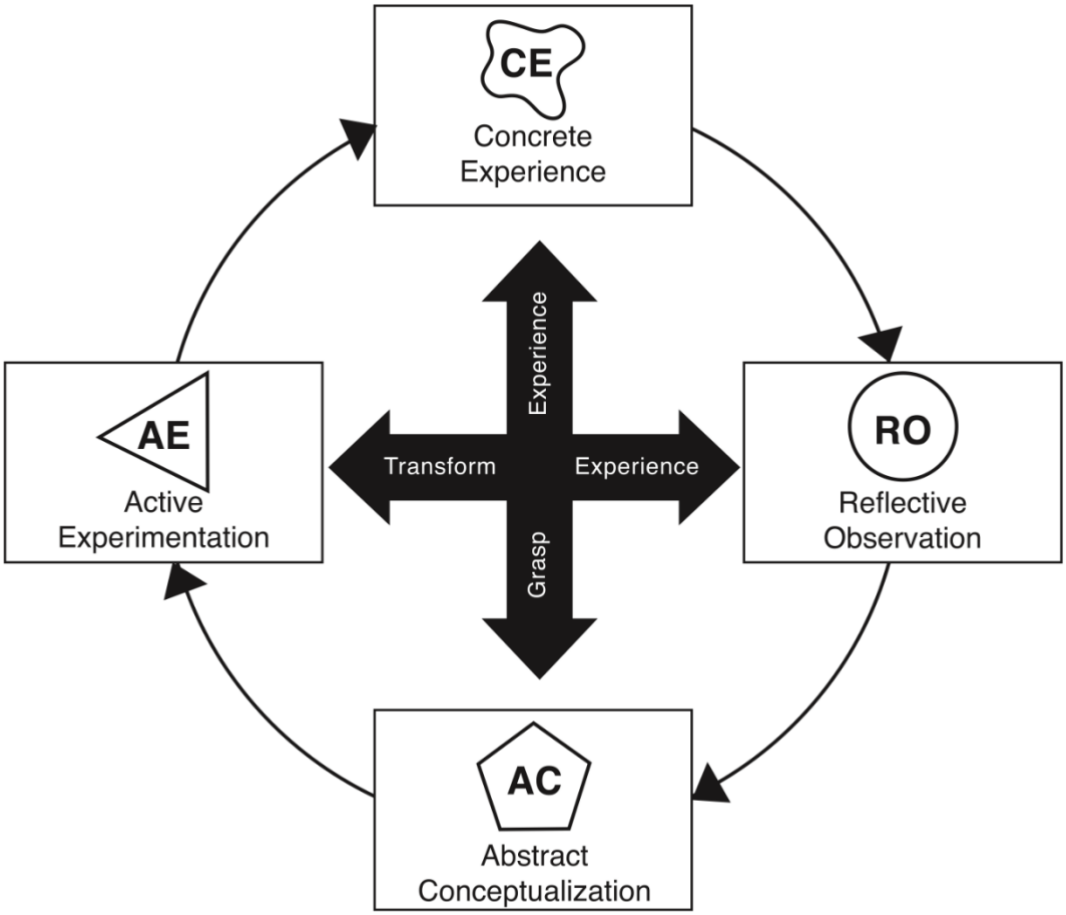


Figure 2.4: Kolb's four phases of experiential learning (Kolb, A. Y. & Kolb, 2022)

Kolb connects four basic learning styles to this cyclical process. Each type is situated between the four phases of the cycle. For example, a diverging learner will reflect on concrete experience, and an accommodating learner will act to get a tangible experience rather than reflect.

The cycle as described here in Figure 2.4, shows a similar one-way direction of learning experience as transformative learning. Learning through experience visualised in this way can help situate learning experience and real-life based problems in the curriculum for teaching staff.

A teaching method that has been growing in popularity, by applying real-life settings in assessment is authentic assessment (Bosco & Ferns, 2014; Sokhanvar et al., 2021). Authentic

assessment focuses on incorporating real-life settings that can be informed by real case-studies or collaboration with companies. This gives students a real-life work experience that helps employability and awareness of their preferences for potential jobs (Sokhanvar et al., 2021).

Together the three discussed pedagogies/learning theories make for a range of ways students learn in a classroom setting that is influenced by the lecturer to foster employability skills. The pedagogies are not mutually exclusive and can overlap in their execution or occurrence. This study will explore the presence of transformative learning to foster graduate employability but evaluating teaching practice as a whole in a study like this asks for the consideration of multiple learning processes to be evaluated in teaching practice that foster employability skills.

A brief summary of the literature review is provided (Section 0) to bring together the most important information for consideration in the design of the research questions (Section 2.5) and methodology (Chapter 4).

## 2.4 Summary of the literature review

Among the context of academic education and the existing focus on employability skills lists, employability models and accounts showing the relation between skills and employability and the self-have tried to visualise this process.

The history of the development of the first Irish Technological University provides context of the development of vocational education through the last decades in Ireland. Naturally keeping a focus on employability at a Technological University connects to developments in literature and National reports on measuring performance of students, by incorporating their graduate employability and employment numbers after graduation per programme. Models and counts have been published to connect the lists of employability skills to the processes the student and the teaching staff can use in their teaching practice. Pedagogies have been formed to further extract the necessary experience, teaching method and psychological developments to develop students to become more employable.

This research will thus focus on understanding the current and desired educational practices that are related to transformative learning as a pedagogy example and graduate employability. The understanding will be visualised in an educational framework to study the relation between transformative learning pedagogy and graduate employability as perceived in practice at TU Dublin. Finally, the framework will be evaluated by lecturers to learn of the embeddedness and potential for application in day-to-day teaching practice, and alignment to local, national, and

international strategic direction for education will be sought. The lay-out of the research interest resulted in three research questions as described in the next section (Section 2.5).

## 2.5 Research questions

RQ1. What are the current, and desired, educational practices within the TU Dublin Curriculum that develop transformative learning and graduate employability?

RQ2. How can the current, and desired, educational practices be used to establish and underpin a transformative learning and graduate employability framework within TU Dublin?

RQ3. How can a transformative learning and employability framework be embedded into day-to-day practice, and the overall strategic direction, of TU Dublin?

# Chapter 3: Lens of Research

# 3 Lens of research

## 3.1 Ontology

My ontological perspective is what I know to be true about the social and political reality to be investigated (Grix, 2001). My background lies in chemistry, an objective and natural science. I decided to study chemistry at university because maths and natural sciences were my best subjects in terms of performance during my secondary education. I chose chemistry because there was more practical application of the math and abstract concepts. I have completed a bachelor's in chemistry in three years, and a master's in advanced material science in four years, both in the Netherlands. Chemistry has shaped my worldview and has given me mostly quantitative research experience. This means I am most comfortable with graphing and tabling data of sets of experiments. For example, measuring the solubility of polymer chains, and graphing the degree of solubility against the temperature of the solvent. This helps to visualise data for discussion. This also translates to how I view the world in the sense that I see universities, companies, and governing structures as absolute and abstract systems, rather than a collection of humans making decisions.

My interest in transitioning to studying third level education came from my own experience at university. I felt my education could have been better in some instances less passive transmission of knowledge and more engaging with more lab time. For example, lower degrees for applied chemistry students have more lab experience than theoretical chemists in a higher degree in the Netherlands. Towards the end of my chemistry education, I was more interested in improving the teaching model, than in furthering my skills in chemistry. An improved teaching model would have included more weekly lab time, instead of bursts of three-week immersive labs, some theory modules which used more activities instead of lectures, and more supporting workshops on how to learn, how to present, how to manage time etc.

When it was time to decide my second master's research project, my supervisor told me to pick a topic that I found interesting. I quickly realised, it was not another chemical discipline, but education. The supervisor helped me arrange a research project in chemistry education in Dublin, through a chemistry colleague at TU Dublin. This colleague was qualified in research into third level education, as well as a professor in chemistry, so a good fit for background and interest. The research project focused on how chemistry lecturers experienced the change of a virtual learning environment (VLE) since they just moved from Blackboard to Brightspace as a VLE platform. This project brought me in contact with the supervisors of this current project.

This is how I found the research opening for the MPhil in transformative learning and graduate employability in curriculum design at TU Dublin. This was a chance to facilitate a leap in my career into education rather than chemistry.

In this previous educational research project, and based on my chemistry research experience so far, I incorporated some element of quantitative research using a mixed quant/qual methodological approach. Using a quantitative questionnaire and qualitative follow-up interviews, I looked at the identity of lecturers and their experience to the change of VLE. I measured the identity of the lecturers using answers from a questionnaire and translating them to numbers which I could graph in a spiderweb graph. Mixed methodologies were thus used as qualitative subjective interpretation was used by me the researcher to connect the interview themes to the quantitative graphed numerical data to discuss trends. However, I found the interviews much harder to analyse as I had never done qualitative research before. I felt first-hand that humans are more individual and complex, making it harder to analyse. Because of time constriction I did not complete a full thematic analysis, instead I used quotes from the interview transcripts as qualitative data.

For this research project, more qualitative research was planned for programme document analysis. However, I noticed that quantitative data still spoke more to me, mainly due to my chemistry background. Asking qualitative questions of documents would not be able to extract the same level of detail as coding for skills and counting references would, in my opinion. I immediately think about how I can graph something or how I can make a good overview table. However, when studying a social phenomenon and interviewing people, analysing the transcripts by reducing the statements to a number and a graph, like I would prefer to do, is not good practice as it can reduce the social complexity of an open answer To embrace the complexity of a human, I needed to consider intention, previous experiences of the person and social surroundings of the person, to name a few (Bryman, 2012). You cannot take any of those experiences away to create a perfect objective experimental set-up, just studying one variable like the rate of evaporation versus degrees Celsius of one chemical. People are complex and live linearly, and you just meet them for thirty minutes, one day of their lives, whereas a chemistry experiment can be redone tomorrow and yield (almost) the same results. I have come to appreciate qualitative research for what it can mean to you within social research, although it is still complex for me.

Looking at worldviews, I can see that social data exists in a constructivist worldview. However, I believe more in an objectivist worldview (Bryman, 2012). Social constructivism is the belief that knowledge is constructed by doing and via social interactions (Aylward & Cronjé, 2022). Objectivism, however, is more connected to natural sciences, where knowledge is created objectively, not dependant on social context, rather by observation and the search for facts and through real-life problems (Aylward & Cronjé, 2022).

This study fits therefore most in pursuing qualitative research with a qualitative and quantitative approach as described in Bryman (2012). There is tension for me here due to my objectivist worldview because of my education in an objective science. For future projects, this tension may shift again. Maybe the subject I am studying then will be best explained through quantitative research. And I am sure this more qualitative project will have added to my experiences and will have influence on how I see the world next.

## 3.2 Epistemology

Grix (2001) describes epistemology as how we become to know what we know (Grix, 2001). I believe that knowledge is created by gathering facts, which form the basis for laws. Facts can also be determined from empirical experiences and is based on a scientific approach to research. This aligns to my chemistry background. This is a positivist worldview (Bryman, 2012). For example, I believe that most of the knowledge existing today can be understood by reading books or websites and attending lectures. However, I did not see this as a social process. I did not think you inherently need other people to study a discipline well.

However, this process of understanding concepts and placing that next to existing knowledge in your mind is personal and it cannot be assumed as identical for everyone. I can see that social interaction can provide a deeper understanding about concepts or different views for some. I accept the belief that knowledge might be created due to a social process too, or at least adds to understanding. This is an interpretivist worldview (Bryman, 2012). For example, I have experienced situations where discussions about a topic with another student gave me a different angle to think about. I questioned what I knew, and therefore maybe had to look at the concept again, which provided me with further or additional understanding.

I have read the criticism on the positivist worldview in the sense that it does not consider the complexity of humans and neglects matters as creativity and moral knowledge. Also performing solely positivistic quantitative research into practical matters can neglect the complexity of the issues and provide over-simplified solutions (Cohen et al., 2007). For example, when you

perform experiments and you are interviewing people and you do not consider your own bias in interpretation, or why the person will answer a certain way based on their life-experience. You are abstracting the data collected in the interviews too much. Therefore, I understand the value of constructivism and I can agree that when researching humans, the scientific method alone is not sufficient.

On the other hand, I have also read the criticism on the interpretivist approach. There is a risk of incomplete data when focusing on the personal impressions of the researchers and abandoning an objectivist-level of structure when doing qualitative research (Cohen et al., 2007). For example, not using a structured way of interviewing can lead to inconsistency in the questions asked and going off the topic of research too much in the interview (Coles & McGrath, 2010). Using some level of structure can assure reliability in the data collection. The interpretation of the researcher is also affected by the surroundings and there might be constant influence on the participants (Cohen et al., 2007).

## 3.3 Summary positionality

There are paradigms present for conducting research and they are equally valid for doing different types of research. I believe in a positivist worldview in the natural sciences, knowledge is gathered by reading facts. Data can be visualised using numerical values and graphing or tabulating ranges of data gathered. However, when performing social research, I believe that people are so complex in their thoughts and experiences that I believe that an interpretivist worldview is best used. By incorporating the whole picture of the complexity of the life of the participants, the data gathered will be enriched with context. For this project, I will use an interpretivist lens, however supplemented by objective data. This is the best description of my current beliefs, and these beliefs may be influenced by the progress of this study, new studies in the future or new life experiences.

# Chapter 4: Research Methodology

# 4 Research methodology

This chapter outlines the approach to the research design and the research methodology used in this research project, as further introduced in Section 4.1.

The initial data collection, is detailed in Section 4.2, followed by definition of the unit of analysis in Section 4.3, and the sampling method for both data collection methods is explained in Section 4.4.

Data analysis for the programme documents is described in Section 4.5 and Section 4.6 explains the focus group analysis methods.

The methods of evaluation of the developed framework are described in Section 4.7. This is followed the rigour of the research (Section 4.8), the triangulation and considering ethical implications of the research. Subsequently research validity (Section 4.9), reliability (Section 4.10), generalisability of the research (Section 4.11), and bias of the researcher (Section 4.12) are described as related to the research design.

Finally, the research methodology is summarised in Section 4.13 for quick reference for the reader.

## 4.1 Overview

Structured research questions informed the research methodology. The methods for data collection included documentary analysis of programme documents like module descriptors and focus groups with lecturers. Thematic analysis inferred trends in the data, and this was triangulated with recent and relevant literature, to address the following research questions:

RQ1. What are the current, and desired, educational practices within the TU Dublin Curriculum that develop transformative learning and graduate employability?

RQ2. How can the current, and desired, educational practices be used to establish and underpin a transformative learning and graduate employability framework within TU Dublin?

Subsequently, the current and desired teaching practices and the analysed values were combined to inform a draft educational framework. This draft framework was evaluated by lecturers and other stakeholders to address the third research question:

RQ3. How can a transformative learning and employability framework be embedded into day-to-day practice, and the overall strategic direction, of TU Dublin?

An exploratory case study was selected because of the timeframe and nature of the research. A case-study is defined as a detailed and intensive analysis of a particular event, situation, or organisation with a defined timeframe (Schoch, 2019). Case study design relies on multiple types of data for evidence on the phenomenon and its context (Yin, 2018).

The research project was also situated within a larger concurrent project, namely the Transform-EDU project[3]. The exploratory nature allows for this research to explore teaching practices with a focus on transformative learning and graduate employability at the new university of TU Dublin. Compared to explanatory research, this research does not attempt to explain, but rather suggest trends by collection and analysis of the data by exploration (Swedberg, 2020). A case study allows for focus on one phenomenon, one example, one location. The study of one example can then allow for a better answer to the why and how of the example, and this can then be useful for other settings and locations (Thomas, 2021). The decision of a case study approach informed the type and structure of the research questions as shown in Figure 4.1. The research questions in turn influenced the research method as evaluating the teaching practice asks for interacting with the current design (i.e., module descriptors) and the parties involved in teaching and designing teaching (the lecturers and programme coordinators/heads of school).

A mixed method approach was utilised to combine quantitative and qualitative data collection and analysis. Mixed methods allow for flexibility in data analysis to collect data most fitting to answer the research questions (Creswell, 2014; Doyle, L. et al., 2016). A downside of a mixed methods approach is the need for connecting quantitative and qualitative data analysis together. Connection of outcomes of the two types of research is challenging as on the one hand there is quantitative data indicating for example statistics or trends in numbers, and on the other hand there is qualitative data that portrays the complexity of experiences of people involved. Both sets of data can give different insights, but the compatibility or mutual impact on a certain specific question can be difficult to find (Ivankova, 2014).

[3] Transform-EDU aims to place transformative learning centre-stage in the formation of the new technological university. The Transform-EDU project focuses on an innovative approach to learning where elements of structured programmes, and co and extra-curricular events will be purposefully integrated to create the rich learning environments that are required to foster transformative learning (Transform-EDU, 2022).

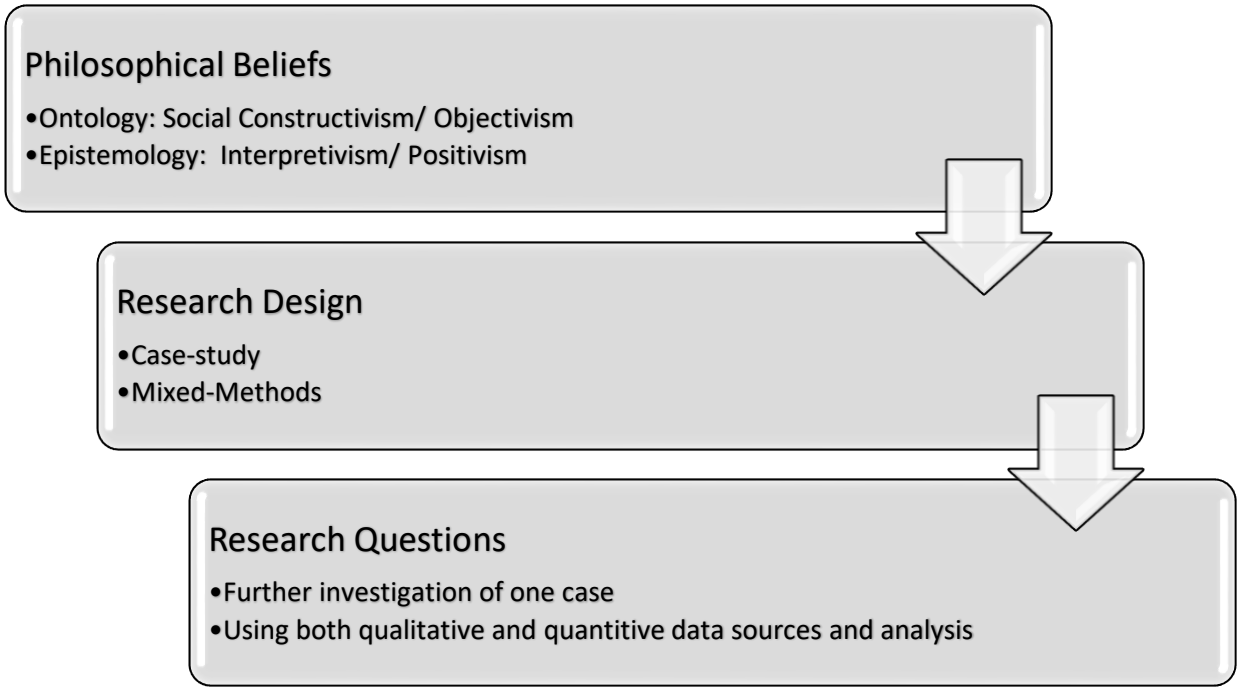


Figure 4.1: Research design process

Section 4.2 will describe the detailed methods for data collection, including the documentary analysis and the focus groups with lecturers, followed by the definition of the unit of analysis in Section 4.3.

## 4.2 Data collection

Programme documents and focus groups with lecturers were chosen as the main sources of data with the most potential to address the first and second research questions. Programme documents are a written description of a programme and its constituent modules, describing content, teaching methods, and learning outcomes. In this study these consisted of module descriptors in the forms of programme books of modules only. Focus groups with lecturers gave the lived experiences of enacting the programme documents by lecturers and an overall deeper explanation of relevant topics by targeted questions.

### 4.2.1 Documents

Written descriptions of teaching practice exist in the form of programme documents. These documents describe information about a programme of study and its constituent modules. By reading programme documents from beginning to end, the journey that students go through a programme and the content taught can be followed through time. Module descriptions include learning outcomes, a description of content, a description of teaching methods, assessment types and frequency and reading materials.

Thematic analysis was the method used to analyse these programme documents as it permits the researcher to identify underlying trends within written data (Braun & Clarke, 2021). Compared to content analysis, thematic analysis infers trends that are in the intention and information of written data, where content analysis focuses more on the order and repetitive use of words (Drisko & Maschi, 2016). Qualitative analysis of the programme documents was also considered, using qualitative questions to be asked of the documents as described in Creswell (2014). However qualitative questions did not align with the structure of programme document formats used in this study relating to programme design.

### *4.2.2* Stakeholder consultation

Focus groups with lecturers gave the lived experiences of enacting the programme documents in the classroom. Focus groups were used as they include a larger number of participants (two to five participants on average) and allow for discussion between participants within the groups compared to single participant interviews. Also, focus groups can provide for a more representative sample of stakeholders for the research in a time-effective way, while producing rich data as lecturers can interact with each other leading to deeper discussion (Cyr, 2019).

Focus groups were undertaken virtually because of the pandemic of the coronavirus disease COVID-19. Considerations for undertaking virtually are noted by Dos Santos Marques *et al.* (2021), who performed focus groups during the pandemic and note it as a new way of exploring qualitative data collection as it allows for broadening participation.

Five lecturer-based focus groups, across five purposefully sampled programmes per discipline were intended, however, four were conducted due to time limitation and the leaving of one programme coordinator that was selected in the time of data collection. The method for sampling is described in Section 4.4. Lecturers from the same programme were approached through the programme chair/programme coordinator or head of school (different campuses/faculties had different names for the person overseeing the programme at the time of this study at TU Dublin). Lecturers would volunteer to participate based on a short information sheet and video of what is expected from participation and on their rights and the processing of their data, see Appendix Three for the information sheet and Appendix Four for the consent forms used for the focus groups. The participating lecturers (between 2 and 4 per programme) taught across different years of the selected programmes, and on programmes outside those explored in this study, depending on their field of expertise and, therefore, had a deep understanding of the selected programme. Using lecturers that work on the same programme

permitted comparison between the practiced and experienced transformative learning and graduate employability experiences per programme.

The focus groups discussion was structured around ten questions. A semi-structured interview guide was developed for the focus group, focusing on topics that aligned to the research questions, see Table 4.4. A semi-structured interview guide allows for direction to be provided to the conversation between participants yet allowing the opportunity to ask follow-up questions based on relevance and interest (Cyr, 2019). Five topics for the focus groups were defined as: (1) curriculum practice, (2) teaching methods in use, (3) transformative learning definition and practice, (4) graduate employability focus and associated skills in practice, (5) the importance of common employability skills and associated skills in practice

Focus groups were facilitated virtually using Microsoft Teams, which is the online communication platform supported by the university and widely used by participants during the recent pandemic of the coronavirus disease COVID-19. Focus groups were recorded using the application Filmage Screen Lite for Mac (PDF technologies Inc., 2022), allowing for recording of the laptop screen, the Microsoft Teams Window, incoming audio, and microphone audio. Participants were made aware that their participation was voluntary and their right to withdraw from the study at any time. Participants were informed about the purpose of data collection, methods for data collection, analysis, and further use and how and if data was stored and for how long. Consent forms were collected from each participant to confirm their consent in participation and full understanding of the process and purpose of the study. Focus groups were limited to 45 minutes in duration for questions, with optional time for final considerations by participants, up to a maximum duration of 60 minutes.

