Reframing pedagogic practices using a social practice perspective to explain and inform change in the Irish technological higher education sector

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Abstract

This practice-focused ethnographic study was conducted in the context of the Irish technological higher education sector to elucidate and enhance pedagogic practices during a time of radical change with the establishment of Technological Universities. Underpinned by Social Practice Theory (SPT), the Teaching and Learning Regime (TLR) theoretical framework was trialled to reframe the pedagogic practices of lecturers within the sector. Rather than deploying a narrow focus of evaluating the impact of professional development using a practice perspective, this study explored broader questions regarding change to pedagogic practices, including the material environment and contextual factors which condition their adoption. The ontological perspective of Critical Realism (CR) informed the design of a theory-driven methodological approach to research design and analysis of data. A process for the systematic mapping of data to the TLR theoretical framework was devised.

Nineteen postgraduate diploma graduates from four geographically dispersed Institutes of Technology (IoTs) participated in this research study. The postgraduate programme was designed to develop pedagogic practices and address sectoral requirements. An essential aspect of the research design was the requirement for research participants to teach for one year after graduation. This enabled the examination of pedagogic practices and conditioners of change within the workgroup. To avoid reliance on self-reporting and informed by the SPT elements of materials, competences and meanings, the variety of data collection methods included semi-structured and focus group interviews, classroom observations and digital artefacts to represent teaching.

New perspectives of pedagogic practices emerged with substantial evidence of early-career transmission-focused practices changing to contemporary approaches, thereby impacting student experiences. The TLR transpired to be a comprehensive theory for understanding, explaining, and implementing change in higher education. The study will inform the design and evaluation of professional development and change initiatives at the micro-, meso- and macro-level in the Irish technological higher education sector.

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Finally, I dedicate this thesis to my husband, John, my constant and best friend.

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This thesis results entirely from my own work and has not been offered previously for any other degree or diploma.

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Chapter 1: Introduction

1.1 Background to the study

This practice-focused ethnographic study aims to add to our understanding and knowledge of the pedagogic practices of the participants, who are lecturers teaching in the Irish technological higher education sector. When this study commenced in 2017, there were fifteen Institutes of Technology (IoTs). Over the course of the study, the sector has been transformed, resulting in thirteen out of the fifteen IoTs merging into five Technological Universities (TUs). Three institutes in this study are now part of the newly established TUs. Each TU comprises geographically dispersed campuses, adding further complexity to implementing the change agenda required.

IoTs were established as teaching-intensive or teaching-oriented Higher Education Institutes (HEIs), with lecturers employed for their discipline expertise and industrial experience (Kahn, 2009; Palmer, 2009). Teaching is frequently developed after commencing their role, with staff often relying on their previous educational experiences (Donnelly, 2008). Baume suggests that teaching in higher education is “the last of the non-professions” (2006, p. 1). In an era of increasing student diversity, greater public accountability, and digitalisation, the "amateur teacher model", which still exists in Irish Higher Education (HE), was previously considered "untenable" (MacLaren, 2005, p. 111). In the Irish technological higher education sector, lecturers are not required to hold a teaching qualification. The professional development of lecturers is a relatively new phenomenon in Irish HE, including the IoTs. Dedicated centres or units have been established to provide professional development, including postgraduate programmes (Slowey & Kozina, 2015). The purpose is to support the development of contemporary pedagogic practices to enhance classroom practice with the aim of enhancing student learning and achievement (Organisation for Economic Cooperation and Development, 2021).

This research study examines the pedagogic practices of lecturers who completed a postgraduate qualification and subsequently taught for at least one year. Previous studies undertaken in an Irish context had limitations as they relied on evaluating the

impact of a programme or self-reporting by individuals (Donnelly, 2008; Donnelly et al., 2017; Hanratty, 2018; McAvinia et al., 2015; Palmer, 2009; Slowey & Kozina, 2013, 2015). Tight argues that higher education research typically focuses on "themes and objects" and is “a-theoretical” (2004, p. 395). However, this research study is underpinned by Social Practice Theory (SPT). It also applies theory to document and explain pedagogic practices by testing the potential of the revised Teaching and Learning Regime (TLR) theoretical framework in the context of the Irish higher education technological sector (Trowler, 2020, p.45). TLR theory is situated firmly in a social practice perspective and was developed for the context of higher education. Although this study is informed by the work of Shove et al. (2012), as their work focused on consumer behaviour, their use of language to describe a change to practices, including terminology such as “recruitment, defection and reproduction” (p.16), may be construed as having negative connotations when used in the context of higher education. Therefore, I selected to use alternative wording in the design of my research questions.

1.1.1 Research questions

This study addresses the following research questions:

RQ. 1 Within the Irish technological higher education sector, what is the trajectory of pedagogic practices over time in Teaching and Learning Regimes (TLRs)?

RQ. 2 Why do teaching staff choose to adopt or discontinue some pedagogic practices?

RQ. 3 What are the conditioning factors for the pedagogic practices that teaching staff in the Irish technological higher education sector adopt and sustain?

RQ. 4 How and how effectively does Social Practice Theory (SPT) explain changes to pedagogic practices and provide insights to guide change management?

1.2 The rationale for this research study

Education is a “distinct, recognisable phenomenon of the world, signified by people, objects, buildings, ways of being, of talking, and of argumentation, processes and policies” (Tummons, 2019, p. 221). I have been part of the Irish education system since 1968 as a pupil, student, student teacher, secondary school teacher and instructor on

vocational programmes for socially deprived youth. I commenced my role as an assistant lecturer in an IoT in 2000. I began a Masters in Third Level Learning and Teaching in 2003. This coincided with the publication of the National Framework of Qualifications, which resulted in modularisation requiring the rewriting of all programmes to include programme and module learning outcomes.

Semesterisation was also introduced in some locations or specific faculties initially. It was evident to a group of us undertaking postgraduate study in the early 2000s that teaching staff needed to engage in professional development specific to an Irish and local context, rather than the ad hoc approach of management in providing workshops by a range of external experts. Senior managers accepted a proposal to establish a dedicated unit in my institute in 2006, leading to the commencement of my role as an educational developer.