Completed focus groups were transcribed *verbatim* using the transcription software Otter.ai (2022). Otter uses an artificial intelligence algorithm that can aid in converting recordings to written text. Transcriptions were manually corrected after the initial transcription attempt by Otter.ai. All participants were anonymised, and transcripts were downloaded and saved as per data storage and data protection guidelines of TU Dublin (Technological University Dublin, 2022a).

Thematic analysis was performed using four steps. First, structural coding was performed, followed by a familiarisation step, then coding was performed and finally themes were developed, see Section 4.6.1 and constituent subsections.

Section 4.3 defines the unit of analysis, as both the programme documents and focus groups will need a focus for developing a manageable, yet representative, sample for this study.

## 4.3 Unit of analysis

The unit of analysis is the object or person for which information is analysed and conclusions are made. Additionally, the unit of observation is the object or person of which data is measured or collected (Sedgwick, 2014).

The unit of analysis in this study is the respective ISCED (International Standard Classification of Education) that a programme belongs to. The discipline specific trends were analysed, and conclusions were made. Both the TU Dublin campus location of a programme and the ISCED discipline of a programme were explored as the unit of analysis. In both cases, the selection method focused on establishing a balanced and representative spread from across the University as per the unit of analysis. The units of observation are the single programmes.

The ISCED unit of analysis was used as the primary process, followed by the spread in campuses within those disciplines. A table was compiled of all currently taught programmes per ISCED broad field discipline in TU Dublin. A 3:1:1 (City: Blanchardstown: Tallaght) campus spread was applied. This was based on the precedent of the committee composition during the TU4Dublin process to allow legislation for a new Technological University to be formed from three constituent Institutes of Technology in the Dublin area (Higher Education Authority, 2022). The 3:1:1 ratio was also reflective of undergraduate student enrolments per campus in the 2018/2019 academic year; Blanchardstown Campus: 2,757, City Campus: 18,396, Tallaght Campus: 5,445 student enrolments (OECD, 2022). Making the 3:1:1 ratio (or 0.51: 3.38: 1.0 in ratio, using the 2018/2019 student enrolments) a comparable way to measure scale of contribution of programmes per campus. In the 2020/2021 academic year the programmes per campus were Blanchardstown: 17, City campus: 96, Tallaght Campus: 29 programmes out of 142 programmes in the final sample (or 0.58: 3.31: 1.0 in ratio) see Figure 4.2.

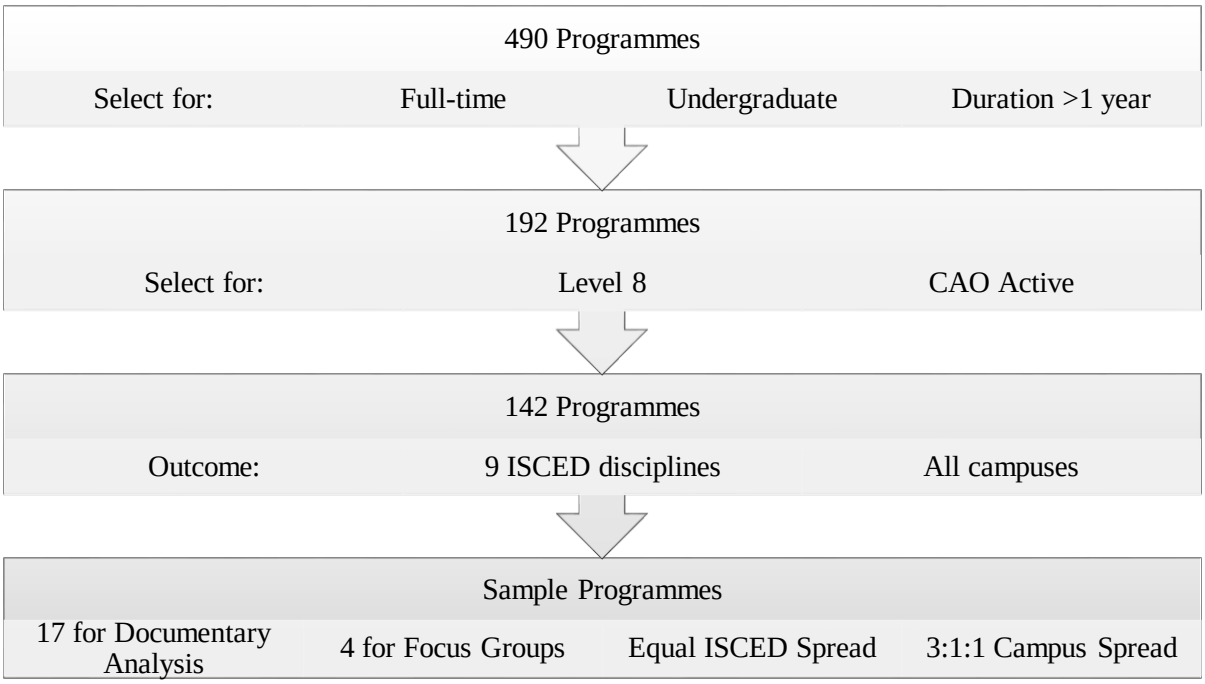


Figure 4.2: Steps in selection of sample programmes at TU Dublin

Using the unit of analysis, the sampling for both programme documents and focus groups were developed. Section 4.4 describes the process of developing the sampling method to be both manageable in the timeframe, as well as representative for the ISCED disciplines.

## 4.4 Sampling method

This study used documentary analysis and focus groups as data collection methods. Sampling of programmes of study was needed to gain representative samples to reflect the university across campuses and disciplines as per research design.

TU Dublin is a recently merged university and under ongoing redesign at the time of this research project and sample selection. In this study, programmes were selected for inclusion based on the programmes available in Spring 2021 using the TU Dublin website, which included a total of 490 programmes. Selections were made based on programme duration and type of degree, after which 192 programmes remained. Selecting for CAO (Central Application Office) active programmes for 2020/2021 academic year and level eight programmes yielded 142 remaining programmes. Finally, using equal campus and ISCED spread, yielded intended samples for both documentary analysis and focus groups of 17 and five programmes respectively using a justified spread in disciplines and campuses, see Figure 4.2 and Appendix One for more detail.

Detailed overviews of programme selection for both documentary analysis and focus groups can be seen in Appendix One.

After initial data collection was completed, data analysis was used to address the first and second research questions, as described in Section 2.5. Data analysis comprised two primary methods, documentary analysis (Section 4.5) and focus group analysis (Section 4.6).

## 4.5 Programme documentation analysis

In this study, a combination of deductive and inductive coding adds rigor and depth of analysis (Fereday & Muir-Cochrane, 2006). Deductive coding is coding that is determined before analysis of the data takes place, compared to inductive coding, which is determined during analysis and codes are directly inferred from the data.

Deductive codes for graduate employability were identified by the researcher from relevant literature of employability models in higher education that demonstrated prominence through preliminary scoping of the literature landscape on the topic of employability in higher education (Pool & Sewell, 2007; Yorke & Knight, 2006), see Table 4.1.

Table 4.1: Employability skills as defined in literature

| CareerEDGE model (Pool & Sewell, 2007) | USEM account (Yorke & knight, 2006) |
|---|---|
| Career development learning | Subject understanding |
| Experience (Work and Life) | Skills, including key skills |
| Degree Subject Knowledge, Understanding and Skills | Personal Qualities, including self-theories and efficacy beliefs |
| Generic Skills | Meta-cognition |
| Emotional Intelligence | |

Additionally, literature review over the past twenty years on employability skills was utilised (Artess et al., 2017; Dalrymple et al., 2021). Finally, TU Dublin's own graduate attributes (Technological University Dublin, 2022c), the Transform-EDU Tenets of transformative learning and the Student Transformative Learning Record (STLR) competencies (Owende et al., 2018), were used, see Table 4.2.

Table 4.2: Employability skills in TU Dublin context

| **TU Dublin Graduate Attributes (March 2021) (Technological University Dublin, 2022c)** | **Transform-EDU Tenets of Transformative Learning (Owende et al., 2018)** | **STLR Competencies TU Dublin (Owende et al., 2018)** |
|---|---|---|
| Engaged | Sustainable development | Civic Knowledge |
| Enquiry-based | Emotional Intelligence | Discipline Knowledge |
| Expert | Civic Engagement | Global Cultural Competence |
| Effective | Leadership and Teamwork | Health and Wellbeing Development |
| Enterprising | Scholarly Activity | Leadership and Teamwork |
| | Entrepreneurial | Research and Innovation |
| | Global and Cultural | |
| | Academic Integrity | |

The deductive employability codes were chosen by overlapping the skills mentioned in the used publications in Table 4.1 and Table 4.2, and selecting the skills that had the most overlap. Thus, the employability codes were chosen as: global and cultural skills, leadership and teamwork skills, emotional intelligence, research and entrepreneurship, discipline knowledge and civic engagement. The deductive transformative learning codes were chosen by using the definition of transformative learning by Merriam & Baumgartner (2020), focusing on facilitating learning in students, using teaching methods like reflection, discussion for creating autonomous thinkers. The transformative learning codes were chosen as: autonomous thinking, reflection, facilitating learning, and discourse/discussion. Definitions of each code used during analysis are given in Table 5.1 and Table 5.2.

Inductive codes were developed by the researcher as part of the analysis process; the codes were developed from the data, using expressions and recurring trends from within the dataset itself (see Table 5.3 for the final inductive codebook). One example is the addition of the

inductive code for presenting as this is a skill that is important for employability, however, was not specifically part of the deductive codes determined.

Once the codebooks were established and stable, pilot coding was performed. This involved highlighting sections relating to the established codes in the module descriptor sample used. An inter-rater reliability exercise was performed as described in Section 4.5.1 and 4.5.2 respectively.

### 4.5.1 Pilot coding

The deductive codes were pilot tested on two programme documents provided by the supervisory team. These examples were not part of the final sample of programme documents for documentary analysis.

During testing, it was found that additional skills described in the programme documents needed to be added as inductive codes. The inductive codes added were presenting, career-based learning, general soft skills, ethics, software knowledge and writing skills. The nature of the programme documents, not being written for analysis but for informing students and programme description, is validated by including inductive codes. Using inductive codes makes use of the style of describing skills in the programme documents as written by lecturers and programme coordinators/heads of school/programme chairs. Inductive codes also increase the potential of application of the results as they are generated using the style of writing of each document.

### 4.5.2 Evaluating pilot coding

Following pilot test coding and code evolution, the resultant codes were coded to 10% (n=2 documents, 10 pages each) of the final sample of programme documents. The evaluation was performed independently, but with the research team (research student and two supervisors) collaboratively dual coding the same twelve pages of programme documents (from different documents of different disciplines) using the same codes and definitions.

Collaborative coding has the potential to enrich understanding of interpretation of coding the data (Braun & Clarke, 2022). Unlike statistical coding overlap, where trial coding is measured to success with a percentage or statistical calculation of significant overlap, collaborative coding allows for discussion around the meaning of codes that enhances the coding process. Comparison of the independent dual coding was influenced by the interpretation of the programme documents and the intention sections as content of modules or teaching methods conveyed.

The pilot coding process was finalised, the programme documents collected in the sample were coded accordingly. The next phase of data collection consisted of focus groups with lecturers and the data collection method is described in Section 4.6.

## 4.6 Focus group analysis

The focus groups with lecturers were prefaced by a pilot focus group with staff, which helped develop the questions for the focus groups with the selected sample, described in Section 4.6.1. The method for focus group data collection was finalised, as described in Section 4.6.2. The analysis method was detailed including the coding steps that fit the nature of the data and that address the research questions, as described in Section 4.6.3.

### 4.6.1 Focus groups pilot

Prior to completing the primary focus group data collection, a 30-minute pilot focus group was conducted with a convenient sample of staff (n=4; three academic staff members and one professional services staff member) to interrogate responses to the pilot focus group questions relating to transformative learning and graduate employability, following the designed semi-structured interview guide, see Section 4.6.1.

Following this pilot focus group, improvements made were made by adding definitions for graduate employability and transformative learning, should participants be unfamiliar with the terms, and to ensure better timekeeping per question.

### 4.6.2 Focus group execution

Four focus groups were conducted with staff from four purposefully selected programmes (as detailed in Section 4.4 and Appendix 1). Participating staff consisted of lecturers, programme coordinators, assistant head of school, depending on the faculty, a programme team consists of different members. Participant numbers for each focus group are displayed in Table 4.3 below.

Table 4.3: Participants per ISCED focus group

| **Focus Groups** | **ISCED 7. Engineering, manufacturing, and construction** | **ISCED 4. Business, administration, and law** | **ISCED 5. Natural sciences, mathematics, and statistics** | **ISCED 9. Health and Welfare** |
|---|---|---|---|---|
| **Number of Participants** | 4 | 3 | 3 | 2 |

### 4.6.3 Focus group data analysis

Thematic analysis was performed using four steps. First, structural coding was performed, followed by a familiarisation step, then coding was performed based on Terry, Hayfield, Braun, and Clarke's (2017) definition of coding and finally themes were developed. Each step in the thematic analysis process is explained in the subsections below (Sections 4.6.3.1 to 4.6.3.4).

#### *4.6.3.1 Step 1: Structural coding*

Structural coding is a content-based or topic-based analysis of segments of data that relate to a specific question and prompt used during an interview or focus groups. The data were coded based on the questions and topics of the semi-structured interview guide (Guest et al., 2012; Saldaña, 2021). The coded segments are then grouped together for further analysis. Structural coding resulted in four main topics to be analysed further in the subsequent coding steps. The four topics of structural coding were curriculum, transformative learning, graduate employability, and skills, detailed in Table 4.4.

Table 4.4: Structural coding: topics and questions

| **Structural Coding** | **Q#** | **Question** |
|---|---|---|
| | (0) | Circle around: What is your role in the programme? |
| **Curriculum** | 1 | How would you define the term curriculum? |
| | 2 | How would you define the teaching method you use in the programme? *E.g., Active/ traditional/student-centred*<br>o Do you engage with students a lot?<br>o Do you promote students to reflect?<br>o Do you have engaging/alternative methods of assessment than written exams? |
| **Transformative Learning** | 3 | Have you come across the term Transformative learning before?<br>Given definition:<br>*Transformative learning is a student-centred teaching method, focusing on creating autonomous thinkers and mostly uses discussion, group work and critical reflection to achieve transforming learning experiences for students that prepare them for the work life.* |
| **Graduate Employability** | 4 | How would you define graduate employability in the curriculum?<br>o Do you feel you prepare students for the world of work?<br>o Do you focus on skills other than discipline specific ones? More generic?<br>*Graduate employability is the potential to which graduates are employable, usually defined in a list of skills desired in* |

| | | |
|---|---|---|
| | | *graduates. TU Dublin uses the 5 E's currently (Engaged, Enquiry-based, Expert, Effective and Enterprising).* [Continued On Next Page] |
| | 5 | How do you feel that your programme fosters graduate employability?<br>○ In your module/ in your assessment? |
| **Skills** | 6 | ~~How~~ What do you think about the importance of skills in the slideshow? (Showing Figure 5.1) |
| | 7 | Do you feel these skills are represented ~~in your~~ in your programme?<br>○ In your module/ in your assessment? |
| **Structural Coding** | Q# | Question |
| | (0) | Circle around: What is your role in the programme? |
| **Curriculum** | 1 | How would you define the term curriculum? |
| | 2 | How would you define the teaching method you use in the programme? *E.g., Active/ traditional/student-centred*<br>○ Do you engage with students a lot?<br>○ Do you promote students to reflect?<br>○ Do you have engaging/alternative methods of assessment than written exams? |
| **Transformative Learning** | 3 | Have you come across the term Transformative learning before?<br>Given definition:<br>*Transformative learning is a student-centred teaching method, focusing on creating autonomous thinkers and mostly uses discussion, group work and critical reflection to achieve transforming learning experiences for students that prepare them for the work life.* |
| **Graduate Employability** | 4 | How would you define graduate employability in the curriculum?<br>○ Do you feel you prepare students for the world of work?<br>○ Do you focus on skills other than discipline specific ones? More generic? |

| | | |
|---|---|---|
| | | *Graduate employability is the potential to which graduates are employable, usually defined in a list of skills desired in graduates. TU Dublin uses the 5 E's currently (Engaged, Enquiry-based, Expert, Effective and Enterprising).*<br><br>[Continued On Next Page] |
| | 5 | How do you feel that your programme fosters graduate employability?<br><br>o In your module/ in your assessment? |
| **Skills** | 6 | What do you think about the importance of skills in the slideshow? (Showing Figure 5.1) |
| | 7 | Do you feel these skills are represented in your programme?<br><br>o In your module/ in your assessment? |

#### *4.6.3.2 Step 2: Familiarisation*

Familiarisation is recommended to get a good understanding and recognition of the dataset. Reading through the dataset multiple times, noting down thoughts aids in-depth analysis and coherency (Terry et al., 2017). In this study, familiarisation was achieved by taking only the excerpts from each focus group on one topic together and repeatedly reading through the excerpts. During this reading, the responses were summarised, and observations and comparisons were made between responses and different focus groups.

#### *4.6.3.3 Step 3: Coding process*

Coding is an open process that identifies interesting and relevant points in the data that connect to answer the research questions (Terry et al., 2017). Inductive coding was used at this stage, where codes are inspired by the dataset directly and not premeditated, a process also described in Section 4.5.1. In this study, and following familiarisation, codes were created to capture the trends found per topic. Commonalities, striking responses, and majority responses of respondents were grouped into relevant pending themes for the structural segment.

#### *4.6.3.4 Step 4: Theme development*

Theme development involves evaluating codes and re-organising them. Keeping the goal of the data analysis in mind helps to select relevant trends in the coding that can become themes (Terry et al., 2017).

Themes were developed based on re-ordering and grouping the codes generated during the previous step. In this way, developing themes is an iterative process that allows for the finding of trends in the data set that encompass subtopics of codes. For example, teaching methods is a theme and reflective practice, discussions and teamwork are subcodes of specific teaching methods. Keeping focus on the research questions helps to complete this step of data analysis.

After data were collected and analysed from the programme documents and focus groups, an educational framework was developed based on the trends in the data and relevant literature as detailed in Chapter 6.1. The draft PAGE framework (Pedagogy Assisting Graduate Employability) was evaluated by staff members, of which the method is described in the next section (Section 4.7).

## 4.7 Evaluation

An evaluation of the emerging PAGE framework took place with staff members at TU Dublin focusing on the potential of embedding the draft framework into programmes. Participants were sourced from an educational event organised at TU Dublin in May 2022, as part of the development of the University Education Model (UEM). The event focused on highlighting current innovative educational projects, from across TU Dublin. From the total amount of contributors to the event, 41 people were identified that had no direct link to this study, and these contributors were not known to the researcher prior to the evaluation sessions.

The forty-one potential contributors identified were contacted by email. An information sheet was included with a visual of the PAGE framework, as included in Appendix Five. Thirteen responded to the invitation to participate in an evaluation of the draft educational framework. Due to time-constraints for the evaluation phase of the research, twelve online evaluation sessions were planned over a period of two weeks, each 15 minutes in duration. See Appendix Six for the consent form used for the evaluations. Eleven sessions were included in the final transcribed data set for analysis. One session was excluded due to an off the topic discussion that leaned more towards a research perspective, rather than evaluating the framework from a practice perspective.

The sessions were one-to-one and semi-structured in nature. The questions focussed on one main question; the potential to embed the emergent PAGE framework, and two sub questions; the use of pedagogies and teaching methods for lecturers as based on the emergent PAGE framework. The semi-structured nature allowed for supplementation by prompts to elaborate and further explain statements. The *verbatim* transcripts were analysed through structural coding based on structural themes encountered, followed by summary and synthesis of statements from different evaluators together per theme.

This concluded the data collection and analysis phase of the project. However, to help define the design of the research and show understanding of how the design functions to produce reliable and valid results, the next sections explain the rigour of the research (Section 4.8), validity (Section 4.9), reliability (Section 4.10) and generalisability (Section 4.11) of the research.

## 4.8 Research rigour

This section will describe the rigour of the research. First, by explaining the triangulation of the research data to arrive at the findings of the research in Section 4.8.1. Second, the consideration of ethical impact of the research design is discussed as well as when ethical approval was obtained by the TU Dublin Ethical Committee in Section 4.8.2.

### 4.8.1 Triangulation

Methodical triangulation uses different methods of data collection to look at the research questions and topics. There are different ways to achieve triangulation in research. Methods triangulation uses two different methods within one field of research methodology, like using two qualitative methods to look at one problem: interviews and observations. Data source triangulation uses data from different groups of participants e.g., students and teachers or students from different years. Another possibility for triangulation is collecting data at different times or more than once from the same participants, and finally triangulation can be achieved by using more than one researcher to collect the data (Coles & McGrath, 2010).

This research used data source triangulation as the data collection included different disciplines of study programmes as unit of analysis, where separate focus groups were conducted, and programme documents were collected from different programmes across the university in purposefully selected disciplines and campuses. Using focus groups, programme documents, relevant and recent literature to answer the research questions allows for different angles to look at the case discussed in this research.

### 4.8.2 Ethics

Ethical clearance, in accordance with the TU Dublin Blanchardstown Ethics board, was sought and approved by the Transform-EDU project prior to the start of this project. Due to the proposal being updated at the start of this project, ethical clearance was re-sought and re-approved. Documentation required for ethical clearance included an application for ethical clearance form, a general health and risk assessment form, a consent and advice prior to research project form and an impact on human subject and the researcher form. Together with an updated application for admission for a postgraduate degree, including a detailed research proposal and curriculum vitae of the primary researcher and supervisors, these documents were submitted and approved by the Ethics review committee Blanchardstown campus. Ethical clearance was received on 23rd of October 2020, see Appendix Two. At this point of ethical approval, the literature review process was underway, but the fieldwork was yet to be undertaken. The updated ethical clearance forms including an updated research proposal were accepted without major changes.

## 4.9 Validity

A valid opinion is based on good argument or good evidence. A valid approach is one where you ensure that you measure what was intended to be measured (Coles & McGrath, 2010).

Validity in qualitative research is not only based on a statistical test of data, but also a process of multiple factors that influence the study, such as the interpretation of the results, the context, and the role of the researcher (Hayashi et al., 2019).

In this research, maintaining a valid approach was kept in mind while designing the coding process for documentary analysis by incorporating pilot trial coding before complete coding of document sample. However, coding was an interpretive process, as deciding on what sections, and what length of sections to code is individual to the researcher. The coding process was enriched by trial coding and the outcome of counts of mentions of skill per programme was completed with consistency by the researcher to enhance the perception of skills descriptions in programme documents for this sample.

For focus groups, one variable for validity lies in the depth and method of analysis for the transcripts. Coding text is, however, subject to the interpretation of the researcher and the consistency of questions asked in the focus group depends on the consistent approach of the researcher. Discussing the coding process, and trends and themes found with the supervisory team ensures enrichment of the understanding and analysis of the data to increase validity.

Ensuring what is measured can be achieved by connecting to the research questions and specific goals and aims for each data collection method during collection and analysis. In this research, validity was mainly connected to valid coding methods and subsequent analysis, which can be tested and discussed further with stakeholders to the research or with critical supervisors. This ensures enriched and accurate conclusions are achieved based on evidence in the data, thereby ensuring increased validity. In future, validity can be improved further by using a processual incorporation of validity in the earliest stages of the research project as described in Hayashi et al. (2019)

## 4.10 Reliability

Reliability refers to the extent of achieving the same results if the research was repeated. In qualitative research this means that transparency is key to show how exactly each result was achieved, to show a trustworthy collection and analysis of results (Coles & McGrath, 2010; Rose & Johnson, 2020) (Coles & McGrath, 2010) Reliability asks researchers to be consistent and apply appropriate methods and to justify the use and choice of the methods for transparency (Rose & Johnson, 2020).

In a case-study approach, the sample is not statistically significant to ensure increased reliability of findings by sample size alone according to Coles and McGrath (2010). However, transparency of data collection and analysis method will allow for repeatability of the study and an exact comparison to research circumstances if the research were to be repeated. This methods chapter provided full transparency of research design, aims, collection, analysis, and the next discussion chapter (see Chapter 5) provides transparency about the arrival at trends and outcomes based on the data analysis to increase the reliability if this study.

## 4.11 Generalisability

Qualitative studies are usually unique because they are human focused, local, and specific in application (Coles & McGrath, 2010). Generalisability in a case study is possible to either a trustworthy estimate, or to a theoretical proposition (Cleland et al., 2021).

The nature of a case study is to observe one example in one location or one phenomenon in detail to add to the field of research. If a case study is predominantly qualitative this means that there is a focus on human interpretation from the participants and from the researcher (Coles & McGrath, 2010). Depending on the type and definition of case study, generalisability will connect to the nature of the enquiry (exploratory, or heuristic) and the design of the enquiry (to study from literature or to study from iterative data) (Cleland et al., 2021; Yin, 2018). With

adequate development and focus of validity and reliability during the research process (see Sections 4.9 and 4.10 respectively), case studies can help inspire further research that is transparent and valid in their findings to elaborate upon.

Generalisability and relatability are improved by ensuring high validity and reliability with a specific justification of what the aim and goal for the research project are and what the context for the case study is, to define the specific circumstances the research took place in.

The next section (Section 4.12) describes any bias the researcher recognised while designing and performing the research.

## 4.12 Bias

Acknowledging researcher bias is good practice to show how the opinion or frame of reference of the researcher informs the results and the research process. Transparency and an understanding about bias raises an awareness of the effect of bias on the research.

Regarding my researcher bias influence from conversations and opinions towards lecturers as professionals exists from previous experience in bachelors and master's degrees, for example comments on the workload of lecturers, university structures, and the researcher's own student experience shape perceptions about interacting with lecturers. Also, research completed in 2019 around the experience of lecturers during a VLE change has shaped the focus groups undertaken in this research.

## 4.13 Methodology summary

This methods chapter has explained and described the process of research design, data collection and research methods undertaken for the data analysis. Initial data collection consisted of focus groups with lecturers and documentary analysis of books of modules. For both the focus group selection and the documents collection, purposeful sampling was used to obtain a campus-spread and a discipline-spread using European defined ISCED disciplines. The focus groups took 30 minutes, and participants ranged from two to four participants of lecturers from the same selected programme. The focus group sessions were semi-structured focusing on five main questions with emerging sub questions.

The analysis of the focus groups followed a four-step coding and theme development process as informed by structural coding and thematic analysis. The books of modules were analysed using deductive and inductive codes to study the presence of skills mentioned in the documents and trends in frequency and discipline were analysed. The evaluations of the PAGE framework

were undertaken with lecturers sourced from an event focusing on educational development project at TU Dublin. The evaluations were of short duration, 15 minutes, one-on-one with the lecturers, and were semi-structured focusing on two main questions with emerging sub questions.

Research rigour, among which triangulation and ethics, and validity, reliability, generalisability of the research was described to show an understanding of the implication of the design of the research and the connection to the conclusions made from data collected. The bias of the researcher was described as to show any influence in interpretation of the data based on personal experience.

The next chapter (Chapter 5) will discuss the findings and discussion from the focus group and documentary analysis data collected as described in the methodology in this chapter. Then Chapter 6 will describe the development of the PAGE educational framework and the evaluations with lecturers that results in an iteration of the PAGE framework.

# Chapter 5: Findings and Discussion

# 5 Findings and discussion

This chapter explores the data collected through the research methodology (see Section 4.2). Trends and observations were identified through thematic analysis and are discussed and categorised per data source. The literature review (see Chapter 2) was used to compare the trends identified in this chapter and the research questions are used to guide the subsequent discussion.

Following the arrangement of the research questions (see Section 2.5), this chapter will examine the current and desired teaching practices in relation to transformative learning at TU Dublin through programme documents (Section 5.1) and focus groups (Section 5.2). The data is explored from the documentary analysis, as well as the stakeholder consultations, to understand the current and desired practice as described. The trends identified through thematic analysis are discussed and aligned to the literature. Consequently, a bespoke and evidenced-based educational framework (the PAGE framework, Pedagogy Assisting Graduate Employability) was formulated, described in Chapter 6.1.

## 5.1 Transformative learning and graduate employability in programme documents

The programme documents were analysed as described in the methodology (Section 4.5). This section describes the collected sample set (Section 5.1.1), the nature of the books of modules as noted during analysis (Section 5.1.1.1), and the deductive and inductive codes and their definitions as used for analysis (Section 5.1.1.2). The output of the data analysis is discussed in Section 5.1.1.3, with a focus on the code frequencies and the trends seen in these frequencies. Finally, a short summary is provided in Section 5.1.2, before the discussing the analysis trends for the focus groups with regards to transformative learning and graduate employability in Section 5.2.

### 5.1.1 Programme documents

The target sample size for the programme document-based data set was seventeen programmes, over all nine available disciplines. The actual sample size utilised was nine programmes, over seven disciplines. In this study, programme documents were selected and analysed to identify trends in the current and desired teaching practices in TU Dublin. The documents were analysed using thematic analysis, employing a combination of deductive and inductive coding, as described in the methodology chapter (see Section 4.2.1 and Section 4.5).

There is an array of information about programmes available both internally and externally across the University. For example, sources include the publicly accessible university website, as well as restricted internal access books of modules, programme review reports and faculty and/or school-based documentation. In this study, validated books of modules were chosen as the definitive data source as they are the most comparable documentation between the different programmes examined within the data gathering methodology. Different faculties/schools have different lay outs of programme documents; however, the books of modules were the most similar in nature as they describe the individual modules comprising any one programme.

#### *5.1.1.1 Nature of the books of modules*

The structure of books of modules was typically consistent across the programmes examined and usually entailed a general statement about the programme, description of the school or faculty, and stating the learning outcomes for the overall programme. Subsequently, each module of the programme is described (termed a module descriptor) in chronological order in terms of delivery to students, from first to final year. Module descriptors comprise a short description of the goal and syllabus of the module, describe what the student will learn from taking the module. The current coordinator and lecturer delivering the module are listed, along with the teaching methods used during the delivery, the learning outcomes for the students and the modes of assessment.

During this study, it became clear that programme documents are inherently not written for research-based analysis; instead, their function is to document the syllabus and learning outcomes. The documents find use in supporting students to understand modular assessment and recommended reading and, collectively, to provide an overview of the components of the programme review. The descriptions are either written by a programme board or individual lecturers and, as such, they act as a guide for lecturers and students as of what to expect during the academic year. In this study it was observed that module descriptors are updated annually and are not updated on a shorter timeframe. Therefore, module descriptors serve more as a template for teaching and delivery. Exceptions are when regular updates are necessitated due to collaboration with a national accredited body or industry partner that permits connections between learning outcomes and agreed standards of proficiency that graduates need to develop.

Section 5.1.1.2 details the deductive and inductive codes for skills as used for analysis of the books of modules.

#### *5.1.1.2 Deductive and inductive codes for skills*

Following the explanation in the research methodology (see Section 4.5), the deductive codes used in this study were chosen as: global and cultural skills, leadership and teamwork skills, emotional intelligence, research and entrepreneurship, discipline knowledge and civic engagement. Similarly, the transformative learning deductive codes used in this study were: autonomous thinking, reflection, facilitating learning and discourse and discussion. Definitions of each code used during analysis are given in Table 5.1 and Table 5.2.

Following initial deductive coding, and based on data immersion, inductive codes were required to fully code all data sources (see Section 4.5). These additional inductive codes were identified as; presenting, career-based learning, general soft skills, ethics, software knowledge and writing skills and definitions of each code used during analysis are given in Table 5.3.

Both the deductive and inductive codes were used to analyse the books of modules. Sections of the samples were highlighted, or called coded here, when matching the definition for one of the codes. The codes were then analysed on number of references per book of module.

Table 5.1: Employability skills used for deductive coding

| Employability Skills | Definition used for coding |
|---|---|
| **Global and Cultural Skills** | Any mention of international knowledge, collaboration and/or awareness. And any mention of inter-cultural skills, communication, or awareness. |
| **Leadership & Teamwork Skills** | Any mention of group work, teamwork and or collaboration skills or project assignments. And any mention of leadership skills like planning and managing a project. |
| **Emotional Intelligence** | Any mention of emotional intelligence development for the graduate during the programme or as learning outcome. Any mention of sensitivity communication skills, and any knowledge about self-development. |
| **Research & Entrepreneurship** | Any mention about research projects and assignments or learning outcomes that focus on understanding how to undertake research, how to learn about the level of current knowledge and how to develop that further. |
| **Discipline Knowledge** | Any mention of skills that are specific to the discipline of study, that are equally as important as more generic soft skills. |
| **Civic Engagement** | Any mention of collaboration with local community, and or outreach. The development of the idea that we are all part of our community and our part in the world. Collaboration with local industry can also be civic engagement. |

Table 5.2: Transformative Learning skills used for deductive coding

| Transformative Learning Skills | Definition used for coding |
|---|---|
| **Autonomous thinking** | Any mention of a development of thinking skills that lead to making independent critical analysis, judgement, and decisions. |
| **Reflection** | Any mention of reflective practice, whether that be personal or professional. |
| **Facilitating learning** | Any mention of more actively engaged learning for students facilitated by the lecturers and the programme. |
| **Discourse/discussion** | Any mention of communication skills, discussion, collaboration. Possibility to overlap with the employability skill teamwork. But focusing on the essence of communication skills and deciding together. |

Table 5.3: General skills used for inductive coding

| Inductive Codes | Definition used for coding |
|---|---|
| **Presenting** | Any mention of presentations performed as part of continuous assessment or examination. Also, presentation skills that were not captured in discourse and discussion. |
| **Career-based learning** | Any mention of knowledge provided about how to develop a career and get skills to obtain a job. Any skill mentioned can be connected to your future career. Career-based learning is specifically about building a career in general and what working as a professional would be like. |
| **General soft skills** | Any mention of general soft skills is used when the skills listed above don't quite catch the description. |
| **Ethics** | Any mention of importance of ethical knowledge. Sometimes this is connected to civic engagement and sometimes to research. |
| **Software knowledge** | Depending on the context software knowledge can be connected to discipline knowledge, as well as to research knowledge. This separate code describes any mention of essential knowledge of software (e.g. to be able to graph or analyse data using an appropriate software). |
| **Writing skills** | Any mention of assignments that are based on writing skills, such as essays, reports, and written examination. Like presenting, writing skills were not specifically captured in discourse and discussion. |

The analysis of the codes used on the collected sample is discussed in Section 5.1.1.3, using a code frequency analysis and observed trends in the frequencies.

#### *5.1.1.3 Code frequencies per book of modules per skill*

Initially, a code frequency analysis was carried out to identify trends from across the programmes under exploration (see Table 5.4). However, conducting such an analysis assumes that the researcher coded consistently. To aid coding consistency an inter-rater reliability process was carried out (see Section 4.5.2). Furthermore, a case-by-case interpretation of coding frequency is required. Relative and comparative coding can be challenging with, in some cases, only one book of modules per discipline and, therefore, no direct conclusions can be

made as to individual differences and discipline trends, but rather suggestions of the bigger trends and differences.

Table 5.4: Total reference count for deductive and inductive skills shown per book of modules.

| | **Number of References** | **BN_7** | **CC_1** | **TT_4** | **CC_6** | **CC_2** | **CC_2(2)** | **CC_10** | **CC_5** | **CC_7** |
|---|---|---|---|---|---|---|---|---|---|---|
| **Em** | Global and Cultural Skills | 1 | 17 | **51** | 9 | 3 | 16 | 19 | 5 | 5 |
| | Leadership and Teamwork | **44** | 42 | 41 | 53 | 53 | 65 | **77** | 12 | 29 |
| | Emotional Intelligence | 4 | 11 | 8 | 13 | 2 | 25 | 11 | 4 | 0 |
| | Research and Entrepreneurship | 21 | 27 | 37 | 77 | 53 | 49 | 50 | 29 | 44 |
| | Discipline Knowledge | **137** | **109** | **161** | **336** | **116** | **102** | **113** | **133** | **83** |
| | Civic Engagement | 10 | 8 | 1 | 20 | 4 | 8 | 16 | 3 | 26 |
| **TL** | Autonomous Thinking | 11 | 8 | 11 | 48 | 68 | 23 | 51 | 53 | **57** |
| | Reflective Practice | 2 | **58** | 16 | 16 | 8 | 8 | 11 | 6 | 24 |
| | Facilitating Learning | 21 | 39 | 27 | **191** | **104** | 50 | 58 | **109** | 54 |
| | Discourse and Discussion | 4 | 43 | 15 | 36 | 46 | 27 | 34 | 6 | 7 |
| **Gen** | Presenting | 19 | 23 | 32 | 32 | 65 | **92** | 41 | 25 | 14 |
| | Career-based Learning | 2 | 35 | 6 | 61 | 18 | 24 | 54 | 18 | 22 |
| | General Soft skills | 2 | 1 | 1 | 0 | 2 | 0 | 0 | 0 | 0 |
| | Ethics | 12 | 11 | 3 | 12 | 3 | 0 | 11 | 1 | 3 |
| | Software Skills | 6 | 1 | 6 | 2 | 21 | 0 | 13 | 16 | 23 |
| | Writing Skills | 23 | 14 | 27 | 48 | 52 | 27 | 37 | 46 | 26 |

Table 5.4 displays the total reference count for deductive and inductive skills shown per book of modules. Skills are shown per category of coding: employability skills (Em), Transformative learning (TL), and general (Gen). Those data highlighted in underlined, and **bold** are the lowest and highest two skills as per coding reference counts, respectively, as viewed per programme (on the vertical column). Programmes are shown by their campus abbreviation Blanchardstown (BN), City Campus (CC), or Tallaght (TT)., And the respective ISCED discipline number (International Standard Classification of Education): 1. Education, 2. Arts and Humanities, 4. Business, Administration and Law, 5. Natural Sciences, Mathematics and Statistics, 6. Information and Communication technologies (ICTs), 7. Engineering, Manufacturing and Construction, 10. Services.

As detailed in Table 5.4, general soft skills and ethics skills were mentioned less than ten times per programme document on average (general soft skills was coded 1.5 times, and ethics was coded seven times on average, in programme documents of 147 pages on average). In the books of modules analysed in this study, the use of the term general soft skills referred to soft skills in general, but also includes a generic referral to a range of soft skills, replacing specificity in skills. Additionally, ethics is an important skill within modern education. As seen in Table 5.4, ethics was coded more in the programmes of Blanchardstown Campus Engineering, City Campus Education, City Campus ICTs, and City Campus Services (all values above 10). However, comparing the two engineering programmes, City Campus Engineering only mentioned ethics three times, compared to 12 times in Blanchardstown Campus. This shows that a comparison of two programmes with different subdisciplines within a larger ISCED discipline is not directly possible with a sample size of one or two programmes.

Discipline knowledge is described the most in all books of modules, consistent with the goal of module descriptors to describe the focus of each module and the discipline knowledge that students will acquire.

The second skill to be most coded per programme is facilitating learning, coded as: '*Any mention of more actively engaged learning for students facilitated by the lecturers and the programme*'. This skill was coded the most after discipline knowledge in three programmes out of nine. Facilitating learning is an aspect of transformative learning that provides a learning experience for students, for example reflection, designated self-study, or written assessments. These facilitated learning experiences can provide transformative learning and so the coding pattern aids in exploring the practice related to fostering transformative learning.

The third most coded teaching method per programme was leadership and teamwork, which is attributed to many notes of group work and presentations in groups during modules. Coded as second most in two programmes out of nine, this skill is important as it shows on most employability proficiency lists (Artess et al., 2017). Leadership and teamwork are often described as a transversal skill in such lists, meaning they can be transferred between fields and disciplines. Developing leadership and teamwork in group work and group assessment is related to many work environments where graduates will work in teams. Adding group work to modules and assessment also helps to provide transformative learning experiences as dilemma, problem-solving and reflection on behaviour can come up in group settings.

Reflection is an important mechanism for skills to be incorporated into self and for transformative learning experiences to occur (Liu, 2015; Mezirow, 1998). However, in the coding of the books of modules, the skill is either described as highest or lowest count, as can be seen in Table 5.4. Three out of nine programmes show the skill the least mentioned, whereas two programmes show it as second most mentioned skill. Reflective practice is the only skill that shows such a variation in coding numbers.

### 5.1.2 Summarising documentary analysis trends

To answer Research Question One (Section 2.5), this initial documentary analysis explored the prevalence of current transformative learning and graduate employability practices in teaching and learning and assessment at TU Dublin. Books of modules were used to understand practice, through inductive and deductive thematic analysis. However, only the use of books of modules can only account for the written description of teaching practice.

The trends of majority mentioned skills relate to discipline knowledge and facilitating of learning and least coded are ethics and general soft skills. The data did not reveal trends based on discipline and comparison between the documents, although more similar than other programme documents, proved harder to extract meaningful trends. The obtained sample was smaller than intended sample.

The documents mainly educated the researcher on the context of education descriptions as books of modules and module descriptors. To see that defined skills are all present in the descriptions is promising as it could serve as the basis for development of education innovation when alignment to a certain pedagogy and its specific teaching methods is desired.

Section 5.2 discusses the analysis trends from the focus groups with regards to transformative learning and graduate employability.

## 5.2 Transformative learning and graduate employability in stakeholder consultation

This section describes the sample of focus groups collected (Section 5.2.1). The coding process was performed as described in the methodology (Section 4.2.2 and Section 4.6) and the analysis trends per theme found are discussed in Section 5.2.1. A separate section was developed for the trends found with rating the importance of the employability skills as shown during the focus groups per discipline, as described in Section 5.2.2 and the constituent subsections. Finally, the trends found in the focus groups analysis will be summarised in Section 5.2.3.

### 5.2.1 Focus groups with lecturers

The target sample size for academic focus groups was five focus groups, over five purposefully selected disciplines. The actual sample size utilised was four focus groups, over four disciplines. Focus groups with lecturers were chosen to illuminate the enacted teaching practice as explained in the research methodology in Section 4.2.2. Focus groups with students were considered but were not possible due to the point of time in the academic year the data was being collected and the restrictions in place due to the coronavirus pandemic. To ensure a consistent approach to the focus groups four topics of discussion informed each, namely: curriculum, transformative learning, graduate employability, and skills, see Section 4.6.3.1 for the interview guide. Thematic analysis on the verbatim transcribed focus groups was performed in four steps: structural coding, familiarisation, open coding, theme development, as detailed in Section 4.6.3. In brief, data was coded based on recurring terms or subtopics, these codes were subsequently used to build themes. Data reporting was structured based on topic and synthesised under themes found across all focus groups (see Sections 5.2.1.1 to 5.2.1.4).

#### *5.2.1.1 Curriculum: content versus learning outcomes*

Overall, there was minor tension evident between stating if the curriculum is a set of learning outcomes that determine topics, or topics that will achieve the learning outcomes. The tension is exemplified in quotes by LEC 12 and LEC 1:

> *"Em, curriculum, I suppose it's just the content of the program. And that would guide the achievement of the learning outcomes that have been set out broadly for the program overall, and then more specifically, then individually for the modules that should be matched to those program learning outcomes."* (LEC 12, Health)

> *"Yeah, as Lect2 said, a set of learning objectives that you follow, and that you can plan your module around towards during the semester."* (LEC 1, Engineering)

Eight instances of curriculum being content were coded in three focus groups, compared to three coded segments for curriculum is a set of learning outcomes, out of the twelve total lecturers in the four focus groups. The relationship between content and learning outcomes was surprising and could add to a conversation on the importance of content vs. the measured learning outcomes (Allan, 1996).

Also, a tension existed between the definition of curriculum at module or programme level, or both. LEC 12, noted above, described curriculum coming down from the programme level, however LEC 2 below describes topics that arise from the module:

> *"It's a set of topics that you would hope to cover as part of the modules. And the topics are chosen to try and meet the learning outcomes of the program."* (LEC 2, Engineering)

Module or programme level definition seem to reflect the relationship of lecturers to the programme design; they deliver separate modules on a bigger programme. LEC 11 adds the angle that some programmes have regulators defining graduate attributes that then regulate the learning outcomes and the curriculum.

> *"We have kind of proficiencies and graduate attributes that are identified by the regulator and that have to be met. So, the curriculum covers that also."* (LEC 11, Health)

The role of regulating bodies is important in comparing different programmes and certain disciplines, as the agency of a programme and the individual lecturer differs to solely university-regulated programmes. The role of these regulating bodies will be considered going forward.

#### *5.2.1.2 Transformative Learning: unfamiliar, but present*

In this study, lecturer familiarity with the term transformative learning was low, with six out of eight indicating that they were unfamiliar with the term. Of the two lecturers that had previously come across the term; one could not define it.

> *"I've tried to remember I'm sure I've heard of it somewhere, but it just seems it's not coming to me."* (LEC 4, Engineering)

Of the lecturers who had not come across the term, one guessed to a meaning which is related to the definition used in this study:

> "*Trans- transformative and you- Do you get transformed as a result of learning? Yes. You become such an educated person. Yeah, I haven't come across."* (LEC 8, Natural Sciences).

In essence, transforming a student is not the goal of this pedagogy, but the guess can cause risk of incorrect use of the term transformative learning. This study is based on the definitions and discussions of transformative learning (Baumgartner, 2012; Dirkx et al., 2006; Merriam & Baumgartner, 2020; Mezirow, 1978; Mezirow, 1994; Mezirow, 2018).

> *Transformative learning is a student-centred teaching method, focusing on creating autonomous thinkers, and mostly uses discussion, group work and critical reflection to achieve transforming learning experience for students that prepare them for the work life.*

When provided with the used definition, most lecturer responses were positive, even affirmative. Seven out of eight lecturers needed the term explained to them, and afterward they all felt like they practice this pedagogy already. Two lecturers were adamant that the definition fits to their teaching practice completely:

> "*Every day, every minute of every day. Yeah."* (LEC 5, Business).

> "*Oh, there you go. I'm doing it. I didn't know what I was doing, but I'm doing it. [Laughs]. I'm brilliant. My self-esteem has gone up 40% from this engagement. [Laughs]."* (LEC 12, Health).

This quote from LEC 12 captures a sense of arrival of clarity about the new learning term. This adds to the observation around the lack of familiarity with transformative learning with the lecturers that participated in this study. There is a sense that the definition of transformative learning makes more sense than initially anticipated. Specific skills were mentioned in explanation of transformative practice present, aligned to the definition of transformative learning, such as, reflective practice, discussion and preparing students for work life.

Both the Natural Sciences and the Business discipline-based participants made the distinction that it depends on the year in the programme if transformative learning occurs or not.

> "*It depends on the year, it depends on the level of maturity, both emotionally and psychologically or intellectually. But certainly, at its peak, in fourth year, what I would be looking for is the ability to reflect critically."* (LEC 5, Business).

> *"Yeah, well, I think you kind of summed up with your definition of what our approach to our third and fourth years definitely would be. It would be that, you know, the students trying to take the information that we have delivered to them in first year and second year of the program."* (LEC 9, Natural Sciences)

Furthermore, LEC 8 in the Natural Sciences adds the needs of the discipline of study as a reason for more passive and less transformative education.

> *I suppose, if the student come to- to, to a university to learn, they don't know the subject and- and just to put it simply they are coming for us to give them the expertise and the knowledge. And I would advocate strongly, myself in the first at least couple of years that, you know, the students might not be in a position to actually guide their learning, particularly in science based, you know, science space subjects."* (LECT8, Natural Sciences).

So, the progression and the maturity of students seems to connect to the possibility of incorporating pedagogies for teaching advanced skills like critical reflection.