Previous studies have indicated that short training courses have “limited opportunity" to "change teachers’ conceptions” and do not allow for applying new practices in discipline-specific contexts (Southwell & Morgan, 2010, p. 48). My experience was similar to that of Postareff and colleagues (2007). They suggest that shorter courses may lead to "uncertainty and reduced self-efficacy", whereas more extended periods of engagement of at least one year show positive effects (2007, p. 568). Others concur with this view (Ramsden, 1994; Stes et al., 2010). Early in my new role, I observed that reliance on short workshops did not significantly change pedagogic practices.

In 2006, the Learning Innovation Network (LIN), a nationally-funded sectoral initiative, commenced. The initiative involved educational developers from across the IoT sector working in a uniquely collaborative process to design a flexible pathway to a postgraduate diploma. Prior to LIN, twelve of the fifteen IoTs relied on external providers for accredited professional development. The flexible pathway, which comprises individual special purpose awards or modules, offers an alternative approach to traditional programme design, making the programme more accessible and suited to different career stages (Rienties et al., 2013; Teräs, 2016). Informed by the work of the Staff and Educational Development Association (SEDA), the design involved the collaborative development of shared professional values (Neame, 2015).

This was the first time professional values for teaching staff were articulated for the Irish technological higher education sector.

LIN professional values:

- A commitment to learning and development of each learner to achieve their potential.
- Fairness, justice, equity, respect, ethical practice.
- Valid, authentic, fair, and consistent assessment.
- Collaborative learning, community of practice.
- Evidenced research-based teaching informed by scholarship.
- Courage, openness to new approaches, innovations, and continuing reflection on professional practice.

(Baume, 2011; Fitzpatrick & Harding, 2011, p. 63; Harding & Palmer, 2011)

Values are a key dimension of social practice (Trowler, 2020). The values provided a framework for the work of the educational developers in the sector, many of whom were new to the role. Underpinned by learning theory, all modules were required to incorporate critical features. Within a supportive and collaborative learning environment, participants were required to engage in reflective practice and develop digital literacies. The design of a flexible pathway meant students on the programme had the scope to determine the timing of their engagement with aspects of their practice they wished to enhance, given the "complexity and context-specificity" of their roles (Kahn et al., 2012, p. 866). Similarly, Boud stresses the importance of context when located in the work setting of the student as they are enabled to set their agenda, thus increasing their agency (1999). Details of current special purpose awards aligned to the programme are included in appendix 1.

Although the research participants may have a uniquely personal, flexible pathway dependent on the modules selected, the capstone module for the award of Postgraduate Diploma in Learning, Teaching and Assessment had to be completed in the awarding institute. Therefore as programme coordinator and teaching team member, I engage with all students on the programme. The module requires the development of a portfolio of evidence. This includes a teaching philosophy statement,

providing evidence of how professional values are espoused in practice and reflecting on changes to their pedagogic practice justified through scholarship. Researchers can use artefacts to evoke reactions and help elucidate the multiple dimensions of social practice (Spalding & Philips, 2007; Trowler, 2020). The portfolio became an artefact for reference by participants as part of the data collection in this study.

The flexible pathway, adopted by three of the four sites in this study, met the criteria of "salience, congruence and profitability" within Teaching and Learning Regimes (TLRs) as articulated by Trowler (2020, pp. 121–122), which can be explained as follows:

- Salience: the timing of the programme's introduction was a factor. It commenced after the Irish National Framework of Qualifications was published, which transformed curriculum design in Irish HE. It was considered a priority that staff would be supported in all aspects of learning, teaching and assessment (2021a). Therefore, this initiative "mattered".
- Congruence: the programme was designed to suit the needs of teaching staff, after extensive consultation and research across the technological higher education sector, by educational developers familiar with that context; therefore, it was compatible or "fit".
- Profitability: the benefit of introducing the programme as a flexible pathway became evident soon after its introduction. Although it has been revised subsequently, it has been sustained with modules shared by the National Forum for the Enhancement of Teaching and Learning (NFETL) across several HEs (2018). In addition, the flexible pathway model has recently been adopted as part of a newly structured programme to PhD level through a NFETL funded collaborative enhancement initiative (National Forum for the Enhancement of Teaching and Learning, 2018).

(Trowler, 2020, pp. 121–122)

In an evaluation of funded initiatives, the LIN project was considered "a well-regarded project, important in stimulating collaboration among IoTs", and the "Academic Development Programme was impressive" (Davies, 2010, p. 12). Therefore, LIN was a major change initiative in the sector. However, this study was not designed to evaluate

the impact of the postgraduate programme. I selected the programme to investigate the pedagogic practices of lecturers within their situated work context or Teaching and Learning Regime (TLR) who had engaged in accredited professional development and subsequently taught for one year (Trowler, 2020, p.45).

The rationale for this research arises from my professional and personal interest in enhancing pedagogic practices. At a national level, I was a member of the LIN project team and am currently a National Associate with the NFETL. I am an active member of professional groups such as the All Ireland Society for Higher Education (AISHE), the Educational Developers in Ireland Network (EDIN) and the Irish Learning Technology Association (ILTA). Most recently, as a member of an NFETL advisory group, designing a national recognition framework for those who teach in Irish Higher Education (2021). My interest in conducting this research study was inspired by research undertaken which coincided with my participation in the PhD programme at Lancaster University as I led or acted as an institute representative on several funded projects focusing on developing pedagogic practice in higher education and secondary schools (ATLAS, 2018; TALENT, 2021; TEAM, 2019; Y1Feedback, 2016c). That research also led to publications during the PhD programme, focusing on using digital technologies in practice and the impact of accredited professional development (Farrelly et al., 2018; Harding, 2018; Maguire et al., 2017). This body of work provided an impetus to undertake a practice-focused ethnographic study. As an educational developer and change agent in the Irish technological higher education sector, I was motivated to undertake a research study specific to that sector during a time of significant transformation requiring changes to pedagogic practices. The study is important as it will elucidate the pedagogic practices of the participants and test the TLR theoretical framework in the sector. It will add to knowledge about the pedagogic practices of lecturers in the sector by identifying the factors which condition them in situated contexts.

1.3 Justifying a practice-focused ethnographic approach

Underpinned by SPT and adopting a critical realist ontology, the study extends beyond focusing on the individual or a programme of study to examine the situated practices of the participants. An essential aspect of the research design is that participants have

returned to their workgroup and taught for at least one year after completing a postgraduate programme to develop their pedagogic practices.

SPT is considered “ethnographic in its sensibility” (Miettinen et al., 2009, p. 1312). Traditional ethnography requires the researcher to immerse themselves within a particular culture of interest. I have worked for over twenty-two years at the micro- and meso- level of my own HEI and have also engaged, through my work as an educational developer, in each of the three other sites. Therefore, it can be argued that I have developed an anthropological sensibility for the sites. As the context for the study is the Irish Technological Higher Education sector, selecting to use a practice-focused ethnographic approach complements SPT as it is considered strategic and purposeful allowing the development of “research-based understandings and possible solutions to real-world issues in universities” (Trowler, 2020, p. 46). This study specifically focuses on practices rather than individuals, the data collection occurred over an extended period of engagement which included several site visits. Therefore, selecting a practice-focused ethnographic approach is also justified as it informed the methodological choices and the approach to data collection which extended beyond “mundane strategies”, such as interviews and focus groups to include observations of both staff and student practices in the classroom (Hillyard, 2010, p. 12). In addition, in keeping with SPT, the agentic nature of materials was a key element of the study. Hillyard describes this approach as an “inclusive ethnography” as although interviews and focus groups produce rich data, they give partial accounts which need to be supplemented with other approaches (2010, p. 12). In the social sciences, traditional ethnographic approaches are deemed impracticable, and instead, it is advised that data collection needs to be "smart, practicable, efficient whilst producing rich and valuable data" (Trowler, 2020, p.60). Therefore, rather than documenting accounts of practices, “useful” research techniques which reveal the “multiple dimensions of social practice: saying, doing, relating, feeling and valuing” are required (Trowler, 2020, p. 61). Shove and colleagues suggest that changes in routinised behaviours require the development of practices; therefore, “understanding their emergence, persistence and disappearance is of the essence” (2012, p. 2). By employing a practice-focused ethnographic approach and viewing pedagogic practices as social practice, the

elements of “materials, competences, and meanings” in turn provided the framework for devising the research design (Shove et al., 2012, p. 14). The research design adopts a multiple-case study approach underpinned by SPT to address the research questions. Purposive sampling led to twenty-eight graduates of the postgraduate diploma being potential research participants as they met the requirements of the study. Nineteen volunteered to participate from four geographically distributed IoTs. I have selected to use the term "research participant" instead of "respondent" as it emphasises the intensive engagement over the extended study period.

The multi-site case study approach uses qualitative, mixed-methods data collection (Trowler, 2020; Yin, 2006, 2018). When designed as a practice-focused ethnographic study, the methodology ensures the study moves beyond individuals' self-reporting and considers emergent practices and the factors which condition them in the situated context of the Teaching and Learning Regimes (TLRs) involved in the study. The following qualitative methods were used:

- Semi-structured interviews (on-site).
- Semi-structured focus group interviews (on-site and virtually during Covid 19).
- Teaching observations (on-site).
- Participants selected and shared digital artefacts to represent current practices.

The case study is “an empirical enquiry that investigates a contemporary phenomenon within its real-life context, especially when the boundaries between phenomenon and context are not clearly evident” (Yin, 2018, p. 4). Trowler suggests that case studies can reveal concerns and contexts when designed within a well-developed conceptual framework (Trowler, 2020, p. 131). The multiple-case design selected has the advantage of constructing a framework for literal or theoretical replication highlighting similarities or differences across sites (Yin, 2014). In addition, selecting a qualitative, mixed-method approach using semi-structured and focus group interviews, supplemented with classroom observations and digital artefacts to represent current practice when studying pedagogic practices over an extended period of time within specific TLRs justifies identifying this research as a practice-focused empirical study (Trowler, 2014a, 2015, 2020). This ontological and theoretical approach is further

justified when presenting the literature informing the study. The strategic research design approach is elaborated in chapters three and four.

1.4 The philosophical position adopted for this study

This research project utilises the contemporary theoretical framework of SPT or praxeology to frame the practices of teaching staff in the Irish technological higher education sector (Archer, 2010; Trowler, 2008, 2020). The philosophical position I have adopted is in keeping with a critical realist ontology. According to Bhaskar, the core tenet of CR is that to understand the social world, we must "identify the structures at work that generate those events or discourses" (2016, p. 2). Bhaskar and Collier have identified the tensions between the possibility of social science for critique and the issue that it has "often been treated as an error, a departure from the ideal of a neutral, value-free science" (1998, p. 386). However, I have selected this ontological stance as CR provides a "qualitative theory of causality which avoids some of the pitfalls of empiricist theories of causality" (Roberts, 2014, p. 1). Whereas regularity theory of causation assumes that "universal laws govern cause and effect", in adopting a CR perspective, it is "entities that have causal powers" (Gilbert & Pratt-Adams, 2022, p. 1). Therefore, in keeping with Mingers, my view is that "certain types of entities - be they objects, forces, social structures, or ideas - exist in the world, largely independent of human beings; and that we can gain reliable knowledge of them" (2004, p. 88). According to Archer, CR "accepts the challenge of ontological difference between physical and social reality … and it dissociates itself completely from the empiricism which was traditionally foundational to scientific sociology" (Archer, 1998, p. 190). Adopting this stance influences the research design for critiquing pedagogic practices in the context of the Irish higher education technological sector. Therefore, the design must incorporate a methodology that examines the adoption and sustainability of pedagogic practices and the various conditioning factors at play in their situated reality. Acknowledging the role agency has in influencing social structures, including the agentic nature of materials, requires me to navigate the lived reality of the participants and their situated pedagogic practices (Trowler, 2020). This is achieved by applying the three elements of social practice suggested by Shove et al., to the context

of higher education: “materials, competence and meanings”, which provide a framework for the research design (2012, p. 14).