Finally, LEC 6 noted that the real value of education is of a transformative nature according to them. The value lies with transferring and explaining concepts, which students then take ideas from, and they will describe the concepts back to you in their own experiences.

> *"That's when as a lecturer, you really get the sense that, yes, they understand it.' ... 'And, yeah, like I said, because it's a, it's a term I have not come across before, but certainly, it makes an awful lot of sense."* (LEC 6, Business).

#### *5.2.1.3 Preparing for the world of work*

The focus group participants took turns in explaining their focus on graduate employability, but all lecturers are positive that graduate employability is being addressed, as exemplified by LEC 3 and LEC 12 statements;

> *"So, I think there's a lot of- a lot of confidence building skills in the course. And not just you know, your knowledge and your problem-solving skills and your technical knowledge. There's a lot of soft skills, you know, even as Lect4 says, reaching out to the public and doing user requirements with the public."* (LEC 3, Engineering)

> *"So, there's a huge focus on- on the students' employability, you know, that, that there's a minimum standard, that they come out with the required graduate skills to be able to practice in the field."* (LEC 12, Health)

The discussion becomes very discipline-dependent based on the discipline dictating the skills needed for work in the related sector, or how the discipline is what is being delivered and therefore a lens for each focus group emerged; their own discipline related to their field of work.

Graduate employability in the curriculum is driven from the school or national level, down towards modular teaching. The Natural Sciences focus group names the school agreed graduate attributes and that they align to with their programmes and modules, and the Health focus group must deal with National accreditation for their degree, see statements by LEC 9 and LEC 12.

> *"When we usually base a lot of our learning outcomes around our modules on their programs around graduate employment- employability. There are a number of graduate attributes that we focus on within all our programs in the school, and we make sure that our programs are designed in such a way to deliver these attributes to the students."* (LEC 9, Natural Sciences)

> *"So, it does bring some uniformity. And, and then there's also maybe a question mark, that it's becoming-, that it's becoming too tick the box, and everything is going back into a silo. And going back to some of your points there about transformative learning of, you know, are we saying that once this student has these eighty-one proficiencies, they're going to be the perfect social care worker? Where is the opportunity to- What's the broader role of education?"* (LEC 12, Health)

Focus group participants also explored specific examples of projects and assessment that allows students to gain skill and experiences that will be useful for their personal and professional development. The Natural Sciences discipline sees high employment numbers after the degree, with focus group participants from this discipline explaining that their programmes must prepare students for employment.

> *"And our graduates and, indeed, are snapped up very quickly. And they go into, particularly this program, they are very many, many, many of them go to do further education at the masters and a-a PhD, you know."* (LEC 8, Natural Sciences)

Measuring graduate employability by employment numbers for graduates is a strong measurement as well for programme review and the national employability numbers

(Dalrymple et al., 2021). However, it is important that skills facilitation and employment are connected.

In the Health discipline, the regulation requirements provide uniformity across programmes, but it also might encourage 'box-ticking'. Interestingly, during the focus group discussion, LEC 12 questions if even the eighty-one national attributes can make a perfect student of their discipline? What is the role of education? Exploring lists of employability skills serves what purpose?

LEC 5 has an answer for what the role of education should be at a Technological University:

> *I think if you look at what the Technological University set up to do, it's very applied in its orientation. So, you know, our core I suppose approach is very applied, and at- My arena is marketing, so I know where the money is, so to speak, I know what skills, you know, attract what money and very- we-re all very practical. So, we would, we would focus on ensuring that our students have the skills, measurable skills that are needed by industry, so they can literally walk in and start performing from day one."* (LEC 5, Business)

A focus on graduate employability focus is noted in all focus groups, and a discipline specific outlook is the natural lens of discussion because of the topic of delivery and the topic of work field are within the discipline. National regulating bodies and connection to the field of work also influence how graduate employability is enacted in the curriculum.

#### *5.2.1.4 Maturity of the student: third and fourth year*

As discussed previously (see Section 5.2.1.3) the most transformative stage for students, as defined by the Natural Sciences and Business disciplines in their focus groups, in the final years of their degree. This was epitomised by the Business discipline as the ability of students to reflect critically, taking leadership over their projects, receiving only mentoring from the lecturer, and taking ownership of their own learning.

Work placement in third year was mentioned across three out of four focus groups, as a period that really gives the students more maturity and a better idea of the practical use of the knowledge in their degree.

> *"And I think the wider kind of skills like timekeeping, organization, all of those things. I mean, we deal a lot with them on placement, because there are- Because placement is such a significant part of their program."* (LEC 11, Health)

> *"They, they kind of have an idea of what to expect when they go out, you know, to the industry. And of course, the placements, prepare them a lot, because they see the real workplace and so on."* (LEC 8, Natural Sciences)

The real-world exposure in work-placement is useful for students to understand how skills are necessary in the related field of work. For lecturers, placement serves as another source to provide transversal and general soft skills for students.

The Business focus group states that it depends on the level of the students, which correlates to their year of education, relating to the wider theme of third and fourth year.

> *"Again, it depends on the level. And I would say that for the first years, I just want them to build up a certain way of thinking. [...] So let's say, start with the basics, basic tasks, [...] then they can build up and they go further, in terms of data analysis. So, I would say that it's after the third year, you can have people that they are ready, probably to be a part of a business environment. […] But the problem is how they can progress or how they can probably realize that: 'Look there is a development, that development opportunities that I can probably gain in my work environment.' […] And so, and now we also have part time students, which is also another interesting target market. That they are already employed, they work in the company. So, for them, the learning activities they're quite different. So, they have a completely different approach. Sometimes we may also have a conflict, because it's very hard for them to understand how the theory can help them to just apply that on a work environment."* [LEC 7, Business]

In short, maturity plays a role in realising and fostering of graduate employability. Less mature students need to develop their way of thinking, whereas students with more practical experience or maturity can realise their development and seize opportunities better. Also, part-time, or mature students, and particularly those from industry, approach learning activities in a more practical and different way, they have a need to apply the theory in the work environment.

In contrast, the theme third and fourth year comes back in reverse in the Engineering focus group:

> *"So, and in a lot programs, we did only do that level of project work, maybe in third and fourth year, but these- this group much- much sooner in first and second year."* (LEC 2, Engineering)

LEC2 describes that the level of independent project work has shifted to the first few years, allowing students to apply themselves earlier. Interestingly, maturity here seems to come from exposing students to a higher level of project work in the first and second year, which can be built on in subsequent years.

The next section (Section 5.2.2) was developed based on the trends found with rating the importance of the employability skills as shown during the focus groups (see Figure 5.1), as described here, per the disciplines in the constituent subsections (Sections 5.2.2.1 to 5.2.2.4).

### 5.2.2 The definition of important skills for graduate employability

Each focus group participant was asked to respond to the importance of the skills for graduate employability shown in Figure 5.1 as based on their discipline. In most focus groups, one participant would discuss each skill separately at first, before discussing further with the other participants.


Figure 5.1: Skills for graduate employability

This section of the focus groups yielded more detailed reflection and analysis of the importance of the skills as shown, and if they would like to add more skills. The questions used for this section of the focus group were:

*How do you think about the importance of these skills?*

*Do you feel these skills are represented in your in your programme and assessment?*

For each focus group a visual representation was created reflecting the importance of the skills as discussed by the participants, along with suggestion for skills to add. The facilitated discussion suggested that there might be larger trends, best visualised in a scaled schematic (see

Figure 5.1 for the un-scaled template), showcasing the importance of graduate employability skills per discipline, see Figures Figure 5.2 to Figure 5.5.

#### *5.2.2.1 Engineering, Manufacturing and Construction*

The engineering focus group participants suggested adding skills like communication, critical thinking, problem solving and adaptability to change. These additional suggested skills contain a black border in Figure 5.2 to separate them visually from the other graduate employability skills. Emotional intelligence was a skill in this discipline that was encouraged, but not taught with importance or explicitly in the day-to-day curriculum, represented visually in Figure 5.2 as a smaller box. Also, the focus group suggested that ethics was a sub-skill of civic engagement that needed to be noted for students to be developed (see Figure 5.2).

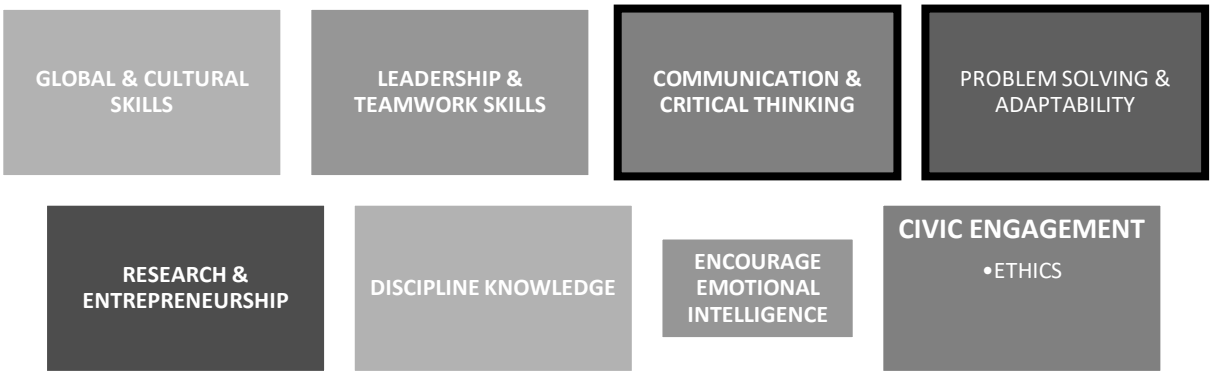


Figure 5.2: Scaled skills diagram from the focus group - engineering

#### *5.2.2.2 Natural Sciences, Mathematics and Statistics*

The Natural Sciences focus group did not wish to add any skills. Instead, they suggested emotional intelligence is incorporated with leadership and teamwork, as emotional intelligence is closely connected to interpersonal skills. This focus group considered that emotional intelligence is introduced, rather than taught, as it is more an innate skill that students learn in the home or outside of the university classroom. Discipline knowledge is at the heart of this discipline, as stated in the focus group, Natural Sciences is focused on transferring a body of theoretical knowledge onto students, resulting in discipline knowledge being depicted as larger than other skills in the scaled skills diagram, see Figure 5.3.


Figure 5.3: Scaled skills diagram from the focus group - natural sciences

#### *5.2.2.3 Health and Welfare*

The Health discipline focus group participants concluded that as a discipline they placed a smaller emphasis on global and cultural skills, and research and entrepreneurship, and so the boxes were reduced in size in Figure 5.4. Participants felt that the content heavy curricula in health sciences did not permit the incorporation of more material in this discipline's programmes. However, the skills are seen as important and in previous versions of this discipline's programmes there was more of a focus on global and cultural skills. However, in postgraduate programmes there is a further focus on research and entrepreneurship, unlike the undergraduate programme that participants focused on.

Focus group participants felt that the practice and work-placement element needed to be added to the employability skills, shown as a box with a black border in Figure 5.4. Connecting to the world of work was strong in this discipline and, therefore, students must possess a good level of hands-on practice. Finally, and possibly because of the discipline, emotional intelligence was states as a skill that was at the core of delivery and thus very important to this focus group, as is visualised by a larger box in Figure 5.4.


Figure 5.4: Scaled skills diagram from the focus group - health and welfare.

#### *5.2.2.4 Business, Administration and Law*

The Business discipline focus group perceived most skills of equal importance, although noting that leadership probably was less developed than other skills. Therefore, leadership was relocated into the orange box in Figure 5.5; this box was previously titled Leadership and Teamwork. Also, like the Natural Sciences focus group, the Business discipline focus group participants felt that emotional intelligence was not necessarily taught in the classroom and so the skill is renamed external: emotional intelligence and is visualised as slightly smaller than other skills in Figure 5.5. Finally, the Business focus group suggested communication and organisational/professional behaviour as a skill that would need to be added; a similar suggestion to the Engineering focus group (Section 5.2.2.1) and represented visually with a new box with a black border (see Figure 5.5).


Figure 5.5: Scaled skills diagram from the focus group - business, administration, and law.

Finally, a short summary is provided in Section 5.2.3, before the discussing the trends analysis for the focus groups with regards to transformative learning and graduate employability with a view to creating a Pedagogy Assisting Graduate Employability (PAGE) Framework in Chapter 6.

### 5.2.3 Summarising stakeholder consultation trends

#### *5.2.3.1 Curriculum*

There was a variety in expression of curriculum noted across the disciplines. There can be a tension on the term curriculum, whether it means the content of the program, or that it is defined by the learning outcomes. It was also noted that curriculum can be determined from the module out, or from the programme board or regulator down towards the module. The role of regulators and/or national bodies of proficiency are noted as they directly influence how proficiencies are connected to learning outcomes for lecturers.

#### *5.2.3.2 Transformative Learning*

The definition of transformative learning was largely unfamiliar at first mention for most lecturers across the focus groups. However, when the term was explained it felt familiar and related to current and existing practice. The level of maturity of the student, and progression through the programme was mentioned as related to the possibility to practice transformative learning practice. More advanced skills, such as critical thinking and reflection, were seen to be more present in third and fourth year of a programme. Science subjects were also thought to be more about knowledge transfer in the first two years of the programme, with guiding of their own learning for students coming into third year. Overall, transformative learning does connect to the value of education that students should integrate learning in their sense of self.

#### *5.2.3.3 Employability*

Employability is a common term in the educational space at TU Dublin and is a well-understood concept by all participants. Several examples of what skills are built and how are explained by lecturers in the focus groups. With graduate employability comes the lens of the discipline as graduates are prepared to work in the related field of work with discipline specific skills, as well as transversal skills to be used in interdisciplinary spaces. High employment numbers of graduates connect to the level of attention towards graduate employability in the curriculum. When a regulating body's presence is felt within a programme, the proficiencies for graduates are stipulated and connected directly to the learning outcomes per module to be achieved, although this can result in a box-ticking exercise for lecturers. During the discussion it was

queried if achievement of all the required national proficiencies would make the prefect graduate. This lead subsequently to a more philosophical query on ‘what is the role of education?’ It was argued that a Technological University should be applied in nature, and students should be able to walk into employment and perform from day one.

#### *5.2.3.4 Maturity of the student*

Maturity emerged in the context of transformative learning and graduate employability. The focus groups describe that advanced skills and self-awareness might come with more mature students in the final years of their programme. In terms of graduate employability, work-placement that is present in most programmes in the year before final year, helps in developing maturity as well as a connection to the work environment. However, not all participants agree with this view of the final years of the programme view; in the Engineering discipline there was extensive project work in the first and second year in this specific programme, that helped to foster maturity and skills with younger students.

#### *5.2.3.5 Importance of different skills per discipline*

Finally, most skills were shown as important, with an emphasis on discipline knowledge, civic engagement being most consistent. The skill with the most variance was emotional intelligence. Where it appeared as external, encouraged, and integrated into leadership and teamwork in three of the four focus groups. Emotional intelligence was an important focal skill in the health discipline, visualised by a bigger box in Figure 5.4. This suggests discipline specific skill needs as based on the difference across the various focus group in relation to emotional intelligence.

Some discipline focus groups combined certain skills together; communication, professional behaviour, critical thinking, problem solving, adaptability, practical skills, and work placement. Communication was mentioned by two different focus groups suggests the need for this skill to be explicitly expressed as a way of describing the combination of a variety of communication skills; such as writing, presenting and verbal skills.

This summary of the trends in analysis towards transformative learning and graduate employability in the focus groups, as well as the analysis trends form the programme documents discussed in Section 5.1.2, served to develop a draft educational framework. The process, detailed in Chapter 6, describes how the PAGE (Pedagogy Assisting Graduate Employability) framework was developed from consulting the literature as described in Chapter 2 and the further understanding of current and desired practice in the initial data collection (Chapters 4 and 5).

# Chapter 6: Developing an Educational Framework

# 6 Developing an educational framework

This chapter describes a bespoke and evidenced-based educational framework that was formulated. This framework illustrates how teaching methods can facilitate a potential for transformative learning and foster graduate employability, in day-to-day teaching practice in TU Dublin, and potentially the wider Technological University sector, as described in Section 6.1. To ensure framework validity and robustness, it was evaluated by education practitioners and innovators in TU Dublin who are likely to utilise this framework as part of their future practice. The focus of the interview-based evaluation was on the usability of the framework and the potential to embed it into their day-to-day teaching practice (described in Section 6.2). Following this initial framework evaluation, the changes suggested by the evaluation panel were incorporated into a second iteration of the framework, called the PAGE framework (Pedagogy Assisting Graduate Employability) as described in Section 6.3, and the alignment with the strategic direction of TU Dublin was examined (described in Section 6.4). This chapter finishes with a short summary of the data collection process and subsequent analysis, the framework development and evaluation.

## 6.1 Towards a draft educational framework for transformative learning and graduate employability

The development of a framework was undertaken to visualise the practice of education encountered in general through themes determined from data collection. An emergent framework was developed and subsequently evaluated by a purposefully sampled population from the wider TU Dublin academic staff. This section will describe the development of the framework from the initial concept (Section 6.1.1), the subsequential development of the first version of the framework (Section 6.1.2), and finally the framework as used for evaluation will be described (Section 6.1.3). Next, Section 6.2 focuses on evaluation of the framework and an iteration of the framework will be shown in Section 6.3.

### 6.1.1 Initial framework concept

Three main components of interest were identified at the start of this study was based on an initial scoping literature review, to situate the research within larger concepts of literature, namely transformative learning, employability, and curriculum development. A Venn diagram was utilised to crystallise and visualise the interaction of these three key components, inspired by a tweet of E. M. Wetzel (2020), see Figure 6.1. The sides of the circles that overlap show areas of interest for the study, with the centre being the goal of the study. Each circle contains subtopics for further investigation to aid the understanding of the main component of the circle.

This Venn diagram was used to build out what was to become the framework for educational development as based on the data collected and analysed.

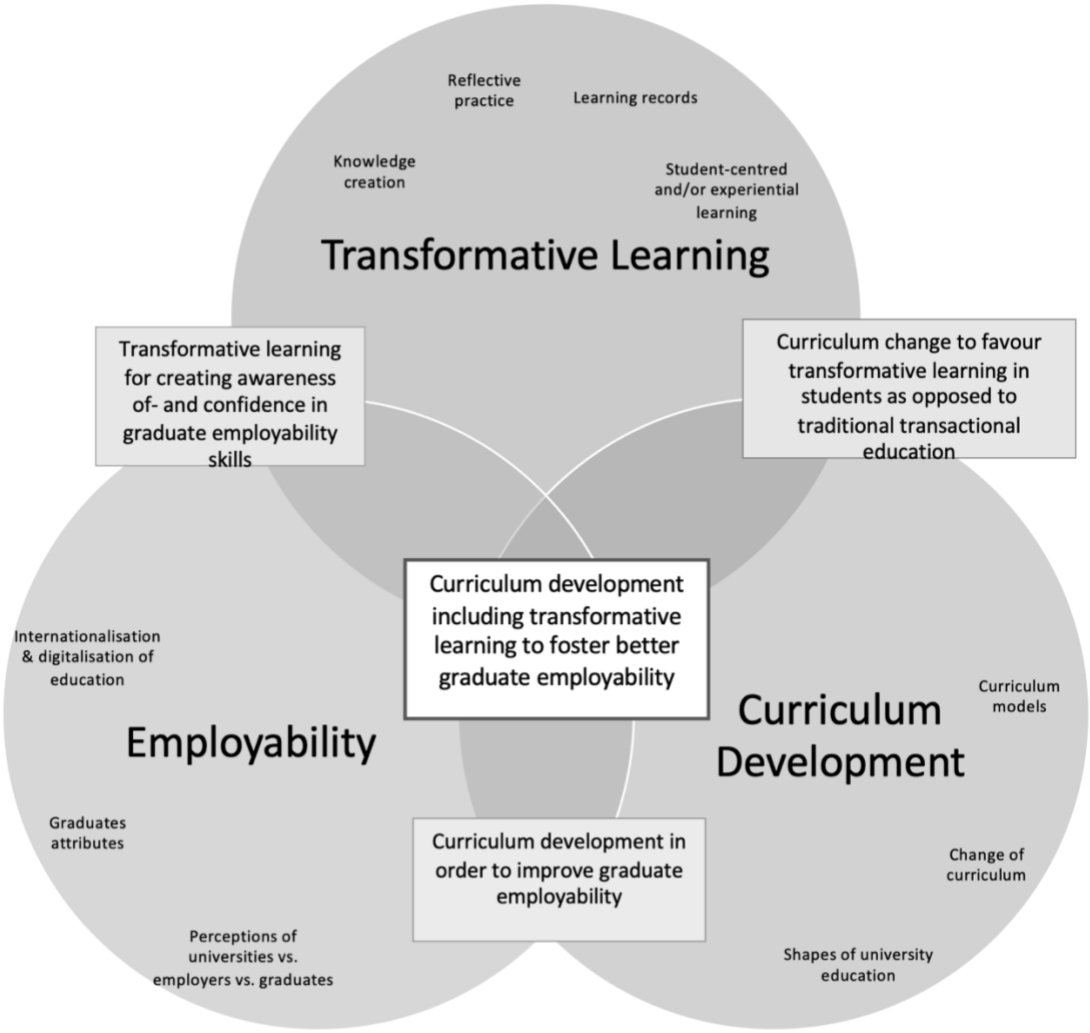


Figure 6.1: Connecting the main topics of the research project during the literature review process (2020) (Wetzel & Thabet, 2015)

Subsequently, a new visualisation was developed grounded in how graduate employability was determined by models and lists of relevant skills in relevant literature, and how it connected to the identity of self for the student (see Figure 6.2). CareerEDGE (2007) was used as inspiration for the basic structure, being one of more prominent models in the field of graduate employability research. The CareerEDGE model was evolved based on this study and focussed on a selection of key, underpinning skills, noted along the bottom, followed by reflection for incorporation of the skills into the self of students towards becoming more employable (Yorke, 2011). The process of reflection into the self, resonated and connected with an extensive

literature review by the HEA over the period 2016-2021 (Clarke, 2018; Dalrymple et al., 2021; Pool & Sewell, 2007). This review describes how there is a difference between perceived employability and actual graduate employability, effected by the labour market, specifically supply and demand factors.

To determine the skills at the bottom relevant to TU Dublin students, cross-examining and synthesising existent, local employability skills was performed. Sources of employability skills cross-examined involved the Transform-EDU STLR competencies, the original CareerEDGE employability skills, the TU Dublin graduate attributes at the time of research (known as The 5 E's), and the prominent USEM model by Yorke and Knight (2006). This resulted in six overlapping skills of: discipline knowledge, civic knowledge & experience, global and cultural competence, health & wellbeing development, leadership & teamwork, and research & innovation.