Adopting a critical realist approach enables the examination, analysis and framing of the pedagogic practices of the participants from four different institutes in the Irish technological higher education sector. Practices which change over time are influenced by various factors or “moments” within a Teaching and Learning Regime to determine what factors condition them and what practices are adopted, adapted, or discontinued in specific contexts (Trowler, 2020, p. 71). Therefore, the TLR theoretical framework offers an alternative approach for framing pedagogic practices, as previous research studies generally relied on self-assessment by participants, which will be discussed further in chapter 3. By underpinning the study with SPT and CR and using TLR, which is specific to the context of higher education, to explain and understand the findings provides the opportunity to devise an extended research design which has the potential to be replicated by future researchers.

1.5 Claims to originality

This study, occurring at a time of transformation in the Irish technological higher education sector, is original, as the theory-driven research design involves a novel and robust approach to investigating situated pedagogic practices in that specific context. In adopting a practice perspective and deploying a variety of data collection methods, this approach goes beyond previous studies which relied on the self-reporting of individuals. The study involves multiple sites and allows for an interval of one year between the research participants completing a postgraduate programme to develop pedagogic practices and engaging in the study. Therefore, the pedagogic practices and the situated context in which they occur are the focus, including the socio-material and socio-cultural factors which condition them.

The selection of the ontological perspective of CR can be justified by the literature (Archer, 1995, 2016; Archer et al., 1998; Bhaskar, 1989; Bhasker, 2016). The study highlights that there is a lack of guidelines for developing and implementing a robust research design and methodology when adopting CR (Ackroyd & Karlsson, 2014, p. 45; Fletcher, 2017). Through adapting models used in previous empirical studies, this study

comprises the development of a robust iterative model for the design and implementation of a practice-focused ethnographic study by identifying the strategic research objectives and theory to inform each stage.

The study is also original as it involves trialling the revised TLR theoretical framework (Trowler, 2020) for the first time in the context of Irish Higher Education to determine if it offers a means and language for conceptualising change from different perspectives. Testing the TLR requires developing a mapping process for the systematic analysis of data to critique practices specific to the higher education context. By involving lecturing staff from diverse discipline areas and dispersed geographical locations in the study, the TLR framework is trialled to provide insights into how TLR theory can potentially inform change management and the educational experiences of students in the sector.

Though the study is not designed to evaluate the impact of the case study programme, aspects of evaluation theory apply with the potential for informing capacity building amongst lecturers and managers who are agents of change. The opportunities for engagement or "usability" described by Saunders are evident, particularly through "interactional practice" (2012, p. 432). Such opportunities are timely as they will inform future practice and policy through my involvement in the National Forum's advisory group, tasked with developing and implementing a national recognition framework for Irish Higher Education.

1.6 Thesis structure

Chapter 2 sets out the context of the study by briefly outlining the evolution of the Irish technological higher education sector, providing an insight into the four institutes involved in the research and key policy initiatives informing change.
Chapter 3 considers the literature pertinent to the study relating to social practice theory, professional development, and teaching in higher education.
Chapter 4 outlines a justification for the research design, including the methods selected, the approach to data analysis, ethical considerations, and the study's limitations.

Chapter 5 sets out the findings from the data analysis, with a discussion of the key findings as they relate to the research questions.

Chapter 6 presents the conclusions of the study. The contributions to knowledge are outlined in addition to the transferability of findings and the implications for practice. Areas for further research underpinned by SPT and TLR theory are identified.

Chapter 2: Contextualisation of the research

This practice-focused ethnographic study focuses on the pedagogic practices of participants from four Irish IoTs. This chapter contextualises the study by briefly outlining Irish HE. The background to the development of the Irish technological higher education sector is relevant in terms of its influence on pedagogic practices. Details of the institutes involved in the study are outlined. Aspects that distinguish the IoTs from traditional universities, specifically the teaching role and programme provision, are discussed. Finally, the policy context which is pertinent to the study is outlined

2.1 Irish Higher Education Landscape

Higher education in Ireland has undergone significant change, particularly since the 1990s. Until 2019 and the establishment of the first Technological University (TU), the landscape consisted of the Irish technological higher education sector with fifteen Institutes of Technology (IoTs), seven universities, which have recently integrated colleges of education, and some private independent colleges. However, the opportunity for IoTs to merge as Technological Universities has reconfigured what was once a predominantly binary system with state-funded universities and IoTs.

The publication of the National Strategy for Higher Education to 2030 has been a catalyst for much of this transformation (Department of Education and Skills, 2011). However, although a recognition framework for those who teach in higher education is currently in the consultation phase, there is no formal requirement for lecturers in Irish higher education to hold a teaching qualification. Staff continue to be employed for their expertise in a specific discipline. It is suggested that lecturers opt to learn “as they go” or by “trial and error” (Ross et al., 2016, p. 351). This phenomenon is not particular to Ireland; for example, in a 2010 survey of 20 Australian institutions, Norton and colleagues estimated that nearly 65% of Australian academics had not undertaken any teacher preparation or development (2013). However, this Irish study involves participants who chose to develop their pedagogic practices by undertaking a postgraduate programme.

2.2 IoTs as distinctive providers of higher education

The Technological Higher Education Association (THEA) website indicates that the sector provides educational programmes for “current and emerging knowledge and practices”, thereby developing “self-management, critical analysis, decision making and entrepreneurship” (2022). THEA suggests the remit is to produce graduates prepared to meet the needs of business, industry, the professions, public services and society (2022).

There are notable differences between IoTs and universities. For example, according to the Organisation for Economic Cooperation and Development (OECD), entry requirements for IoTs are generally lower than for Universities, and there is greater student diversity regarding age, gender and social class (2006, pp. 194–204). The IoT ladder system is unique to the sector, allowing progression from two-year certificate programmes at level 6, on the National Framework of Qualifications, to degrees, first ordinary degree at level 7 and honours degree at level 8 (Refer to appendix 2), whereas entry to universities is usually at honours degree or level 8. These differences impact the pedagogic practices in the institutes of technology.

Organisations such as the institutes in the Irish technological sector have "sagas" (Clark, 1972, p. 178). To understand the context of this study, it is essential to consider this saga. The establishment of the RTCs between 1970 and 1998 and their subsequent designation as Institutes of Technology instigated the shift from elite to mass and further to universal higher education in Ireland (Trow, 1974, pp. 63–64). The sector is now being transformed again with the establishment of Technological Universities.

The opening of the RTCs, with an applied orientation and regional focus, was considered “one of the most exciting developments in Irish education during the twentieth century”, leading to increased participation from lower socio-economic groups (O’Hara, 2010, p. 16). The RTC's role in mass higher education is significant, with lecturers employed based on their qualifications and experience and initial pedagogic practices relying on transmission of content and written examinations as the most common form of assessment (Palmer, 2009).

In keeping with SPT and "the socio-material dimension", the date the institute was built is also of significance in terms of the physical spaces for learning, working and social areas (Trowler, 2020, p. 35). The original RTC buildings from the 1970s were part of the "paradigm shift of modernism and brutalism" (Ó'Riain et al., 2015, p. 30). They lacked the ornamentation associated with the older universities and were designed without regard to orientation, with a common homogenous approach to learning spaces and offices (Ó'Riain et al., 2015). This original poor architectural design fomented the binary system in Irish higher education. Practices become embedded over time, shaped by context, including the material world. This saga still influences practices across the sector.

2.3 Situating the case study institutes within the sector

Figure 2.1 illustrates the fifteen IoTs, from one to fifteen, by the number of student enrolments in 2017-2018. That academic year was selected as the first TU was designated with the merger of three institutes in 2019. There is an obvious outlier in terms of size; however, the four institutes in this study (Indicated in blue with border) had a combined student population N = 17,389, ranging from over two thousand to over six thousand, representing eighteen per cent of the total student enrolments for the technological higher education sector (Higher Education Authority, 2020).

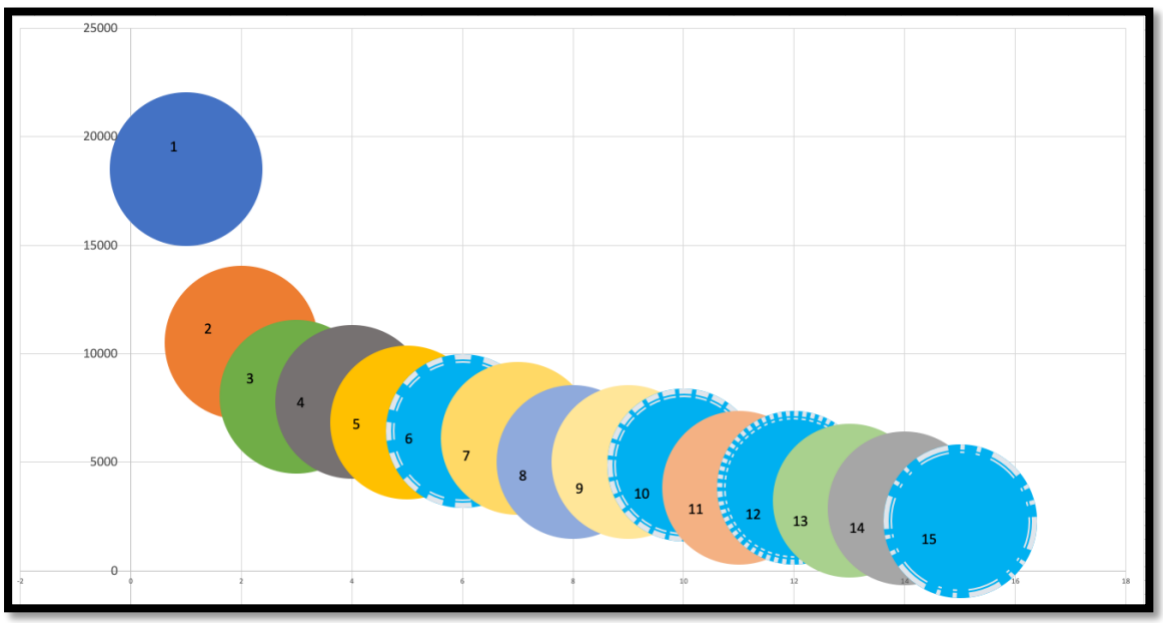

Figure 2.1 Institutes of Technology by the number of student enrolments 2017-2018

Since 2019, as part of a transformation agenda, Technological Universities (TU) have been designated by merging IoTs. TUs must have “a systematic focus on the preparation of graduates for complex professional roles in a changing technological world” (TU4D, 2015, p. 1). It has also been suggested that TU graduates will be "professionally ready” and "distinguished by their capacity in the practical uses of knowledge in the workplace, in continued learning, and in communication and enterprise" (Marginson, 2011, p. 5). Therefore the Irish technological higher education sector has evolved significantly since 1970, with implications for the next phase of transformational change.

Based on the 2017-2018 enrolment data, and when compared to Figure 2.1, the dramatic structural change in the sector is highlighted in Figure 2.2.