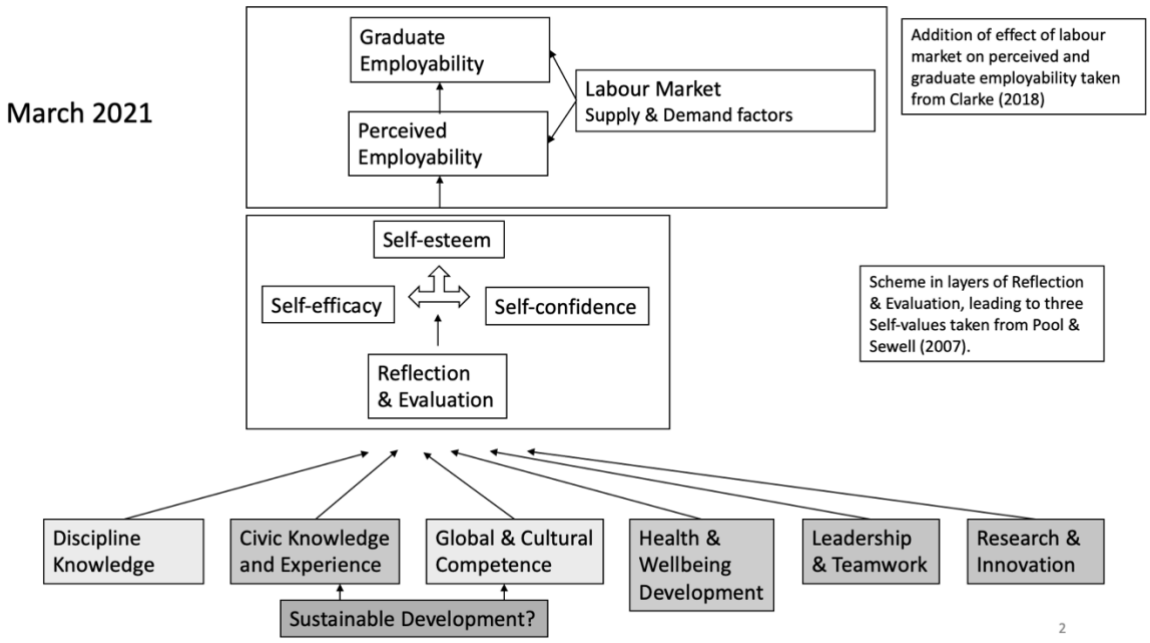


Figure 6.2: Incorporating employability skills into a framework

This visualisation of the evolved CareerEDGE framework was completed before data collection in this study and was used to connect literary sources together in the first instance. However, it lacked a direct relation to day-to-day practice. Additionally, the framework in Figure 6.2, mainly depicts the journey for the student and needs a connection to the practice of lecturers and the teaching methods they use to foster the employability skills. Section 6.1.2 will detail an iteration of the draft framework that was based on data analysis to develop understanding of

the connection to day-to-day teaching practice, the pedagogy of transformative learning and teaching methods.

### 6.1.2 Developing an original framework

Based on the data analysis from the documentary review and focus groups in this case-study, multiple impressions of educational practice were observed, such as the range of skills fostered in practice, the importance of the six local defined skills, and the tension within the term curriculum and the relation to teaching methods.

Starting from the Venn diagram in Figure 6.1, each of the three components were further developed in Figure 6.3. Curriculum development was built out on the right of the framework. Curriculum can be defined as a set of learning outcomes, involving skills lists and metrics to define the content in the curriculum (Wiles, 2008). Curriculum is heavily discipline dependent, as noted in the documentary analysis. On the left side in Figure 6.3, transformative learning was developed into specific methods in teaching linked to pedagogy, or the lens of the lecturer viewing teaching practices. Teaching approaches noted include transformative learning methods such as reflection and facilitating learning. Pedagogies include transformative learning, but also other pedagogies that are used in modern higher education such as active learning, student-centred learning and problem-based learning promote graduate employability skills as discussed in Section 2.3. Other pedagogies are included here to show pedagogies that lecturers can base their teaching practice on, or take inspiration from, when designing lectures. In the centre, graduate employability has a relation to the self of the student, as seen in literature (Dalrymple et al., 2021) and in the CareerEDGE model (Pool & Sewell, 2007). The local defined skills are shown at the bottom as used and discussed in the focus groups, as described in Section 5.2.2. The arrow in Figure 6.3 from graduate employability towards the self of the student states pedagogy and curriculum as those key components influence the process of learning for the student, although they are not shown as connected in this version. The mechanism of reflection for self-incorporation that was shown in the journey of the student in Figure 6.2 connects to the teaching method of reflection in the box on the left side of Figure 6.3. The mechanism of reflection could be stated as a mechanism of the teaching method reflection used by lecturers as part of their pedagogy.

The version of the framework in Figure 6.3 (Building the framework) incorporates observations from the focus groups and programme documents, as well as including the role of the lecturer in combination to the journey of the student more so than Figure 6.2. However, the concepts

and shapes in the framework are not connected in a clear way. The next evolution of the framework in Figure 6.4 shows an iteration of the framework that connects the shapes that have direct relationship more.

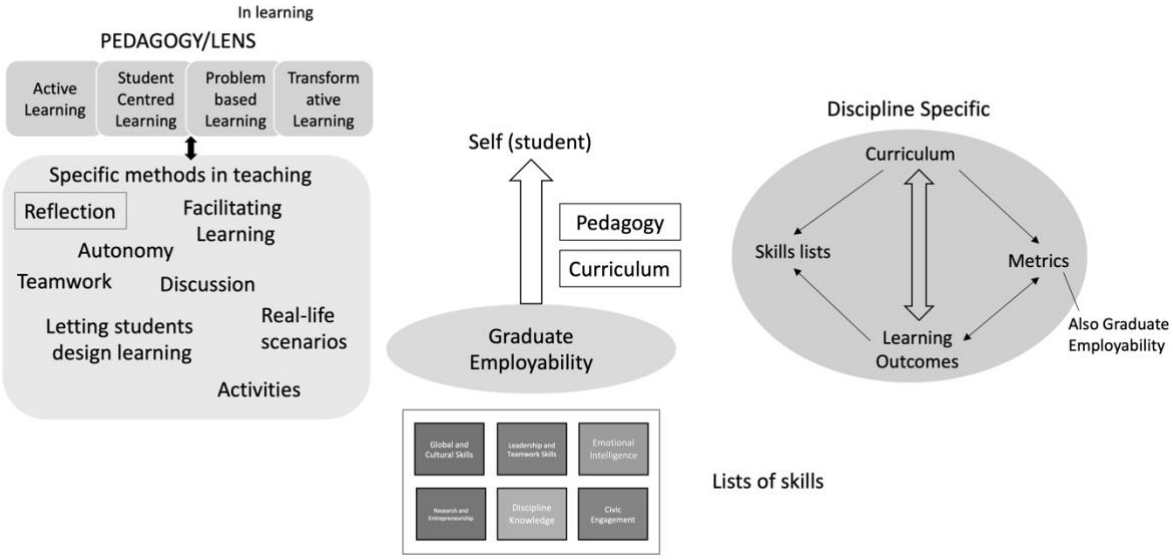


Figure 6.3: Building the framework

In Figure 6.4 an iteration of the draft framework is shown where the relevant shapes are connected more than in Figure 6.3. The colours and main components of the Venn diagram from Figure 6.1 are still visible, transformative learning (pedagogy) in red on the left, graduate employability in yellow on the bottom, and curriculum (learning outcomes) in grey on the right. The journey of the student is maintained in the middle white arrow, where the selected graduate employability skills are incorporated into the self of the student. This process was represented by performing reflection in Figure 6.2, which is now shown as a teaching method on the box on the left. The arrow is overlapping with teaching methods on the left and curriculum on the right, representing how day-to-day teaching practices influence what students will get exposed to or what experiences they gain to incorporate skills into their self. On the right, curriculum has also been re-arranged to represent the connection to graduate employability as both terms can be constituent of lists of skills students should be developing and learning outcomes and graduate employability are both used as a metric for learning by lecturers, programmes and regulating bodies as was seen in the focus groups and programme documents.

This version is a general impression of the current explored educational practice with relation to graduate employability and pedagogy practice, and not specified for any discipline or for the

individual lecturer. However, it raises some questions; what can individual lecturers do with this type of framework? Where is the innovation for their day-to-day teaching practice to foster further graduate employability and transformative learning?

To address these questions, the final iteration of this draft educational framework shows the customisation of the framework for the individual lecturer, with their own pedagogy and their own discipline lens (see Section 6.1.3). Also, the importance of the third- and fourth-year theme and the value of education were added as they lay as lenses over the process of education for certain lecturers as found in the focus groups.

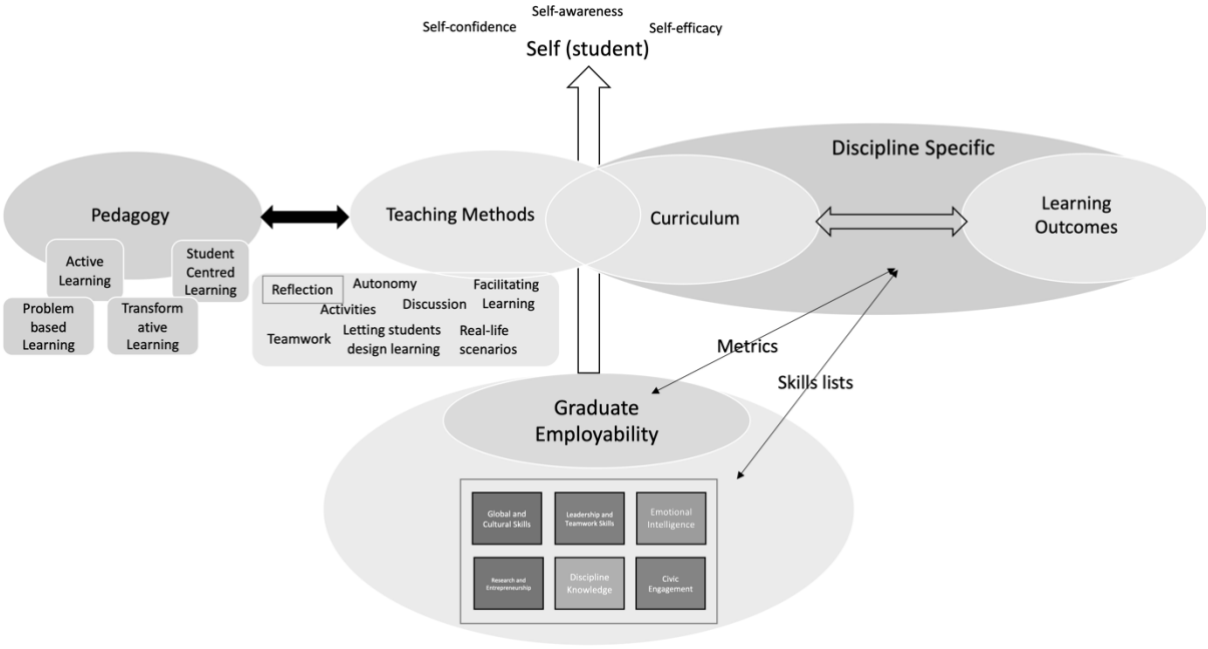


Figure 6.4: An educational framework - transformative learning (pedagogy), graduate employability, and curriculum development

### 6.1.3 Framework for evaluation

A final visual of the framework is shown in Figure 6.5 that allows for customisation for each individual academic staff member. The individuality of the academic staff member needs to be included, to reflect their personal circumstance and context in the general version of the framework. Each academic staff member will incorporate their own pedagogy(ies), teaching methods, discipline perspective, and employability skills and learning outcomes that are expected by accrediting external bodies or by the programme (see Figure 6.5). This was the educational framework that was used for evaluation by lecturers in Section 6.2.

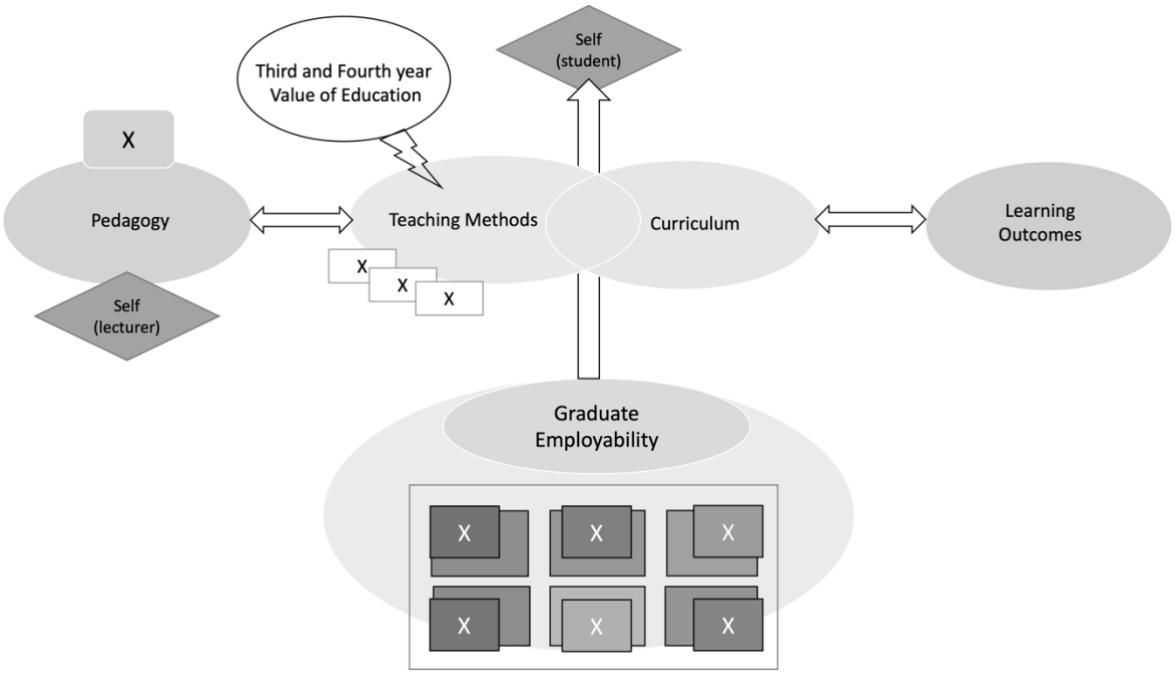


Figure 6.5: Educational framework based on individual customisation for academic staff

## 6.2 Evaluation of the Framework

The next section describes the topics identified during evaluation sessions as conducted as described in the methodology (Section 4.7). Evaluation sessions with lecturers on the usability and interpretation aids to the ongoing development of the proposed framework. To get a least-biased evaluation the framework was stripped of colour and no specific teaching methods and employability skills were shown, as displayed in Figure 6.6.

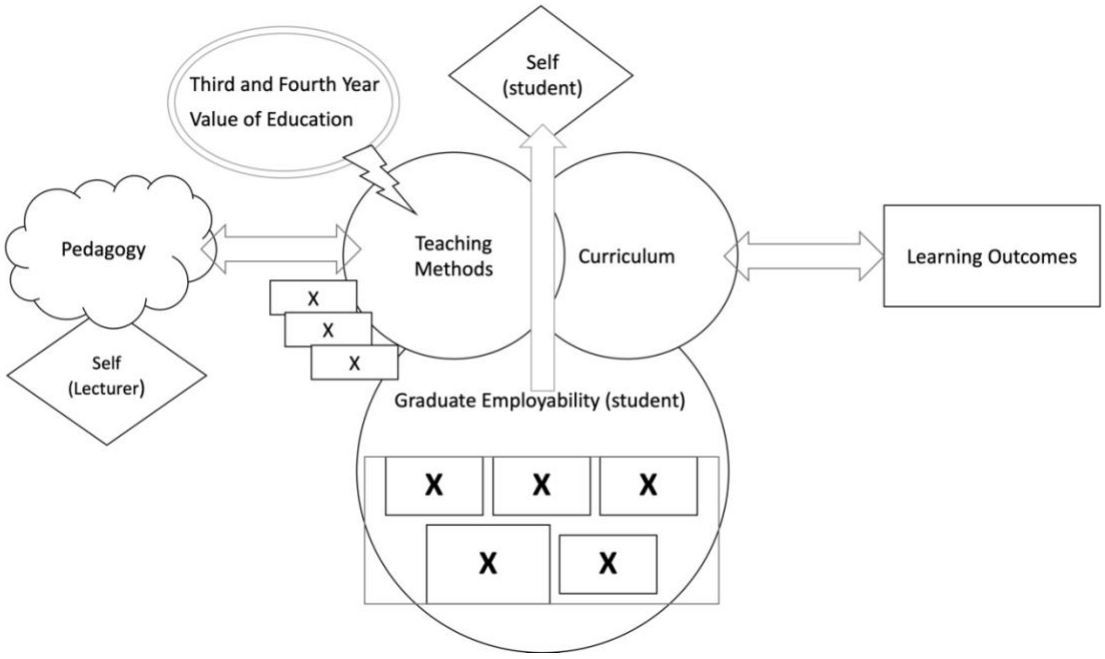


Figure 6.6: Abstracted Educational Framework for evaluation

The initial reaction of evaluators is detailed in Section 6.2.1; however, this is not the first time most evaluating participants saw the framework as Figure 6.6 was included in the preparation material provided to participants ahead of the evaluation interviews. The first reaction during the evaluation session was captured after sharing the framework on a slideshow and the evaluators were asked if they felt the framework could be embedded into day-to-day teaching and learning practice. Subsequently, the participants addressed in further detail why or why not they could embed the framework in their practice (see Section 6.2.2). Perceived embeddedness proved a more complex topic than was originally anticipated as during the evaluating interviews it was noted as being influenced by the discipline-specific lens (Section 6.2.3), the personal context of the lecturer (Section 6.2.4), and influence of national or professional accredited bodies on the learning outcomes (Section 6.2.5). Additionally, some terms in the framework needed further clarification, as noted in Section 6.2.6. Finally, the period of the pandemic of the coronavirus disease COVID-19 came up as it has changed the delivery of education over the last three years, including increased digitalisation but also providing the opportunity to change delivery style for lecturers (described in Section 6.2.7). The evaluations also included several suggestions for changes to the look and shape of the framework to include more context and improve aesthetic of the framework, which are described in Section 0. All evaluative comments and suggestions were synthesised into a revised prototype of the framework in Section 6.3.2.

### 6.2.1 Initial reaction

Most evaluators (81%, n=9) found the framework reflected their practice and provided a good visualisation of higher education. The framework was described as evident, valuable, making sense, having huge promise and being a clear visualisation. Two evaluators noted that this framework reflects teaching at a high level and is useful for high-level analysis.

> *'I mean, at a very high level, I'm looking at this and thinking that like, this is what we're doing, this is what higher education is, you know.'* (Evaluator 4, 68)

One evaluator stated that the framework could be a useful tool, especially for staff who are new to teaching.

> *'And yeah, so I think something like this would be very useful for- Well, I think established staff, when reviewing curriculum and that type of thing, but also the new staff, I think it'd be a very valuable tool.'* (Evaluator 12, 135)

Most evaluation lecturers found the framework to be useful, rather than not useful. The specific use of the framework however varies to useful for new staff in learning educational practice or use for more general high-level discussion of education. To use the framework for a detailed discussion of education, more information might need to be added.

Evaluator 1 noted that the framework would come more into play in third and fourth year of an undergraduate degree programme, which related to trends observed in the focus groups, where education in third and fourth year seem more advanced or more connected to pedagogy. However, the term 'third and fourth year' was named in the framework for review, so the mention could spark such a statement, as well as resonate to beliefs of the evaluator in question.

Two evaluators (Evaluator 3 and Evaluator 10) noted that the framework did need the accompanying information for clarification on what certain terminology meant, like the terms 'pedagogy' and 'third- and fourth-year'. A suggestion is that short explanations of different pedagogies need to be provided so an academic staff member could decide what fits their needs and the needs of the discipline. From there, specific teaching methods and employability kills that students can develop can be derived from explained pedagogies.

> *'So, myself as a lecturer- If I was to take this particular framework, what I need to do is to understand the variety of pedagogies that are out there are, you know, possibility. And then I would have to engage with those that I would deem appropriate for the discipline.'* (Evaluator 3, 298)

Connected to the findings in the focus groups, the understanding and practice with pedagogy is weaker, as noted by Evaluator 4 and Evaluator 1.

> *'And so you have teaching methods, you have curriculum, maybe pedagogy is a bit weaker in that, you know, we're not educated in pedagogical methods. But we kind of teach the way, we've learned, I suppose how we were taught ourselves.'* (Evaluator 4, 68)

Evaluator 4 further states that there is a perceived lack of professional development provision in pedagogical knowledge for academic staff and that being an expert in your respective discipline leaves little time to become a pedagogical expert too. A further understanding of pedagogies and connected teaching methods and employability skills needed to fill the felt lack of support and time pressures by these two evaluators.

> *'And I think, you know, once you understand the different ways people have of learning and, and, and that it does try and change your interpretation of how students are reacting to what you're doing. But it's not formally part required as a as a third level educator. And even to this day, like I see the word pedagogy, and I feel like I kind of have a notion what that means. But I know there's all sorts of stuff there I don't know.*' (Evaluator 4, 103)

Inclusion of the self of the student and the lecturer was praised by Evaluator 8, promoting reflection of self and holistic practices, as found important by (Artess et al., 2017; Bandura, 1995) as described in Section 2.2.1.1.

> *'I love the fact that the- there is the self, as student and self as lecturer incorporated things- Like there's a real kind of a reflection, and a real standing of the importance of reflective practice.'* (Evaluator 8, 83)

As noticed from the analysis of the books of modules in Section 5.1, lecturers bring to life what programme documents describe. Evaluator 9 appreciated immediately that the role of the lecturer is visualised in the framework, to give lecturers a sense of ownership and to recognise the role of lecturers in bringing to life a module descriptor document.

> *'And it does clarify, I think it does capture for lecturers, what they do and how they as individuals input into the curriculum. So that they have a real sense of ownership, I suppose, or a sense of being enabled and what they do as individuals, relative to what the university and the program and the module descriptors require them to do.'* (Evaluator 9, 46)

The addition of the role of lecturer was included in the framework visualisation upon researcher reflection on the initial data analysis and the development of the framework. Evaluator 9's statement helps to see that acknowledging the process for students and the role of lecturers in educational practice are useful to connect and visualise in the framework.

How to specifically apply and embed the framework in teaching practice of each evaluator is explored further in Section 6.2.2.

### 6.2.2 Embedding the Framework in day-to-day practice

On the question if the evaluators could embed this framework into day-to-day teaching and learning practice, the answers were not a straightforward yes or no. The answers do, however, capture the complexity and demands on day-to-day educational practice. Evaluators noted

hurdles for innovating practice (Section 6.2.2.1), level of awareness of students within education (Section 6.2.2.2), a recognition of role the role of lecturers in education (Section 6.2.2.3) and opinions on connecting of teaching methods to pedagogies more (Section 6.2.2.4). These topics will be discussed further below.

#### *6.2.2.1 Hurdles for innovating practice*

A factor in practice to embed any teaching method is the number of people and the level of delivery. Evaluator 2 adds that small numbers might give you opportunity than larger student numbers.

> *'I can do that* [work with an industry partner] *with a small group. Whereas I have 50 odd in my other fourth year module, we're in lecture theatres, that the architecture even prevents the type of delivery style that I would like to do. Group discussions, moving around, world cafes, case-, It's, it's much more-, it's much more challenging.'* (Evaluator 2, 153)

Small numbers give more opportunity to push skills further and making experiences more authentic for the learner which helps academic performance (Koc & Celik, 2015)

Lecturers also face hurdles like time constraints, and sometimes short notice on which module will be yours to deliver. New practices should be communicated and encouraged, along with being given the time to incorporate. Training in new methods can present a hurdle to lecturers if circumstances of training are not open enough for lecturers to interpret.

> *And then sometimes you see training courses, and we're being told to do these, that seem as if they should be, as if you should know them already.* (200) *... 'But it's how to incorporate methods into our assessments that would create- Or develop students with your skills, you know, yeah, that's it. Yeah. So, training. While I kind of-, I don't know what it is. I mean, I've gone to several I have gone to training I have gone to, you know, STLR, all of the-. I do tend to go to these things. And then sometimes you can be nearly more confused when you leave them, than when you went.* (Evaluator 5, 361)

Also, lecturers need to be given opportunity to experiment, without it adversely affecting the education quality of students. Evaluator 5 recommends being gentle with themselves about new experiments that may have not worked out as well and reflecting on the goal of innovating delivery.

Examples of peers would also help contextualise innovation. Evaluator 4 and Evaluator 5 both mention the use for examples from peers, especially within the same discipline.

> *'Personally, I think just more conversations amongst peers, will be hugely helpful within the same discipline. So, things that someone has tried that has worked. That is, within my discipline that I can relate to, that I'd find that hugely, hugely helpful. Which I guess is a bit like the education- models event last week. But even more discipline specific events like that, that you could- can relate to. And, I know, there's great stuff going on in the department. And, you know, it's just finding a window of time to share all of that.'* (Evaluator 4, 163)

A solution that could help innovation hurdles could thus be to share more examples of peer practice within disciplines and in general, see recommendations from the research in Section 8.2.

#### *6.2.2.2 The awareness of students in education*

In the experience of Evaluator 1 and Evaluator 4, education is not the main priority for all students, they are young and want to have fun, the less they must do the better, and focus is on passing the exam at the end of the semester.

On another note, the circumstances that students find themselves in economically might require them to take up part-time jobs while in education (Rokicka, 2014).

> *'This other point, that the student has changed in the last number of years. I don't know whether you work outside the college yourself. But certainly, I know the priority of work outside college, whether it be through necessity, or whether it's because, I don't know. Working outside the university in a part-time/ sometimes full-time job has become more of a priority, because of issues in terms of accessibility -they can afford to go to college. So, there are all these other things that are that impact on your teaching methods and pedagogy.'* (Evaluator 3, 394)

Demands on time for students might affect their progression, time available and development of skills possible for students, meanwhile education as discussed in the context of this study is designed as a fulltime endeavour. The further and higher education authorities consider a person to be in full-time education where s/he is attending a course which awards 60 ECTS credits per annum, that are equivalent to 1500 – 1800 hours of study irrespective of the qualification type,

within the traditional academic year of September to May (Department of Social Protection, 2022; European Commission, 2022).

The perception of graduate employability for students might only develop during a degree. Evaluator 3 finds that students undergo a transition of focus during a degree.

> *'Lots of students tend to come in. And I've noticed this, they'll come in, and it's choice number three, or choice number four, so it's not their first choice. Often, they take at least a semester, if not a year. Yeah, and some then leave, or they may what you call it, they don't see themselves working within that industry, shall we say?' ... 'It's only a certain- a certain percentage of students that would actually go take this path and view, for example, employability is something that is part of their criteria, for example, when they actually join the program.'* (Evaluator 3, 93)

Evaluator 8 and Evaluator 10 describe similar changing perceptions of graduate employability in the final year of study.

> *'So, I don't know if students necessarily are aware of the graduate employability skills.' ... 'So sometimes they go through their course or whatever. And they're like, Okay, I need to get through this. They may not have that awareness. But us as lecturers should do.'* (Evaluator 10, 151)

> *'Students come with these perceived maybe ideas of you know, what employability, what skills they need for the employability. And go through this learning process, and- and perhaps that changes, or perhaps it's added to, or maybe it takes on a path of its own. And, you know, by the time they come to a fourth year, when they are graduating, that it's a different understanding that they have.'* (Evaluator 8, 99)

Towards the end of the degree is possibly only when students decide that they will complete the programme and envisioning themselves as graduates of the programme. So, graduate employability might not be a priority for students in first and second year.

Another factor that could help foster pedagogical development and continued development is to include students in the process. For example, to bring in students to reflect after the semester and reflect on what worked and talk to alumni on what activities were useful for industry (Evaluator 4). Or involving students in designing teaching goals and assessments during the semester. Including students might lead to new and different approaches, where visualising the benefit for students and the benefit for employability are clearer to all (Evaluator 5). Including

explanations on the value of pedagogies for students is important in the opinion of Evaluator 9 and Evaluator 10.

> *'I suppose, try and yeah, I always try and bring students on board with my pedagogies, or my approach so that they really understand the value of what they're doing, why they're doing it in a certain way, as opposed perhaps, to another way. So, try, I think, I think it's important for teachers, lecturers to reflect, and for students to be brought into that kind of reflective process.'* (Evaluator 9, 95)

> [Talking about if creative teaching methods and their link to pedagogies would be helpful for lecturers] *'Yeah sure.' ... 'See it's-, for me, it is. Like I am, I like doing this because I see value for it for students. But then, and students see value in it. Because it's interesting, engaging for an impactful and long lasting. But then, you know, like anything, how do you convince those who still use the very traditional methods?' ... 'Yeah. And then it kind of goes back to the whole question of: What is the purpose of universities'?* (Evaluator 10, 345)

Lecturers seem to want to explain and help students most of all, but also would like to receive feedback and reflection on the teaching methods employed. The framework hopes to visualise the interaction and cross-roads of this dynamic between students and lecturers, as teaching methods are based with lecturers, and graduate employability are a goal for students (see Section 6.1).

#### *6.2.2.3 Recognising the role of the lecturer in practice*

Evaluator 12 notes that the framework is portrayed as if the lecturer has all the agency, which is not the case.

> *'You have to then sort of change your approach slightly to include that standard of proficiency.'* (261) *... 'So, I do think that it was doesn't change what you've got there. But I think that's very good. It's just the application of it. It's not the lecturer who always has control over the situation, to the extent that you might think.'* (Evaluator 12, 268)

Including the effect of regulating bodies related to the application of the framework will also be discussed in suggested changes to the framework in Section 6.3.

Recognition of the goal of learning about pedagogies is thus very important for lecturers, whose time is valuable and shared with other academic tasks. However, the recognition for what a lecturer delivers and develops is needed too. Talking about how curriculum and learning

outcomes can be interconnected, Evaluator 10 comments that it is interesting from looking at the module descriptor, a lecturer does not necessarily know what the assessment is, and the assessment can make a difference to the graduate skills. Evaluator 9 adds that the framework visualises the agency of the lecturer.

> *'So, I think the visualization here that the self, what the lecturer, him, or herself, brings to their activity, their practice. You know, the various pedagogical tools and practices and innovations that we all bring to our teaching.'* (Evaluator 9, 39)

Deliberations on the demands and needs for lecturer vary to recognition of their effort, receiving training that proves effective for application in the day-to-day teaching practice, to recognising the demands of training in pedagogical innovation on top of discipline-based expertise, as well as interacting with the demands of a regulating body when present. The circumstance of each lecturer will vary and therefore the framework remains open to the individual circumstance. Possibly moving from group-training towards one-to-one training in specific educational developments might prove more effective to accommodate for the multiple demands that the specific lecturer experiences, see recommendations from the research in Section 8.1.

#### *6.2.2.4 Fostering connection between pedagogy and teaching methods*

Helping lecturers to further understand the connections between different pedagogies and different teaching methods will help students develop more in the opinion of Evaluator 1. Students have different ways of learning and so different activities should be offered throughout the academic year to cater for different students in the groups. In the specific discipline there are practical scenarios that are activity centred, next to traditional assignments and assessment done parallel to that. Those activities are important to connect to a range of students' learning as discussed for experiential learning in Section 2.3.4, as well for some of the other pedagogies that foster employability as discussed in Section 2.3 (Kolb, Alice & Kolb, 2018).

Evaluator 9 also expresses that connecting pedagogies with teaching methods for lecturers would help the development of students, since it is useful for lecturers to think and reflect on their teaching methods. This reflection on pedagogies and teaching methods, relative to what lecturers are delivering in a curriculum or what they are trying to achieve with learning outcomes would help lecturers, as well as recognising individual attributes that a lecturer might bring to teaching.

> *'I wonder if sometimes, you know, sometimes there's an element of what we do as lecturers where we kind of do things intuitively. Or we do things somewhat automatically, or we do things because of our experience. And we don't always or not all lectures reflect as much on their- You know, we don't always articulate or reflect explicitly-on what we're doing or how we're doing it or why we're doing it.'* (Evaluator 9, 62)

So, intuitive teaching practices and individual attributes are important to recognise and reflect on for lecturers. This implicit attribute of teaching is important on top of the content that needs to be taught, the explicit teaching. Evaluator 8 explains the distinction between the two.

> *'I think, we have explicit, maybe learning and we have implicit teachers. Explicit teaching and learning, and implicit teaching and learning. And the explicit is obviously you know, what we're teaching them and how, you know, the- the-, the nuts and bolts. But then the implicit is the way that we teach them, I think there's a huge emphasis, and perhaps that has been missing for a long time on the how we teach the embodiment of how we teach.'* (Evaluator 8, 134)

Fostering a connection between pedagogy and teaching methods is seen as useful for the development of students as a varied approach in teaching methods helps to serve different learning methods of students. Also, lecturers need to reflect on their teaching and the pedagogies they use, and resulting teaching methods, to realise the individual additions to their practice they make. This implicit approach to teaching may have been missing from some lecturer's practice, although pedagogy and the way of teaching are fundamental to the way students learn. The framework hopes to visualise the opportunity of innovation, enhancing the development of students towards perceived graduate employability, is influenced by teaching methods and the connection to personal pedagogy for the lecturer.

### 6.2.3 The nature of discipline in teaching

An equal spread of evaluators across the disciplines was not the goal during selection, and therefore discipline specific analysis was not a focus of the evaluation sessions. Evaluators self-selected for this evaluation based on a sampling pool of lecturers with previous engagement with innovative educational practice and dissemination in TU Dublin. However, each evaluator did provide examples that would stem from their discipline of practice, or beyond, if they had an interdisciplinary background. This adds to the discussion about the importance of discipline in teaching as noticed in the focus groups analysis. In higher education there is a lens of

discipline-based needs and teaching practices. Discipline-related trends in the evaluations are expanded further below.

#### *6.2.3.1 Development of discipline-based skills*

Evaluator 1 noted that there needs to be care for developing discipline-specific skills with students. A field that is strongly related to industry can seem to only prepare students for that work field and not provide skills that will be useful in other settings. For example, analysis of real-world examples can form part of a discipline-specific training, but analysis of such settings can also be applied in other settings. Additionally, students do need to show a development from using the skill in a discipline-based setting towards a deeper evaluation of the findings within the context, as this deeper analysis is the skill that is transversal to other settings and other industries. This note on the need for strong development of skills for seemingly discipline specific skills to become transversal connects to graduate employability as few of the skills described are unique for one discipline (Artess et al., 2017).

#### *6.2.3.2 Overdoing creativity*

Although the narrative in educational development can err towards needing more creativity and more input from lecturers to improve education, in certain programmes there might already be more creativity with practice and pedagogical approaches present. Evaluator 2 mentions that the level of creativity present in their programme might exceed what students seek in terms of level of definition in assignments, time available and the number of deadlines.

> *'I think we're very creative in our- in our practice and in our pedagogical approach. But sometimes I think if we're creative all the time, sometimes I think students just might want to write an essay. That they can just go to the library, read-, read the books and write the essay. Because to be more creative, it does too [sic] take more time for collaborating in groups, you're working with industry partners. There's an element of civic engagement, like my project is a big demand, and it's not a huge demand on time. But it is, it's extra to the classroom.'* (Evaluator 2, 106)

More creative teaching approaches can take up more time for both staff and students, for example to work in groups or to work with industry partners. So, Evaluator 2 feels scaffolding is needed to maintain goal clarity and subsequently where and when to add practice towards that goal for lecturers. This statement helps to further understand that just pushing for more creativity in education is not desired, and that a clear goal and scaffolding is needed to prevent overstimulation. The use of books of modules and their purpose of giving an overview and

outcome of a programme should aid in scaffolding time and goals. Also, the difference between control of the lecturer in a regulated programme versus a university-regulated programme need judicious consideration in the amount of scaffolding and creativity that is possible to offer.

#### *6.2.3.3 Discipline-dependant transversal skills*

Transversal skills are important in industry (Dalrymple et al., 2021), and some transversal skills are more of a priority in specific and related disciplines. For example, in Service and Health disciplines empathy is critical to allow practitioners to put oneself in the shoes of the person you are engaging with. However, in a STEM discipline (Science, Technology, Engineering and Math), empathy might not arise in the content of a programme, as interpersonal skills are only shown between colleagues and not in the delivery of a service. Evaluator 4 mentions a discipline-based feature in the context of reflection, students in STEM disciplines seem to not be interested in reflection.

> *'I'm from a STEM background, from computing. And as soon as you talk to STEM students about reflective practices, [laughs] they tune out. And so that's going to be a challenge. And I think for STEM generally, that's a challenge because there are very specific skills our students need and they know they need, and employers know they need.'* (Evaluator 4, 74)

Moreover, the evaluators also felt that theory-based subjects and exams do not lend themselves to self-reflection for students. Possibly only final years, with more independent projects, can reflect on their skill and practice. This connects to the statements from the focus group analysis that exact disciplines mainly serve the purpose of knowledge transfer in the first two years, see Section 5.2.1.2, and the quote from LEC 8. And the last two years might give space and maturity for students to respond to advanced use of pedagogy-based practice. Staff in STEM subjects in this study seem to have a certain common belief on the abstract and logical nature of the subject with relation to design and goal of the education. Reflection, however, is never explained in literature from a discipline-based perspective, and more from a self-development standpoint (Brookfield, 2009). Reflection on performance in general is stimulated for all humans and not just for certain professions, with career evaluation and reflection also present in STEM related work fields (Bharuthram, 2018). Even if a subject is more theory and exam-based, reflection on performance for students might still be possible on the mechanisms of exam preparation, or on the effectiveness of study-methods during a semester for the students self-evaluated

performance. Therefore, if students feel no connection to reflection, possibly a more logical and quantitative version of reflection could be encouraged to fit the context of the student.

### 6.2.4 Recognising personal interests of the lecturer

Examples of personal teaching experiences were used by evaluators to explain non-discipline-based interests on teaching innovation or teaching method use. For example, a personal interest in certain skills, like global and cultural skills, diversity, and inequality, and integrating civic engagement. Using teaching methods to boost these skills maybe stem from a discipline-based need but are expanded by a personal interest and complementary determination of the lecturer for trying out new methods and activities. Allowing personal interests for development allows for recognition what individual lecturers add to an educational programme, despite discipline- or programme needs.

There is also learning from unsuccessful attempted teaching practices, where the personal preference of the academic staff member did not overlap with the preference of students. Teaching practices can become a learning opportunity and point for improvement to help support the needs of the student. For example, giving students the option of having all material in slideshow format or in document format. Where Evaluator 4 preferred the document format, most students preferred having the slide format, as there was less content to process. Building on this student-educator partnership approach, Evaluator 4 encourages students to decide on the assessment type.

However, if students are not prepared for this, deciding their own assessment type was met with disbelief and worry for what it would mean for outcomes for their assessments. The evaluator noted that providing the choice created more stress for students as added pressure was present because of the demand of final year. This example shows that preparation and the moment of placing new stress in the progress of the programme are both important factors for lecturers to consider. This is connected to student-centred learning pedagogy where students design their own learning (Trinidad, 2020). Preparation, tempering expectations and guidance are needed to develop comfort with a flipped responsibility approach to the expected classroom dynamic as dominant in most second level and higher education (Doyle, T., 2008), see Section **Error! Reference source not found.**.

### 6.2.5 External demands on teaching

National accredited bodies or industry patrons that work together with a programme can have an influence on the learning outcomes as noted in the focus group analysis (see Section 5.2.3).

Accredited bodies foster relevant skills for graduates and influence learning outcomes that need to meet standards of proficiency or lists of competencies for accreditation purposes. Lecturers need to adapt learning outcomes in their modules to meet the overall and expected skills for students to learn in a programme. Evaluator 1 and Evaluator 12 noted a collaboration with an accredited body influenced their teaching practice.

> *'The course that I run is accredited by an outside organization, a UK based organization. So, there are certain things that we must hit within our curriculum. So, what like I said, I think the more that you have, not just TU Dublin people- lecturers involved in it. But outside organizations saying this is what's required for the level that you are providing and that it's internationally recognized.'* (Evaluator 1, 277)

> *'We design our learning outcomes as well to align when two things, the standards of proficiency and the education training criteria that they have. That dictates our curriculum, you know. And that- I then have to fit into that.'* (Evaluator 12, 254)

The involvement of industry partners or regulators comes with work-placement opportunities and provision of collaboration and real-world examples in the classroom. Work placement is a part of the collection of practices that align to these standards of proficiency from industry and was seen in the focus groups as well-connected to graduate employability, see Section 5.2.3.3. Evaluator 1 also noted that outside accreditation involvement is not always possible for every course or discipline, but there certainly is a benefit. Further understanding of the impact of industry partners or regulators can be restrictive as learning activities have to meet the standards of proficiency, however all related activities show high impact for graduate employability when discussing related activities, and industry partners and are generally seen as beneficial.

### 6.2.6 Clarity of terms in the framework

Some terms used in the framework during evaluation needed clarification, in addition to the preparatory information provided and, in some cases the whole framework needed a verbal walk-through before discussion. The need for explanation could indicate the added information needed more context, or verbal explanation can be a good start of an evaluation session.

Questions asked were for example: '*What is meant by third- and fourth-year?*' (n=4), or '*What are different pedagogies and teaching methods?*' (n=4). Surprisingly '*What does pedagogy mean?*' (n=3) was queried and, not so surprisingly, '*What are the open boxes with X's?*' (n=3), related to clarity of the provided preparation material.

The term “Third- and Fourth-year” was not explained in the preparatory information. Two evaluators did recognise it while discussing the framework, or connected themselves as to what it meant, while others asked for more details on this term.

> *‘I do think that's the reason first of all, yes, you're right. Workplace and in third your contributes to that. But I also think from the point of view that third and fourth year, they've made the decision, they're going to complete this program.’* (Evaluator 3, 169)

> *‘Just there, the third- or fourth-year value of education? In your, in your research? Have you? Have you seen? Or have you done kind of surveys or whatever? Have you data that suggests that? Yeah, the- the understanding of students in later stages of the program makes them more open to this kind of thinking, are this kind of understanding?’* (Evaluator 9, 132)

Additionally, the term pedagogy is a common term in research on higher education. However, evaluators had neither consensus, nor clarity, on its definition. This could lead to some confusion; when academic staff know it has something to do with their practice, but not what is exactly meant by the term and the different pedagogies in use.

The explanation of the term pedagogy relates to the goal of the framework development, to highlight where the focus on skill development in students comes together with the inherent pedagogy of the lecturers delivering the curriculum and the programme (Section 2.3). Pedagogy can provide understanding, opportunity, and guidance on teaching methods for the delivery of certain knowledge elements, the use of which can be further applied through incorporating discipline needs and developed to fit within the context of a module into a specific programme (Roberts, 2011). Confusion on what pedagogy means in relation to current day-to-day teaching practice points at an opportunity or starting point of further development for lecturers, see recommendations from the research in Section 8.1. Professional development courses that were offered at City Campus, for example, include modules on developing a stance on pedagogy and related teaching methods, curriculum design and assessment (Technological University Dublin, 2022d).

### 6.2.7 The effect of the coronavirus disease COVID-19 on teaching

While not specifically asked in the evaluation sessions with staff, the coronavirus disease COVID-19 pandemic was mentioned in relation to the effect on all teaching practices over the last couple of years. Examples given here are those that are of most relevance to the framework development and evaluation within the context of this case-study.

Evaluator 3 stated that the coronavirus disease (COVID-19) pandemic has influenced teaching methods and pedagogies, as delivery was moved rapidly to hybrid or fully online for a significant period. Compensation for activities such as field trips, practical labs and industry visits had to be developed to be delivered fully remote by exploring different kinds of applications and websites. Switching online meant that there was less organic group work and collaboration possible, because of less interaction with peers and sharing ideas casually in class.

> *'And for example, you know, in computing, like group work is great, and they get an awful lot from it. And we really saw, I think, the lack of that in lockdown, because just the- the work that students produced was not as good. You really saw how they missed out on being in the lab and getting ideas from their peers*' (Evaluator 4, 78).

Evaluator 5 even noticed this academic year how the effect of the coronavirus disease was visible in exam results.

> *'I know, for a fact, you know, we've had two years of COVID. And we're correcting our exams now. The results have been dreadful. Like you can really see the impact of what has gone on here.'* (Evaluator 5, 409).

Although not the focus of this study, it is striking to explore the effect of COVID-19 on mode of delivery and student performance as a sudden change phenomenon.

On the positive side, two evaluators noted that the COVID-19 pandemic was an opportunity to use new teaching methods.

> *'So, I've kind of rewritten assessment. And COVID was a, you know, it was a kind of an opportunity, I suppose for me because I rewrote everything. And rewrote my style of delivery, rewrote the style of assessment. Got rid of invigilated exams.'* (Evaluator 11, 185).

> *'And yet, maybe it could be an opportunity, now. You know, to kind of breach that gap using some of these new methods. They're not probably that new but new for us to actually incorporate them. Instead of panicking and feeling all bad about it, maybe it will be an opportunity, you know. Because I do think the new students coming in now.'* (Evaluator 5, 418)

Having the time available to change the style of delivery and style of assessment incrementally over the COVID-19 pandemic period was embraced by lecturers too. The COVID-19 pandemic

also effected the ability to organise synchronous invigilated exams, where Evaluator11 used this as an opportunity to move to other forms of assessment instead of exams.

Section 6.3 discusses the next revision of the framework as based on the suggestions provided by during the evaluations of revision one.

## 6.3 Towards the PAGE framework

This section describes the development of a new revision of the educational framework following the feedback from the evaluations. Section 0 discusses the main changes suggested by evaluators per topic and explores how these were integrated into the latest evolution of the framework. Lastly, Section 6.3.2 details the final PAGE framework (Pedagogy Assisting Graduate Employability).

### 6.3.1 Changes suggested by evaluations

Following analysis of the framework evaluation, specific changes were made to the framework to include suggestions by evaluators. These changes are described in Table 6.1.

Table 6.1: Synthesis of topic of changes by the evaluators

| Topic | Explanation |
|---|---|
| **Changing third- and fourth-year to maturity of the student** | Third- and fourth-year was a term found in the initial focus groups that described a sense of maturity in third- and fourth-year of students. A suggestion is to merge the terms include third- and fourth-year into maturity of the student in the framework. Also, the term third-and fourth-year did not technically apply to only three-year programmes as remarked by Evaluator 12 (167). |
| **Including the agency of regulating bodies** | The effect of working with an accredited body, that determine the Learning Outcomes, was also strongly suggested as being included in the framework. |
| **Changing teaching Methods to include assessment** | Including assessment in the term Teaching Methods in a clear way. This was suggested by two evaluators to clarify the role of assessment and show that it is included into teaching methods. The prevalence of authentic assessment will be included under this term as well as a teaching method that lecturers can apply was mentioned by four different evaluators. Authentic assessment is connected to the real-world and problem-based learning. |
| **Diversify Graduate Employability to add Life Skills** | A distinction between outside-academia gained skills for graduate employability can help to address a holistic view to the student and their employability as life experience and extracurricular activities can infuse academic skills as well. Evaluator 3 noted that adding life skills next to graduate employability skills would be useful as both shape the student. |
| **Providing Pedagogical Definitions** | Providing explanation of different pedagogies alongside the framework was a strong recommendation from the framework evaluators. A short definition, origin of definition, important related teaching methods and recent discipline-based example |

| | |
|---|---|
| | of how to use it are needed. TU Dublin based practical examples would help application for within discipline contexts as noted by Evaluator 4. The guides should also show possibilities for incremental change to innovate towards new pedagogies and methods, to make it more manageable, with steps that ideally stem from practice-based experiences from TU Dublin lecturers. |

### 6.3.2 The PAGE framework

Following the changes that were suggested in the evaluation sessions, the final iteration of the framework was developed seen in Figure 6.7. The framework was named the PAGE framework, standing for Pedagogy Assisting Graduate Employability. This iteration includes recognising the maturity of the student, adding the influence of a possible regulating body on the learning outcomes, detailing the student journey to their perceived graduate employability, including assessment in the framework, and combining it with teaching methods, and adding life skills alongside the graduate attributes as an influence for students. These changes were derived from trends found in the focus groups and evaluation sessions, as discussed in Section 0.