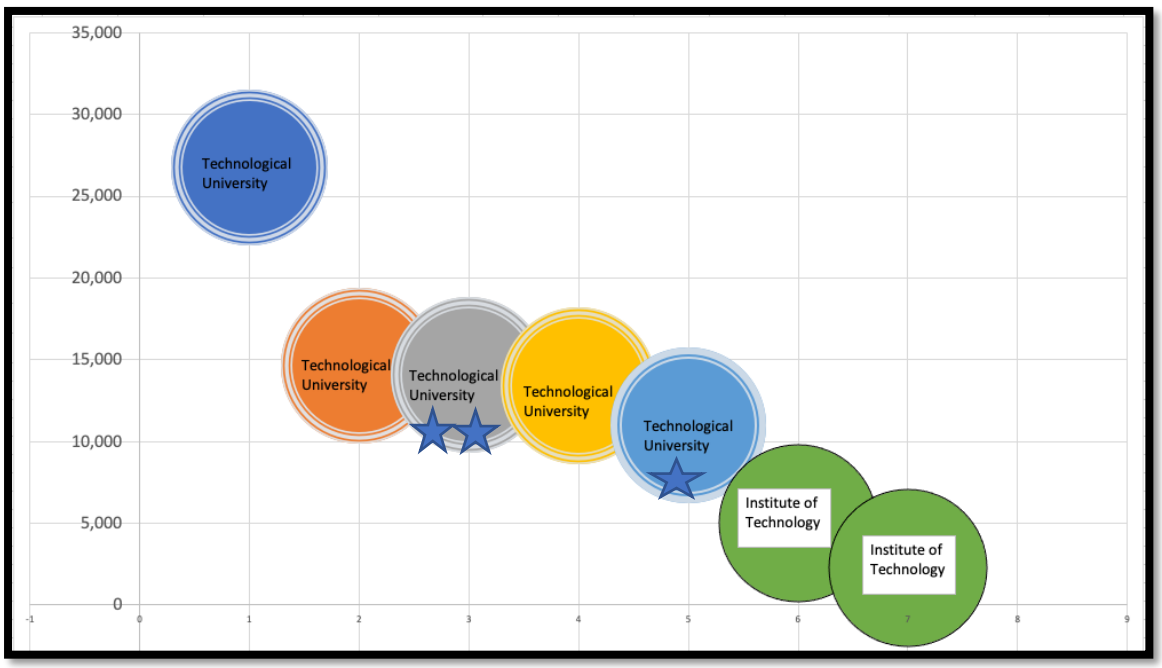

Figure 2.2 Recent transformation of the Irish higher education technological sector

Over the course of this study, five TUs were established, involving various mergers between thirteen institutes of technology, with two remaining as IoTs. By 2020, three out of four institutes involved in this study became part of a new TU, as indicated by the blue stars in figure 2.2. Each TU has geographically distributed campuses. The mergers involve structural changes requiring change initiatives, including changes to

pedagogic practices. These contextual factors will require managers and change agents to be aware of the factors leading to successful enhancement initiatives.

Table 2.1 also highlights the transformation specific to three of the IoTs involved in the study that have merged with other IoTs as part of a new TU by indicating the number of students and academic or lecturing staff at the time of application for designation as a TU (HEA, 2022b). These structural changes have implications for the study's contribution, which will be discussed further in chapters four and six.

Part of a new TU	Students	Staff	Academic
★★	N = 14,950	N = 1,458	60%
★	N = 13,749	N = 1,276	57%

Table 2.1 Statistics for students and staff in new Technological Universities involved in the study

Achieving TU status has implications for the quality of learning and teaching, including the professional development of teaching staff, which form part of the published criteria for TU status (Higher Education Authority, 2018, 2022). It provides an opportunity for educational development centres to work together in supporting a change agenda. This study will offer a picture of current practices and how they are influenced by TLRs in the bundled context of an IoT or new TU and therefore has the potential to inform change management in the transformed technological higher education sector.

This study was conducted in four geographically dispersed IoTs prior to mergers. Taking into account the "where" of research illuminates a "range of practices and intelligences, social identities and power relations that come together to create social practices in the every day" (Anderson & Jones, 2009, p. 292). It is also contended that the descriptions of the sites or places where qualitative research is conducted are often "taken for granted" or "depicted as static" therefore, the physical space or HEI should not be just viewed as a "container for action" but a"medium for activity" (Swaminathan & Mulvihill, 2019, p. 982).

Although there has been further investment and enhancements in the physical architecture, including new buildings added to the original RTCs, with the exception of one site in this study, the original structure of the RTCs is still apparent.

The institutes involved in this study are not named, as I am committed to preserving the anonymity of both the institute and participants. As an alternative, using placenames from the poetry of Seamus Heaney provides a metaphor for each site as outlined.

> Site 1 – **Broagh** – meaning riverbank
>
> Site 2 - **Anahorish** - meaning place of the clear water
>
> Site 3 - **Derry Garbh -** meaning rough oakwood
>
> Site 4 - **Toome** - meaning somewhere that shares history and culture
>
> (He, 2016, pp. 9–13).

The institutes share similar broad characteristics regarding mission, reflected in their strategic focus and THEA's description of the sector. Enterprise is the main ideology espoused, with a commitment to progressivism and social reconstructionism also evident (Technological Higher Education Association, 2022). Although similarities exist, each IoT is contextually different.

Broagh was established in 1970 with the first RTCs. It has a variety of undergraduate domains, including business, hospitality, engineering, informatics, science, health science, social science, and design.
Representing all faculties, the following departments were involved in the study:

- Department of Nursing and Healthcare.
- Department of Civil Engineering and Trades.
- Department of Life and Physical Sciences.
- Department of Social Care.
- Department of Hospitality and Business.

Anahorish was also established in 1970 with the following undergraduate domains, science, engineering and design, social science, social care and performing arts. The Department of Computing and Electronic Engineering was involved in the study. There

is a strong commitment to progressivism by providing flexible offerings at the undergraduate level.

Established in 1997, Derry Garbh has various undergraduate offerings, including animation, applied entrepreneurship, applied psychology, art, arts management, business management, creative computing, creative music production, design for film, digital marketing, English and equality studies, entrepreneurship, and film and graphic design.

The following departments were involved in the study:

- Department of Technology and Psychology
- Department of Film and Media

As is evident from the list of offerings, there is an emphasis on the creative arts. The institute has the smallest student enrolment and physical space.