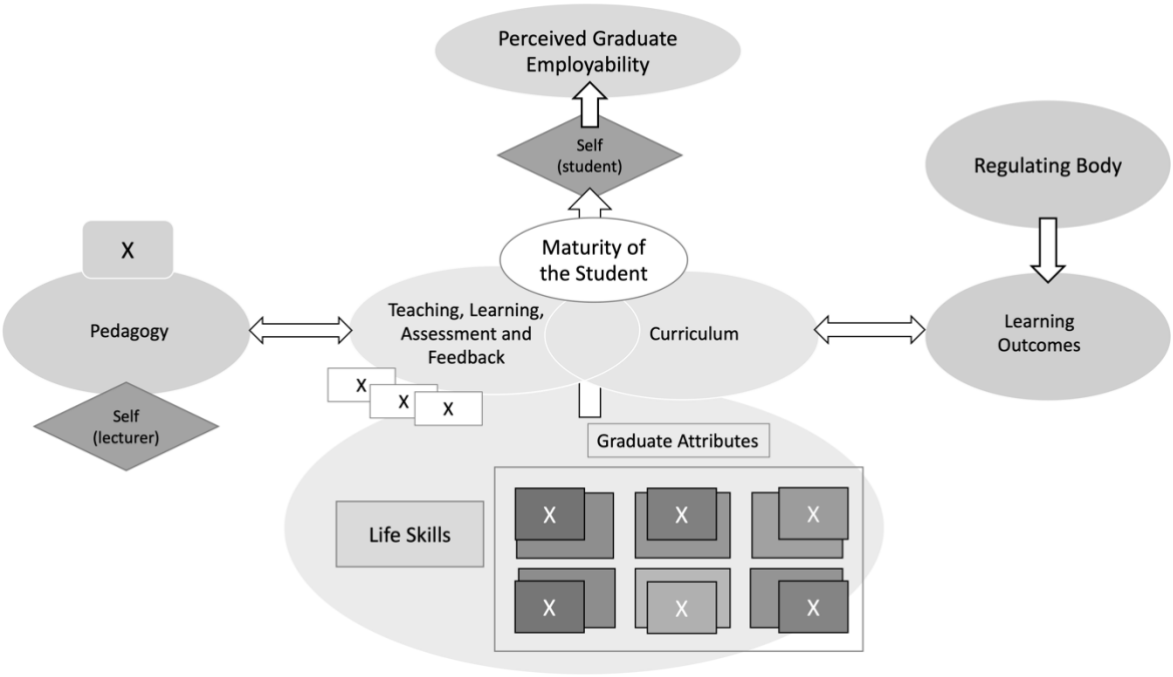


Figure 6.7: The PAGE framework

The name PAGE signifies the connection between Pedagogies for Assisting Graduate Employability. Application of this framework will help to guide educational development to foster graduate employability in a local and relevant context unique to the lecturer and the discipline. It will aid to get everyone involved in the discussion of pedagogy for graduate employability, on the same PAGE.

Section 6.4 explores the alignment of the developed framework (see Figure 6.7) with the local, national, and international context.

## 6.4 Strategic alignment

The draft framework developed in this case-study was based on the scholarly literature and the local environment of study grounded in data collection and analysis of local educational processes and practices (see Section 6.1). Subsequent evaluation of the framework with lecturers (see Section 6.2), along with suggested changes to the framework toward the final PAGE framework in Figure 6.7 (see Section 6.3.2). The final PAGE framework is thus based on a further interaction with local lecturers to increase understanding of the possibility of application and integration into teaching practice. The framework has the goal of fostering further understanding of the educational process toward the development of pedagogy-based teaching methods and visualising the relationship with student-centred graduate employability. Alignment to the strategy of TU Dublin (Section 6.4.1), Irish National context (Section 6.4.2), and the European and International education strategy (Section 6.4.3) shall be explained below.

### 6.4.1 Local alignment to education

Local alignment for the PAGE framework and its application is in the context of the TU Dublin Strategic Plan (Technological University Dublin, 2021), the University Education Model (UEM) and the constituent Ten Guiding Principles of TU Dublin (University Education Model, 2022).

#### *6.4.1.1 The TU Dublin Strategic Plan*

The TU Dublin Strategic Plan was developed as part of the formation of TU Dublin in 2019, and its subsequent unification from three technological institutes into one university, with one strategic direction, one organisational design and one educational model. The strategic direction follows a People, Planet, Partnership orientation (Technological University Dublin, 2021). This research and the application of the educational framework will connect most to the people development part. One of the relevant strategic directions for 2030 under the People heading is:

'*A dynamic new model of education producing the most sought-after digitally-literate graduates, will be embedded in the University, transforming the learning opportunities and experience for all'* (Technological University Dublin, 2021, p. 11).

With the connected milestone for 2030 of:

*'A new education model that promotes academic excellence will be in place and TU Dublin will be in the top 3 Irish universities for graduate employability'* (Technological University Dublin, 2021, p. 11).

The PAGE framework and the application of further unique pedagogy development to help graduate employability connects to this strategic direction and the development of a new educational model detailed as it focuses on transforming the learning opportunities. The connected milestone details specifically the improvement of graduate employability, to which the framework developed in this study can contribute at TU Dublin.

Another relevant strategic direction under the People heading states (Technological University Dublin, 2021):

*'We will achieve and develop a body of high calibre of staff in line with International TUs, who are actively engaged in the University's shared purpose'* (Technological University Dublin, 2021, p. 11).

With the connected milestone for 2030 of:

*'We will have built a body of high calibre staff, supported by a comprehensive staff engagement & development programme'* (Technological University Dublin, 2021, p. 11).

The PAGE framework and its' application connects to the development of staff in the context of unique pedagogy development and the development of effective practice to discipline and module needs and context. The development of understanding the local needs for lecturers helps to align staff to the University's shared purpose as well as visualising a part for development in teaching innovation and developing graduate employability as detailed in the related milestone as well.

#### *6.4.1.2 The University Education Model (UEM)*

The UEM as detailed in 2022, follows ten guiding principles: 1.Student-centred and student-engaged for student success, 2. Connected, engaged, internationalised curriculum, 3.

Distinguished by diversity of provision and focus on practice and career development, 4. Excellent, flexible, agile teaching and learning, 5. Knowledge – creation to application, 6. Highly engaged student experience, 7. Inclusive, global and multi-cultural, 8. Continuously developing, committed and caring staff, 9. Transition, and 10. Access and equal opportunity (University Education Model, 2022).

The PAGE framework as developed in this study connects most directly to guiding principle 4. Excellent, flexible, agile teaching & learning. Which is defined as:

> *Make full use of innovative teaching, learning and assessment practice, utilising multiple modes of delivery and interaction. Adopt enhanced agility, flexibility, and sustainability of provision, supported by imaginative and judicious use of technology.* (University Education Model, 2022, p. 2).

The PAGE framework also addresses pathways developed from data collected amongst TU Dublin lecturers as to how to innovate teaching learning and assessment practice using multiple modes of delivery as relevant in the local context of the lecturer.

### 6.4.2 National alignment to education

On the national level, there are certain stakeholders who influence the direction of education. In 2011, the National Strategy for Higher Education was released by the Department of Education and Skills (The Government of Ireland Strategy Group, 2011), that guided the development of higher education in the last decade and for the next eight years. In addition, the Government of Ireland released an Education for Sustainable Development (ESD) plan towards 2030 in 2018, and an update in 2022 (Department of Education, 2022).

#### *6.4.2.1 The National Strategy for Higher Education*

The National Strategy for Higher Education viewed the challenges for education in 2011 and developed 26 recommendations (The Government of Ireland Strategy Group, 2011). Alignment for the PAGE framework can be found with recommendation 6. Which states that:

> *'Both undergraduate and taught postgraduate programmes should develop the generic skills needed for effective engagement in society and in the workplace.'* Further explaining that: *'Undergraduate and postgraduate education should explicitly address the generic skills required for effective engagement in society and in the workplace. In the design of courses and programmes, higher education institutions should ensure*

*alignment and balance between learning outcomes, pedagogy, and assessment.'* (The Government of Ireland Strategy Group, 2011, p. 18).

The framework focuses on the development of skills for employability. The context of 2011 names the generic skills as a new addition to discipline-specific skills, a development that was also detailed in Artess et al. (2017).

Alignment of the PAGE framework can also be found to recommendation 8. Stating:

> *'All higher education institutions must ensure that all teaching staff are both qualified and competent in teaching and learning and should support ongoing development and improvement of their skills.'* (The Government of Ireland Strategy Group, 2011, p. 18).

The PAGE framework connects to the visualisation of the educational process that can serve as a starting point or a focus for development of teaching practice, related to training in pedagogies and teaching methods and certain necessary skills.

#### *6.4.2.2 The National Strategy for Education for Sustainable Development (ESD)*

The ESD plan is a review of the strategy and action undertaken since the first National Strategy for Education for Sustainable Development 2014-2020, and it comes with an implementation plan for 2022-2026.

In the implementation plan, five priority action areas are highlighted: 1. Advancing Policy, 2. Transforming Learning Environments, 3. Building Capacities of Educators, 4. Empowering and Mobilising Young People, and 5. Accelerating Local Level actions. While this strategy focuses on the sustainable development, the framework can still aid in the process, with the biggest alignment to priority area 2 and 3.

Priority action area 2 is defined as: Transforming learning environments:

> *'Learners have opportunities to acquire the knowledge, skills, values and dispositions needed to promote sustainable development and to experience sustainable development in action through a whole of institution approach to ESD.'* (Government of Ireland, 2022b, p. 19).

Where the PAGE framework can be aligned to developing opportunities for learners by defining relevant employability skills of which sustainability can be one.

Objectives are defined in the Implementation Plan for action area 2, where objective 2.3 is defined as: ESD Pedagogies:

> *'Promote and support the use of ESD pedagogies among educators.'* (Government of Ireland, 2022a, p. 7)

Priority action area 3 is defined as: Building capacities of educators:

> *'Educators have the opportunities to develop capacities to foster societal transformation for a sustainable future, with ESD integrated into the offerings of education and training providers.'* (Government of Ireland, 2022b, p. 19).

Where the PAGE framework connects to allowing educators to develop their teaching practice to foster societal transformation for a sustainable future if their pedagogies and teaching, learning, assessment, and feedback are aligned to the goal of sustainability.

### 6.4.3 International alignment to education

International alignment can be described in relation to the Open University in the UK and their Innovating Pedagogy 2022 Report (Kukulsa-Hulme et al., 2022). Furthermore, international alignment can be found to the European Union Sustainable Development Goals.

#### *6.4.3.1 The Open University Report: Innovating Pedagogy 2022*

This research can be linked to the Open University report on Innovating Pedagogy (2022). Which focused on noting new and recent developments and linked observations on how to proceed in these recent developments within the educational space. One observation was the arrival of Dual learning scenarios, described as:

> *'Dual learning sees the value of close synchronisation between classroom training and professional practices in industry: to bring professional reality to the classroom, and theoretical understanding underpinning practice to the workplace.'* (Kukulsa-Hulme et al., 2022, p. 1).

This duality was also found in the literature review, discussing the tension between universities as development of thinking and as vocational training (Section 2.1.1). A tension that the PAGE framework visualises in the connection between lecturer-based pedagogy in the academic sphere, that is connected to student-based graduate employability, where the curriculum can also be directly influenced by industry partners or regulating bodies.

Another relevant observation is the development in the coronavirus (COVID-19) pandemic of Pedagogy of Autonomy, described as:

> *The move to remote teaching during the Covid-19 pandemic has increased interest in the related area of autonomous learning. This involves the development of educational systems and resources that encourage the growth of learner autonomy.'* (Kukulsa-Hulme et al., 2022, p. 2).

Furthermore, this observation specifically states that students as individuals need to understand that they are not simply passive recipients of teaching: they are actively engaged in the learning process. And that in order to develop professional skills, students need lecturers who facilitate and implement a pedagogy of autonomy, which directly relates to the pedagogies as discussed in Section 2.3.2, transformative learning, and in Section 2.3.3 for student-centred learning.

#### *6.4.3.2 The Sustainable Development Goals (SDGs)*

On a European level, this research aligns to Sustainable Development Goal 4: Quality Education, specifically Goal 4.4 (United Nations, 2022a). This UN SDG states that, by 2030, there will be substantial increase needed in the number of youth and adults who have relevant skills, including technical and vocational skills, for employment, decent jobs, and for entrepreneurship. The framework developed in this study aids in the understanding of how perceived graduate employability in higher education in students can be fostered by lecturers. Focusing on how development of understanding of pedagogy-based teaching, learning, assessment and feedback methods, fitting for the unique circumstances of the lecturer, their discipline, and the context of the university, can be applied to increase perceived graduate employability in students.

# Chapter 7: Conclusions

# 7 Conclusions

## 7.1 Summary

This study focused on developing an educational framework to further develop the understanding of transformative learning and graduate employability in education at TU Dublin. The first phase of the study consisted of determining the current and desired educational practices that develop transformative learning and graduate employability. An impression of current practice was collected through analysis of the books of modules from purposefully selected programmes and by performing focus groups with lecturers of different purposefully selected programmes across a range of disciplines.

The first phase yielded an understanding of the ways education is described in quality assured documentation like books of modules, and that a range of skills accounted for transformative learning and graduate employability are used commonly. Based on this analysis, some skills are described more than others; however, real classroom practice can deviate from the documentation. It was clear that these documents were not written for analysis, rather for informing students and lecturers and as used for programme review purposes. To support this initial documentary analysis, focus groups in the first phase of data collection and analysis gave additional insight into the lecturer experience of teaching and the teaching methods they used. In general, throughout the focus groups, there was an initial unfamiliarity with the term, and practice of, transformative learning. However, after explanation, focus group participants were able to name several examples of how they foster transformative learning in their teaching practice; citing such examples as using reflection, groups work and discussion in the classroom and in assessment. It was noted that transformative learning skills were perceived as more advanced and related to more mature students in the final years before graduation. Focusing on different employability skills that are fostered in programmes, there was a noticeable dependence on the disciplined nature of the programme, and on the individual personality of the lecturers in the focus groups. The nature of education was always in the background of reasoning as the delivery of education as self-development of students and becoming proficient in the field of discipline for employment is a dual goal of education. Education was seen as a journey for students, and they naturally develop over the period of their degree; however, a metric of success can be employment after graduation and lecturers focusing more on student skill development during education to become more employable is a natural desire and side-effect.

The second phase of the research focused on developing an educational framework to visualise the educational process focusing on pedagogies like transformative learning and their connection to fostering graduate employability. Whereas pedagogies lie with lecturers and their beliefs of knowledge creation and their connection to their discipline expertise, graduate employability lies with students and their journey of development and exposure to experiences during a degree. And ultimately graduate employability is measured through graduates. The framework attempted to visualise the lecturer-based influence within education, their discipline and their unique personality and style of teaching, connected to the student-based journey during a degree, their development, and where the graduate employability focus of the university, and possible regulating bodies, meet the students' journey.

In the third phase of the study, the developed educational framework was evaluated with lecturers to test the framework on initial reaction and understandability, and to further develop the usability and the possibility of integration into the teaching practice of lecturers that formed the evaluation group. Changes and suggestions were adopted and incorporated into a new revision of the framework. Additional understanding of the perception of lecturers of such an educational framework was noted leading to improved information and context provided with the framework going forward. The possibility for embedding in educational practice depends on the needs of the lecturer and the context of the discipline, as well as the presence of a regulatory body. The framework will also be able to be specified for the independent lecturer, as well as generalised for the programme or faculty level, as the specific pedagogy and employability skills and personal beliefs of the lecturer will differ in each case. The framework can aid in visualising the educational process in which lecturer, student, and the higher education institution (with added regulating bodies) meet, and where the role of a pedagogy fits in the process for each unique lecturer, to foster further graduate employability skills for self-development of the student.

## 7.2 Synthesis

This exploratory case study focused on understanding the teaching practice and enhancing the transformative learning and graduate employability at TU Dublin. This study found that educational practice is faceted by the respective discipline and the individual lecturer. To enhance the understanding of the educational practice, programme documents and groups of lecturers were consulted. Teaching practice was found to portray elements of pedagogies that foster graduate employability, however, without a clear focus on further incorporation of these pedagogies. There is a strong focus on developing employability skills for students, both skills

defined by the university and skills related to the discipline and each specific module in the curriculum. To enhance the practice of transformative learning and graduate employability at TU Dublin, a visual educational framework was developed that visualised how the lecturer-based pedagogy and the student-based graduate employability connect in the context of higher education degrees. It was found that visualising the process of education proved a representation of practice, which can serve as a template for discussion on incorporation of specific pedagogies and specific employability focus related to the individual lecturer and the field of discipline. The educational framework was evaluated by a group of lecturers and the framework was iterated to incorporate more clarity for interpretation and embedding into practice. The framework can be aligned to the strategic plan of TU Dublin, the educational development plan for all technological universities for Ireland, and to the European plans for education development and the sustainable development goals.

# Chapter 8: Recommendations

# 8 Recommendations

## 8.1 Specific lecturer pedagogy development

As discussed in the conclusion in Chapter 7, it has been suggested during data analysis and discussion that developing understanding of pedagogies and related teaching methods will provide lecturers with further tools that deliver the curriculum, support transformative learning experiences, and increase development of employability skills with students. Recommendations for unique lecturer pedagogy development will be described in Table 8.1.

Table 8.1: Recommendations - unique lecturer pedagogy development

| Recommendation | Elaboration |
|---|---|
| • **Support for lecturers who did not complete basic teaching qualification** | During the focus groups and evaluation sessions, training for lecturers was mentioned as either lacking or minimal. TU Dublin and similar higher education institutions offer teaching diplomas and degrees to novice lecturers, as well as continuous development during their employment. In some instances, a teaching diploma is also required before starting a teaching position. For the lecturers that felt that training was either not required, not offered or not adequate, they could be pointed to the existing opportunities to develop within the university. |
| • **Open development of pedagogies and related teaching methods for lecturers** | Learning about pedagogies and teaching methods is a process that can be facilitated by teaching diplomas or individual and continuous development undertaken by the lecturer. An open development of new and existing pedagogies and related teaching methods ensures also that lecturers are not just aligning to the approaches recommended by the university but explore their own beliefs regarding teaching in their modules and their field and their beliefs on how students create knowledge. |
| • **Promoting student engagement and alumni feedback for lecturers** | In the evaluation sessions it was mentioned that engaging more with students regarding to their needs and engaging more with alumni regarding their experiences in industry |

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| | compared to their degree would add to the lecturer's experience. Programme documents and programme review procedures at TU Dublin mostly incorporate interviews with graduates already to ensure the effectiveness of the programme moving forward. For lecturers who would want more engagement with students, this can be prepared with templates and practical examples to set-up sustainable engagement with students about their learning and similarly with alumni. |
| • **Focus at the programme level on a handful of pedagogies and connected teaching methods with discipline-based examples for lecturers to use and share** | To guide development of lecturers without limiting possibilities and alignment, a handful of pedagogies could be discussed at the programme level, together with related teaching methods. Using real discipline-based examples could help guide the teaching experience within a discipline. Lecturers in the evaluation sessions noted that guidance and push at the programme level is needed and wanted sometimes to ensure innovation and useful development. A handful of pedagogies and examples ensures individuality in practice is maintained as every programme and every module might have different needs. The discipline nature in examples was noted as significant for applicability, which can also be supplemented with general examples, keeping student-size, style of delivery and type of assessment in the module in mind. |
| • **Personal teaching development for lecturers and one-to-one support in teaching practices** | The personal nature of teaching development was noted as pedagogy, teaching method and importance of employability skills is personal to the lecturer and so it should be supported as such. An evaluation session participant noted that training in education innovation can sound general or as informative, rather than applicable. A suggestion would be one-to-one coaching, mentoring, or facilitating of educational development to ensure that the needs of the lecturer are |

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| | central to useful innovation. Facilitation is the key process here, where a support colleague can be responsible for seeking out the solution to problems, consulting with local experts, finding reading material on new methods, or solve class scenarios for next academic year for the lecturer when needed or desired. The support colleague will not necessarily educate or enforce new methods, as the lecturer will need to incorporate the new information in their own style of delivery. |

## 8.2 Practice sharing amongst peers

Similarly discussed in the conclusion sin Chapter 7, further development of educational practice or fitting educational practices towards new methods would benefit from real practical examples that are discipline dependent, as mentioned in focus groups and evaluation sessions. However, sharing can be done anonymously to avoid personal perceptions towards peers and their examples and practice. Recommendations to aid practice sharing amongst peers based on data collection in this study are described in Table 8.2.

Table 8.2: Recommendations - practice sharing amongst peers

| Recommendation | Elaboration |
|---|---|
| • **Foster conversation among peer lecturers about educational practice** | A perception during the focus groups of lecturers, on the same programme, was that these lecturers knew each other but possibly never had a facilitated conversation before about their teaching preferences and teaching experiences. Hearing others explain their examples of using a method like reflection, or how they incorporate problem-based examples in their class and assessment provided recognition for these lecturers. Fostering opportunities that are neutral and casual enough for peer-sharing can be useful for cohesion and confidence building on educational practices. |

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| • **Peer sharing or showcasing anonymously of what practice-based examples, learning activities or application of pedagogies look like in each discipline** | Other than facilitated casual conversations about educational practice, examples could also be prepared and shared in a suitable format or via a suitable platform. The focus groups and evaluation sessions included natural examples lecturers would give of how their teaching practice included specific examples or crafted experiences for students to develop certain learning experiences or assessment formats to foster employability skills. Focus would need to lie on encouraging incremental change, rather than a complete overhaul or new experience as noted in the evaluation sessions. |
| • **Inter-disciplinary sharing of practice** | Inter-disciplinary examples of the focus on employability skills would be important going forward. In the focus groups, different employability skills were discussed based on their perceived importance and although this is discipline-dependent, in some cases a skill was thought to be harder to facilitate than others. Comparing across disciplines, as defined by the broad ISCED categories, did yield an indication that skills depend on discipline. Possibly reviewing teaching methods and assessment with lecturers from two different disciplines will yield paths for interdisciplinary influence and interaction. For example, to incorporate the skill of emotional intelligence incrementally in programmes outside of the Health discipline, whilst concurrently recognising the different discipline-based contexts. |
| • **Alignment to the National discourse** | This case-study that developed a framework based on the data in the sample, could help enlighten research on the National level and specifically other (new) Technological Universities. The PAGE framework could be used by practitioners to align further to the framework for professional development (National Forum, 2016), and to |

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| | further embed employability in the curriculum as stipulated by Advance HE (2019) and the National Skills strategy 2025 (Department of Further and Higher Education, 2021). |

# Chapter 9: Future Work

# 9 Future work

The future work section allows the researcher to suggest further development of the research if there would have been more time, investigate other avenues, and identify additional data to be collected to further investigate the topics of interest.

In the context of this study, transformative learning originated as the focus of study, which later developed into a part of pedagogy development for individual lecturers which may be transformative learning, or other fitting pedagogies to develop graduate employability. Further work could focus on investigating the response of lecturers to trying different pedagogies in their own practice, related to their discipline or their module needs. The importance for individual context could be investigated to develop a further understanding of needs for lecturers based on specific needs in their teaching practice.

Because of time and the effects of the coronavirus pandemic, it was decided to keep to investigating lecturers and leave students out, as students were particularly disconnected from higher education it was felt at the time of data collection and response was generally low for studies focusing on students at the time. Future work could therefore focus on including students and their response on different pedagogies used in the classroom. Additionally, the view of students on the current state of their education, and their involvement with education-design and feedback would be interesting to contrast statements made by lecturers and evaluators in this study. If students come from a guided second level education context, are they more interested in continuing this expectation to third level, or do they rather want to be included more in designing their own learning? Finally, the student voice would be most relevant to discuss the perception of graduate employability as this term is inherently student-based and it is their employment it concerns.

These suggestions for further work would lead to further development of the effective embeddedness of pedagogies to develop further graduate employability as that is perceived in a modern and student-based context as well as academic context.