Toome was established in 1972 with a geographically distributed campus which can lead to a sense of isolation amongst staff working at a distance from the main campus. The undergraduate offerings include business, accounting, software development, engineering, sciences, health science, tourism, and design. The following departments were involved in the study:

- Department of Culinary Arts and Business Services (main campus)
- Department of the Building and Civil Engineering (main campus)
- Department of Mechanical and Industrial Engineering (main campus)
- Office of the Registrar (main campus)
- Department of Environmental Humanities and Social Sciences (programmes offered on a separate campus)

As noted previously, IoTs are teaching intensive, which is clearly indicated by the current contractual arrangements with a weekly teaching commitment of eighteen hours, reduced to sixteen on progression from assistant lecturer to lecturer grade. The teaching load and role of the lecturer involve teaching, research, academic assessment and academic administration, with all lecturers required to promote scholarship and update their knowledge (Teachers Union of Ireland, 2022). Additional duties may be

given at the discretion of management, such as membership in committees, consultations with schools and industry and programme coordination. The role also entails membership in programme teams and contributing to the design and review of programmes.

The organisational structures of the institutes of technology are similar to universities, with schools or faculties comprising academic departments. The academic departments design and implement programmes in cognate areas related to the discipline. Programme boards and exam boards are convened for each programme involving key stakeholders, namely, lecturers, students, external examiners, and industry representatives, as required. These boards form part of the quality assurance structure to maintain programme standards and are responsible to the academic council of the institute and, ultimately, a governing body. In terms of evaluation, there are institute reviews and quinquennial programmatic reviews emphasising continuous improvement.

Programmes are designed using the National Framework of Qualifications, from level 6 or Higher Certificate to doctoral studies at level 10, using the European Credit Transfer and Accumulation System (2021a). More recently, the institutes have developed minor, special purpose, and supplemental awards to meet demands (Quality and Qualifications Ireland, 2021b). The case programme for this study was devised using special purpose awards initially developed collaboratively for the sector and subsequently validated as a major postgraduate award (Fitzpatrick & Harvey, 2011).

2.4 Policy context for pedagogic practice in the sector

The professional development of lecturers has become a prominent feature of policy development internationally, particularly as it is linked to quality assurance and enhancement agendas (Lee et al., 2010). Recent reports have focused on the need to transform higher education (Higher Education Authority, 2012; Organisation for Economic Cooperation and Development, 2021; van der Zwaan, 2017).

The National Forum for the Enhancement of Teaching and Learning (NFETL) was established in 2012. Through consultation, the NFETL set about developing a range of

reports and guideline documents, including the publication of a National Professional Development Framework and Digital Roadmap (2015, 2016). Both inform a thematic approach to fund initiatives for enhancing pedagogic practice.

There have been a series of policy developments which align with the objectives of the Irish technological higher education sector. These include substantial changes to the apprenticeship model to provide alternative routes of entry to higher education, from Level 5 upwards, including doctorate level or level 10 (Department of Further and Higher Education, Innovation, Research and Science, 2021). Initiatives such as Springboard and Human Capital Initiative were launched in response to skills shortages leading to the provision of more online programmes and accelerated programmes for those, including graduates, which wish to upskill or reskill. The use of micro-credentials and digital badges is also gaining traction, offering a range of flexible opportunities for students, staff and other stakeholders. According to the HEA, widening participation in and access to higher education is an ongoing national priority, with Government and European policy aiming "to ensure that the student body entering, participating in and completing higher education at all levels reflects the diversity and social mix of Ireland's population" (2015, p. 6) On average, nearly 50% of the annual intake of students entering the sector do so through non-traditional routes (Technological Higher Education Association, 2022).

These developments have implications for the pedagogic practices of those who teach in the sector with an increasingly diverse student population and requirements to devise quality assurance mechanisms to ensure consistency and maintenance of standards (European Union, 2020). Selecting and implementing appropriate change models has the potential to address resistance, leading to successful outcomes. This practice-focused study is designed to contribute to and inform current developments at the micro-, meso- and macro levels in the Irish technological higher education sector.

2.5 Conclusion

Involving four institutes of technology within the Irish technological higher education sector, this research study occurs at a time of transformation. Shaped by the past, each site, although aligned to the overall mission of the sector, provides a different context for implementing situated pedagogic practices. The study involves a range of academic departments and discipline areas. The following chapter will present the literature relevant to the study.

Chapter 3: Literature Review

Guided by the research questions, this chapter reviews literature relevant to the situated pedagogic practices within specific Teaching and Learning Regimes in the Irish technological higher education sector. Boolean logic was used to search combinations of pertinent keywords. References are restricted to the English language emanating from Europe, the UK, Australia, Asia, Canada and Scandinavia, pertinent to the context of the study. The selection of SPT as a theoretical perspective and ontological position of CR is explored and justified, as the research study is theory-driven. Employing TLR as a theoretical framework within higher education is considered, and the shared characteristics of TLRs within the IoTs identified. The management of change is considered by providing an overview of change management models. The search was narrowed to critique studies focusing on the professional development of teachers in higher education and changing pedagogic practices. The literature review provided an opportunity to develop an in-depth understanding of the field of research, consequently informing and justifying the research design.

3.1 The choice of Social Practice Theory (SPT) and Critical Realism (CR)

This is a practice-focused ethnographic study (Trowler, 2020, p. 45). By underpinning the study with a practice perspective, I am adopting the stance of Spurling and colleagues, who consider it a novel approach when examining social practices such as pedagogic practices (2013). SPT has its foundations in the work of Bourdieu's notion of habitus (1990) and Gidden's theory of structuration (1984). However, the exclusion of non-human materials, technologies, and objects from their accounts of social practices has been criticised (Shove et al., 2012). Performance of social practices "entails the reproduction of cultural meanings, socially learnt skills and common tools, technologies, and products" (Spurling et al., 2013, p. 3). These are all applicable to the study of pedagogic practices. This perspective moves the emphasis away from individuals moving the focus onto the practices and recurrent behaviours, including the "structured dispositions" or factors that condition them in a specific context (Trowler, 2020, p. 29). Boud and Brew, influenced by the work of Schatzki (2001), suggest reconceptualising teaching as professional practice moves the focus away from the individual and towards the development of practice, moving "development

away from deficit assumptions about skills and knowledge" (2013, p. 219). I concur with this position as it reflects my view that short training sessions do not lead to transformative and sustainable change in pedagogic practices. I see both teaching and the work of educational developers as both professional and social practice. Boud and Brew suggest that utilising and extending "opportunities for learning within the social and cultural practices of academics themselves" will point to "new areas for exploration" (2013, p. 209). This recommendation further justifies a study of pedagogic practices in the specific context of the Irish technological higher education sector during a time of transformation.