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# Appendix One: Sampling Information

## *Sampling information*

There are several variables for programme selection, namely there are five types of education, two modes of study, three campuses, different durations of programmes and twelve subjects or field of study as used by the TU Dublin website in Spring 2021, see Table A1.1.

Table A1.1: Variables for unit of analysis for programmes at TU Dublin

| **Variable** | **Number of components** | **Description of components** |
|---|---|---|
| **Types of education** | 5 types | Undergraduate, postgraduate, apprenticeships, short courses, and Springboard[4] |
| **Modes of study** | 2 modes | Full time and part time |
| **Campuses** | 3 campuses (and 4 sub campuses for City) | Blanchardstown, City and Tallaght campus.<br><br>And City has the sub campuses and/or buildings Grangegorman, Aungier street, Bolton Street and City centre general (unassigned). |
| **Duration** | 5 lengths | Programmes depending on type last 1-5 years in duration. |
| **Subjects** | 12 subjects (as described on the TU Dublin website spring 2021) | Architecture and Built environment; Art, Design and Media; Business, Law, and Languages; Computing and Information technology; Culinary, Hospitality and Tourism; Data Analytics and Mathematics; |

[4] Springboard provide free and heavily subsidised upskilling and reskilling opportunities through higher education in areas where there is an identified skills need. A particular emphasis of the initiative is upskilling people who are unemployed or in receipt of a social welfare payment (Springboard+, 2022).

| | | |
|---|---|---|
| | | Engineering; Environment; Music and Drama; Science; Social science and Education; and Sports and Leisure. |

There were twelve subjects on the TU Dublin website. However, when sorting the twelve subjects per campus, it is noted that there are 51 double counted programmes in City Campus and 18 double counted programmes in Tallaght campus in spring 2021, meaning that some programmes are counted into two or three different subjects by the TU Dublin website.

It was decided to look for a recognised method of assigning discipline to the programmes that would not count doubles. The International Standard Classification of Education disciplines (ISCED) is a UNESCO classification designed for international uniformity in assigning discipline to educational programmes (UNESCO: Institute for Statistics., 2021).

The ISCED classification is also used by the Central Applications Office (CAO) in Ireland, to assign broad and specific discipline for each programme. There are eleven ISCED disciplines; 0. Generic Programmes and qualifications, 1. Education, 2. Arts and Humanities, 3. Social sciences, Journalism, and Information, 4. Business, Administration and Law, 5. Natural Sciences, Mathematics and Statistics, 6. Information and Communication technologies (ICTs), 7. Engineering, Manufacturing and Construction, 8. Agriculture, Forestry, Fisheries and Veterinary, 9. Health and Welfare and 10. Services. These codes are then subdivided even further based on subfields. See Figure A1.1 for an example of ISCED 0. Generic programmes and ISCED 1. Education and their categorisation into subdisciplines. The ISCED disciplines will allow categorisation without doubles in categorisation of the remaining 198 programmes.

**ISCED-F 2013: List of possible codes**

| Broad field | Narrow field | Detailed field |
|---|---|---|
| 00 Generic programmes and qualifications | 000 Generic programmes and qualifications not further defined | 0000 Generic programmes and qualifications not further defined |
| | 001 Basic programmes and qualifications | 0011 Basic programmes and qualifications |
| | 002 Literacy and numeracy | 0021 Literacy and numeracy |
| | 003 Personal skills and development | 0031 Personal skills and development |
| | 009 Generic programmes and qualifications not elsewhere classified | 0099 Generic programmes and qualifications not elsewhere classified |
| 01 Education | 011 Education | 0110 Education not further defined<br>0111 Education science<br>0112 Training for pre-school teachers<br>0113 Teacher training without subject specialisation<br>0114 Teacher training with subject specialisation<br>0119 Education not elsewhere classified |
| | 018 Inter-disciplinary programmes and qualifications involving education | 0188 Inter-disciplinary programmes and qualifications involving education |

Figure A1.1: An example of ISCED classification codes

The remaining programmes were reduced by focusing on level eight undergraduate programmes with a three and four-year duration. It was also decided to only select for CAO active programmes for the 2020/2021 academic year, meaning programmes that were on offer for students in the academic year. 90 programmes remained for final sample selection.

It should be noted here that checking activity with the website and CAO was deemed necessary because of the state of flux the university is under with the ongoing merger of three institutes of technology. During the comparison with the website and the CAO list, some name changes were found, and some programmes were discontinued or merged. For example, the programme TU982 is called Creative Digital Media on the CAO list yet is called Media Production and Digital Arts on the website. And another example, the programme Computing with Data analytics had no sure match on the website, however the CAO list linked a TU862 number to the programme. The new name for this TU862 programme on the website is Computing with Artificial Intelligence Machine Learning.

## *Unit of analysis*

For further selection of the sample, two ways of establishing the unit of analysis were tested. First, using TU Dublin campus as unit of analysis and second, using ISCED discipline as unit of analysis. Both methods focus on establishing an equal spread in the unit of analysis.

It was decided to choose ISCED discipline as the unit of analysis, followed by the spread in campuses within those disciplines. A table was compiled of all remaining programmes per ISCED broad field discipline. A 3:1:1 campus spread was decided for City campus; Blanchardstown campus and Tallaght campus, based on precedent originating in the university's design, as described in Section 4.3.

Selection on campus per discipline was done based on two patterns. The first being the number of programmes in disciplines available per campus, since not all disciplines are represented at every campus, see Table A1.2 for an example of one campus. Blanchardstown does not have a programme available in every ISCED discipline, and so the disciplines with most programmes at Blanchardstown are favoured, highlighted in bold in Table A1.2.

The second pattern is the number of programmes available in that discipline over all campuses, so a campus with eight programmes was favoured over a campus with one programme available, see Table A1.3. The higher number of programmes available gives several available alternatives if the first programme selected would not be able to participate. In Table A1.3 you can see that ISCED discipline 2. Arts and Humanities, there are eight programmes available at City-Grangegorman which is more than at other campuses for that discipline, so City-Grangegorman is favoured. At discipline 1. Education there is only one CAO active programme, so that only leaves that programme to be selected at City-Grangegorman.

Subsequently, separate tables were developed selecting which discipline at which campus could be looked at for documentary analysis and for focus groups separately, while maintaining a spread of ISCED disciplines while also keeping a 3:1:1 campus spread.

Table A1.2: Selection criteria 1 - number of programmes available/per discipline for a campus

| **Discipline number** | **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** | **9** | **10** |
|---|---|---|---|---|---|---|---|---|---|---|
| Blanchardstown | 0 | 1 | 1 | **3** | 0 | 1 | **3** | 0 | 1 | 1 |

Table A1.3: Selection criteria 2 - number of programmes available per campus for a discipline

| Per campus | 1. Education | 2. Arts and Humanities |
|---|---|---|
| Blanchardstown | 0 | 1 |
| City - Grangegorman | 1 | 8 |
| City - Aungier street | 0 | 1 |
| City - Bolton Street | 0 | 0 |
| City Centre | 0 | 1 |
| Tallaght | 0 | 0 |

## *Selection for documentary analysis*

For documentary analysis, 20 programmes were initially aimed to be analysed within the time frame available, which makes two per ISCED discipline. However due to discipline 1. Education having only one CAO active programme, and discipline 8. Agriculture having no CAO active programmes available, this makes eight disciplines with two programmes and one discipline with only one programme. So, a total of seventeen programmes will be selected over the nine active disciplines. The 3:1:1 campus spread is recalculated to 11:3:3 programme ratio for City campus; Blanchardstown campus and Tallaght campus respectively, see Table A1.5. For City Campus, all the constituent buildings or 'sub-campuses' were also kept in mind when selecting (City – Grangegorman, Aungier Street, Bolton Street, and the general City Centre denomination, as also seen in Table A1.3).

Table A1.5 shows the number of programmes to be selected per discipline per campus. However as shown in Table A1.3, at some campuses a higher number of programmes was available in that discipline. When it came to select which of these eight programmes was going to be contacted first, the programmes were sorted based on the numerical value of their TUXXX number.

Table A1.6 shows the final selection of programmes per discipline per campus using the selection criteria of most programmes per campus and per discipline to determine which programmes are to be selected. Using the order for contacting based on the numerical value of the TUXXX number, this resulted in a list of specific programmes to contact first for documentary analysis. The specific numbers and names of these programmes will not be released due to privacy reasons.

Table A1.4: Establishing the order of programmes contact purposes

| **ISCED Discipline** | **Campus** | **TUXXX code ↓** | **Website programme description** | **Order ↑** |
|---|---|---|---|---|
| 02. Arts and Humanities | City - Grangegorman | TU962 | Drama (Performance) | 1 |
| | | TU963 | Music | 2 |
| | | TU967 | Languages and International Tourism (Chinese/French/German/Irish/Italian/Spanish) | 3 |
| | | TU973 | Design - Visual Communication | 4 |
| | | TU974 | Fine Art | 5 |
| | | TU975 | Interior Design | 6 |
| | | TU976 | Photography | 7 |
| | | TU983 | Film & Broadcasting | 8 |

***Selection for focus groups***

For the focus groups, a format of a focus group with lecturers and a focus group with final-year students per discipline was decided. The lecturers and students would be selected from the same programme to show the practiced and experienced transformative learning and graduate employability per programme. A total of 10 focus groups and thus five programmes were initially aimed to be analysed within the time frame available. Following the criteria for selecting programmes per campus and most programmes per discipline, this resulted in five disciplines with a 3:1:1 campus spread for City: Blanchardstown: Tallaght campus, see Table A1.6.

It should be noted that programmes for focus groups coincided with the ones selected for documentary analysis by following the criteria set out previously. The sample for focus groups should ideally differ to documentary analysis as performing focus groups in the same programmes as documentary analysis will not likely reveal additional depth or additional information. To make sure that different programmes would be selected at the same campus at that discipline, TUXXX numbers were ordered in the opposite order for the focus groups, so going up in value. When looking at the programmes in Table A1.4, it means that the last programme for documentary analysis would be contacted first for a focus group in the same discipline.

Table A1.5: Suggested selection of programmes for documentary analysis per discipline per campus

| Documentary Analysis | 01 Education | 02 Arts & Humanities | 03 Social sciences, journalism & information | 04 Business, administration & law | 05 Natural sciences, mathematics & statistics | 06 ICT | 07 Engineering, manufacturing & construction | 08 Agriculture, forestry, fisheries & veterinary | 09 Health & welfare | 10 Services | Campus spread |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Blanchardstown** | | | | 1 | | | 1 | | 1 | | 3 |
| **City - Grangegorman** | 1 | 1 | 1 | | 1 | 1 | | | 1 | 1 | 11 |
| **City - Aungier street** | | 1 | 1 | | | | | | | | |
| **City - Bolton Street** | | | | | | | 1 | | | 1 | |
| **City Centre** | | | | | | | | | | | |
| **Tallaght** | | | | 1 | 1 | 1 | | | | | 3 |
| **Total** | **1** | **2** | **2** | **2** | **2** | **2** | **2** | **0** | **2** | **2** | **17** |

Table A1.6: Suggested selection of programmes for focus groups per discipline per campus

| Focus Groups | 01 Education | 02 Arts & Humanities | 03 Social sciences, journalism & information | 04 Business, administration & law | 05 Natural sciences, mathematics & statistics | 06 ICT | 07 Engineering, manufacturing & construction | 08 Agriculture, forestry, fisheries & veterinary | 09 Health & welfare | 10 Services | Campus spread |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Blanchardstown** | | | | | | | 1 | | | | 1 |
| **City - Grangegorman** | | 1 | | | 1 | | | | 1 | | 3 |
| **City - Aungier street** | | | | | | | | | | | |
| **City - Bolton Street** | | | | | | | | | | | |
| **City Centre** | | | | | | | | | | | |
| **Tallaght** | | | | 1 | | | | | | | 1 |
| **Total** | **0** | **1** | **0** | **1** | **1** | **0** | **1** | **0** | **1** | **0** | **5** |

# Appendix Two: Ethical Approval Letter

OLLSCOIL TEICNEOLAÍOCHTA BHAILE ÁTHA CLIATH
TECHNOLOGICAL UNIVERSITY DUBLIN

29th March, 2022.

To Whom It May Concern

Ref: Ellen Kampigna, Student Number B00139372

I would like to confirm that the above named student has received ethical clearance for the research she is carrying out as part of her research project leading to a Masters by Research award.

The ethics form as was signed by the Head of Department Dr. Fiona Malone as part of her project submission on October 16th 2020.

Yours faithfully,

Sandra Thompson,
Programme Manager,
School of Business


**Seoladh Cláraithe / Registered Address**
OT Baile Átha Cliath - Teach na Páirce Ghráinseach Ghormáin
191 An Cuarbhóthar Thuaidh, D07 EWV4, Éire
TU Dublin - Park House Grangegorman
191 North Circular Road, D07 EWV4, Ireland

**OT Baile Átha Cliath**
**Campas Bhaile Bhlainséir**
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# Appendix Three: Information Sheet Focus Groups

March 21

## Participant Information sheet

**Title of study:** The study is an exploratory case study into the current and desired practice of transformative learning and graduate employability within the TU Dublin curriculum.

You are invited to take part in focus groups as part of consultation with the stakeholders in the TU Dublin curriculum. This includes teaching and designing education in the form of modules as part of an over-arching programme as offered to students at TU Dublin. Please read the following information carefully in order to understand the purpose of the research and what it involves of you.

**Why is this programme invited to participate in my research?** Selected programmes of interest were identified through a purposeful sampling method. The process focused on representing all disciplines of study at TU Dublin as well as a representative campus spread. Programme teams of these selected programmes are asked to participate in focus groups. Your programme is thus very important as it helps to represent your discipline and your campus for this study.

**What is the purpose of the focus group?** The aim of these focus groups is to discover existing values in current and desired teaching practice. The results of the focus groups will help to provide recommendations for future development of curriculum design, with regards to improving graduate employability through transformative learning.

**What will taking part involve?** Participation in the focus groups is voluntary. The focus group session entails a group discussion between 3-4 staff members, including lecturers, tutors and programme chairs or course coordinator or assistant Head of School (the equivalent per campus). In order to ensure accurate transcription of the focus group, the discussion will be recorded through MS Teams. The session will be transcribed *verbatim* and thematically analysed using NVivo. The transcript will be shared with the participants to ensure accuracy and approval before the analysis stage.

**Do I have to take part?** Your participation is entirely voluntary and can be stopped at any point without reason. Withdrawal is possible at any point before the transcript of the focus group is sent back to the researcher after participant approval. Afterwards, the transcripts will be aggregated and prepared for thematic analysis by the researcher. The raw audio and video files will be stored locally on a secured and private laptop and will be securely destroyed after data analysis is finished. All data will be deleted 5 years after completion of the study.

**Will taking part be anonymous and confidential?** Yes, the identity of all participants will be anonymized in transcription using aliases e.g., Lecturer1. The correlation between participant name and alias will be saved in a separate document acting as anonymization key. The anonymized data will only be handled by the researcher and discussed with supervisors, always anonymously.

**When would I like to engage with the programme team?** One session of 60 minutes would ideally be planned this semester (2020/2021, Semester 2), before the summer break. Of course, the increased pressure on staff members this year due to the pandemic and the ongoing merger are understood, and we ask you only take part if that is possible next to your other responsibilities. All levels of expertise are welcomed to the discussion.
The researcher will schedule the focus group with the designated programme point of contact. All participants will be asked to sign an informed consent form before participation in the focus group session, in order to confirm participants are satisfied to participate in the focus group.

I would really appreciate it if you would consider taking part in the focus groups.
Should you have a question or comment about this focus group, please contact the researcher: Ellen Kampinga (B00139372@mytudublin.ie).

1

# Appendix Four: Consent Form Focus Groups



## Consent Form Focus Groups

The following is a consent form to state that you agree to participate as a volunteer in a focus group to discuss the topic: "Lecturer's perceptions on the current and desired practice of transformative learning and employability within the TU Dublin curriculum". The data will inform a thesis and research paper to be submitted in fulfillment of the researchers MPhil.

Researcher: Ellen Kampinga
School and Department: School of Business, Blanchardstown
Title of study: "An explorative case study into understanding and implementing transformative learning and employability within a quality curriculum framework".

* Required

* This form will record your name, please fill your name.

1. Have you been fully informed about this study? *

- ◯ Yes
- ◯ No

2. Have you had an opportunity to ask questions and discuss this study? *

- ◯ Yes
- ◯ No

3. Have you received satisfactory answers to all your questions? *

- ◯ Yes
- ◯ No

4. Do you understand that you are free to withdraw from this study at any point, without giving a reason and without affecting your future relationship with the university? *

- ◯ Yes
- ◯ No

5. Do you agree to take part in this study, the results of which are likely to be published? *

- ◯ Yes
- ◯ No

6. Do you agree that the session will be recorded in video and audio, and will be stored by the researcher until data analysis is finished? *

- ◯ Yes
- ◯ No

7. Have you been informed that this consent form shall be kept in the confidence of the researcher? *

- ◯ Yes
- ◯ No

8. If you have answered 'No' to any of these questions, please contact the reseacher. Do you still have questions? *

Researcher: Ellen Kampinga, b00139372@mytudublin.ie.

- ◯ Yes
- ◯ No

9. Name of participant *

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# Appendix Five: Information sheet Evaluations

May 2022

**Participant Information sheet**

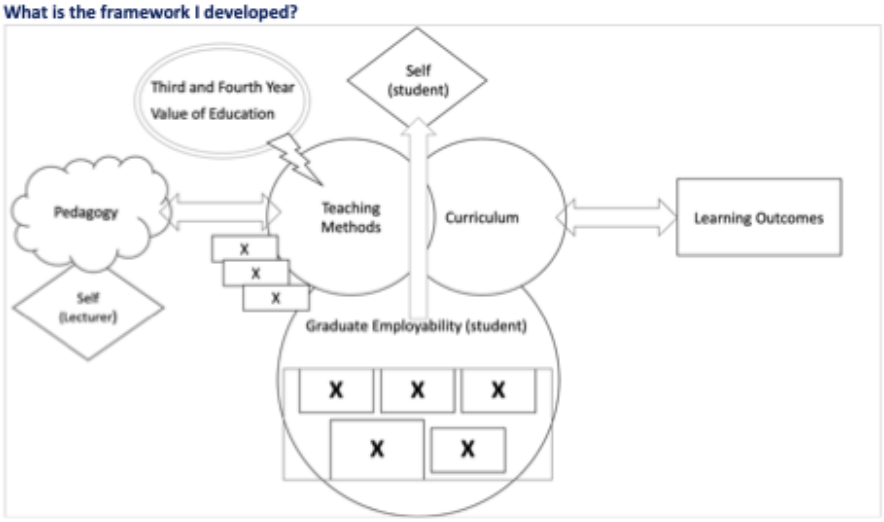
**Title of study:** The study is an exploratory case study into the current and desired practice of transformative learning and graduate employability within the TU Dublin curriculum.

You are invited to take part in evaluation sessions of the developed framework. Please read the following information carefully to understand the purpose of the research and what it will requires.

**What is the purpose of the evaluation session?** The aim of these evaluation sessions is to receive feedback on the potential of embedding the framework into day-to-day teaching practice. The results of the evaluation sessions will aid to strengthen and contrast discussion on the application of the framework as developed. You will also aid to provide direct routes to expand the framework going forward for future development of curriculum design, with regards to improving graduate employability through transformative learning.

**What will taking part involve?** Participation in the focus groups is voluntary. The evaluation session entails a discussion one-to-one with the researcher. To ensure accurate transcription of the evaluation session, the discussion will be recorded through MS Teams. The session will be transcribed *verbatim* and parts of the transcription will be used as quotes into discussion of the framework. The transcript will be shared with the participants to ensure accuracy and approval before the analysis stage.

**What is the framework I developed?**




The framework displays the journey in concepts of how student development towards employment is influenced by the university and the lecturing staff.

- The student path is shown from the bottom to the top. Where we view graduate employability from the student's view, where desired skills are developed through interacting with teaching method and the university degree in the centre of the framework. Students will take these experiences and interactions to their self-development which will increase employability.
- The university connection is the on the horizontal. Where on the right side, learning outcomes and curriculum are determined by the university and the programme documentation, which influence what topics and skills are to be taught to students. On the left side on the horizontal is the lecturer, where their self and their pedagogy will determine the teaching methods used that the student would interact with.
- The teaching method and the informed pedagogy is where the most influence can be controlled by lecturing staff. Deepening familiarity with pedagogies and connected teaching methods is recommended to enhance attachment to broad student cohorts and unique learning paths.

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May 2022

**What is transformative learning?** Transformative learning is a student-centred pedagogy, focusing on creating autonomous thinkers and mostly uses discussion, group work and critical reflection to facilitate transforming learning experiences for students that prepare them for the work life.

**What is graduate employability?** Graduate employability is the potential to which graduates are employable, usually defined in a list of skills desired in graduates. TU Dublin uses the 5 E's (Engaged, Enquiry-based, Expert, Effective and Enterprising). Several models will define skills between discipline-specific and general soft skills for graduates to develop and these skills are connected to learning outcomes for modules and programmes.

**What data is the framework based on?**

- Literature review of well-cited employability models for higher education, HEA reviews on most important employability skills over the last 20 years, TU Dublin graduate attributes, and the Transform-EDU STLR competencies.
- Documentary analysis of nine purposefully selected book of modules across disciplines and university campuses at TU Dublin.
- Four focus groups with lecturers from four purposefully selected programmes across disciplines and university campuses at TU Dublin.

**Do I have to take part?** Your participation is entirely voluntary and can be stopped at any point without reason. Withdrawal is possible at any point before the transcript of the evaluation session is sent back to the researcher after participant approval. Afterwards, the transcripts will be aggregated and contrasted by the researcher. Raw audio and video files will be stored locally on a secured and private laptop and will be securely destroyed after data analysis is finished. All data will be deleted 5 years after completion of the study.

**Will taking part be anonymous and confidential?** Yes, the identity of all participants will be anonymized in transcription using aliases e.g., Lecturer1. The correlation between participant name and alias will be saved in a separate document acting as anonymization key. The anonymized data will only be handled by the researcher and discussed with supervisors, always anonymously.

Should you have a question or comment about this focus group, please contact the researcher: Ellen Kampinga (ellen.kampinga@tudublin.ie).

# Appendix Six: Consent Form Evaluations



## Consent Form Evaluation Sessions

The following is a consent form to state that you agree to participate as a volunteer in an evaluation session to discuss the topic: "Potential to embed educational framework to foster further development of transformative learning- and graduate employability-based practices at TU Dublin". The data will inform a thesis and research paper to be submitted in fulfillment of the researchers MPhil.

Researcher: Ellen Kampinga
School and Department: School of Business, Blanchardstown
Title of study: "An explorative case study into understanding and implementing transformative learning and employability within a quality curriculum framework".

* Vereist

* Dit formulier registreert uw naam, vul uw naam in.

1. Have you been fully informed about this study? *

- ◯ Yes
- ◯ No

2. Have you had an opportunity to ask questions and discuss this study? *

- ◯ Yes
- ◯ No

3. Have you received satisfactory answers to all your questions? *

- ◯ Yes
- ◯ No

4. Do you understand that you are free to withdraw from this study at any point, without giving a reason and without affecting your future relationship with the university? *

- ◯ Yes
- ◯ No

5. Do you agree to take part in this study, the results of which are likely to be published? *

- ◯ Yes
- ◯ No

6. Do you agree that the session will be recorded in video and audio, and will be stored by the researcher until data analysis is finished? *

- ◯ Yes
- ◯ No

7. Have you been informed that this consent form shall be kept in the confidence of the researcher? *

- ◯ Yes
- ◯ No

8. If you have answered 'No' to any of these questions, please contact the reseacher. Do you still have questions? *

Researcher: Ellen Kampinga, b00139372@mytudublin.ie.

- ◯ Yes
- ◯ No

9. Name of participant *

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