Ontologically, CR assumes that social reality exists independently of what we think about it (Sayer, 2010). While objects are mind-independent, our observation of events is theory-laden (Bhasker, 2016). Therefore, accepting that "knowledge never develops in a vacuum" but is always "embedded in social practice" is of significance in this study (Sayer, 2010, p. 29). When considering a "practical situation" such as a classroom using a critical approach, we can illustrate everyday practice and practical knowledge (Sayer, 2010, p. 30). Adopting a CR philosophy means I can describe, explain and critique situated pedagogic practices in a manner that is authentic for the purpose of informing and implementing change in the Irish technological higher education sector.

3.2 Materials, competences, and meanings in Higher Education

The research design for this study is informed by Shove and colleagues, who suggest there are three elements which make up social practice "materials, competences, and meanings" (2012, p. 23). Practices "emerge, persist, shift, and disappear when connections between these three elements are made, sustained or broken" (Shove et al., 2012, p. 15). These elements are relevant to situated pedagogic practices in HEIs as:

- Materials - include things, technologies, tangible physical entities, and the stuff of which objects are made.
- Competences - encompass skill, know-how and technique.
- Meanings - include symbolic meanings, ideas, and aspirations (Shove et al., 2012, p.14-15).

3.2.1 Physical spaces and resources in higher education teaching

As indicated, materiality is a key component of SPT in HE. The agentic power of artefacts influences the enactment or implementation of practices (Trowler, 2020). The physical spaces used in HEIs, particularly in the IoTs, have aspects that are strongly influenced by past traditions, thereby shaping present practices. Pouler contends that “space is neither innocent nor neutral” (1994, p. 175). The design of space can scaffold or restrict behaviours and practice. Therefore, in HE, physical spaces, such as workspaces, meeting rooms, laboratories, and recreational spaces, play a significant role in the pedagogic practices and are a requisite for inclusion in research underpinned by SPT.

There is a "mutual entanglement between the artefacts", which influence each other in a process of change and practices are also "inscribed on the artefact used" (Trowler, 2020, p. 36). Materiality includes the resources required to engage effectively as a teacher in higher education, such as access to technology and software and other requirements specific to the role. With physical spaces, access to or lack of resources will enable or constrain practices in both the virtual and physical world. The agents with the power to decide the distribution of resources within the organisation or department directly influence the adoption of pedagogic practices. Therefore, when studying pedagogic practices in HEIs, consideration is required for the artefacts that mediate both the real and virtual worlds in which they occur, providing an additional means for analysing situated practices to understand how practices are shaped and reshaped in context.

3.2.2 Meanings in higher education teaching

Meanings relate to the socially shared purposes which are held within HEIs. We derive meaning from various sources, such as the institute's norms, the policies and procedures and the structures within which a lecturer works. The documents and resources used in the communication of meaning are also relevant. This ongoing negotiation and shaping of practices apply to both staff and students who are operating within the practice architectures of a specific context, including “cultural-discursive, material-economic, and social-political arrangements” (Mahon et al., 2017,

p. 8). Meanings are shaped by history in addition to internal factors such as the workgroup and engagement with colleagues in professional development activities. External factors that shape meanings include national policy developments and enhancement initiatives which seek to investigate or question assumptions, thereby influencing practices (Trowler, 2020, p. 108). Lecturers who select to engage in collaborative activities both inside and outside of the institute using networks or "Communities of Practice" (CoP) inform and shape views about their pedagogic practices (Meessen et al., 2011; Wenger, 1998, p. 1).

In the technological sector, practice architectures will differ from that of a century-old traditional university, hence the need to identify and understand the ways of "going on" as applicable to that specific context (Trowler, 2020, p. 37). Therefore, a study of pedagogic practice requires a framework to study how meanings are shaped in the sector.

3.2.3 Competence in higher education teaching

The development of teacher competence has become part of the discourse in higher education, leading to the introduction of various frameworks to help determine competence, including the UK Teaching Excellence Framework and the Irish National Professional Development Framework. There have also been similar developments in the training of post-primary teachers. Caena, in a study of European Competence Frameworks, devised a list of competences from the literature which are common across education cultures and traditions and are also applicable to higher education (2014, pp. 315–316). These overlap with the competences identified in a research study for Croatian Higher Education which suggests eleven high-level competences (Divjak et al., 2018). However, Biesta argues that compiling these types of lists is problematic as they become far too long and detailed (Biesta, 2015b). She suggests a simple formula, which is that "good teaching = competences + judgement", and that although competences are necessary, they are not sufficient, and that judgement of the correct course of action in a given context is also essential (Biesta, 2015a, p. 2).

Judgement requires insight and knowledge, which in turn requires engagement in concepts to inform pedagogic practice. Biesta makes the case for a virtue-based rather

than competency-based or evidence-based conception of teaching (Biesta, 2015a, p. 13). This is an interesting stance and is in accordance with the value-based approach adopted in the postgraduate programme in this study and is a key dimension of SPT. In HE, universities and professional bodies have developed frameworks to address teaching competence, (Advance HE, 2011; Pickford, 2018; University of South Australia, 2014). However, none exists currently for the Irish higher education technological sector.

Figure 3.1 summarises how I have interpreted the elements of materials, competences, and meanings with examples from higher education to inform the research design of the study.

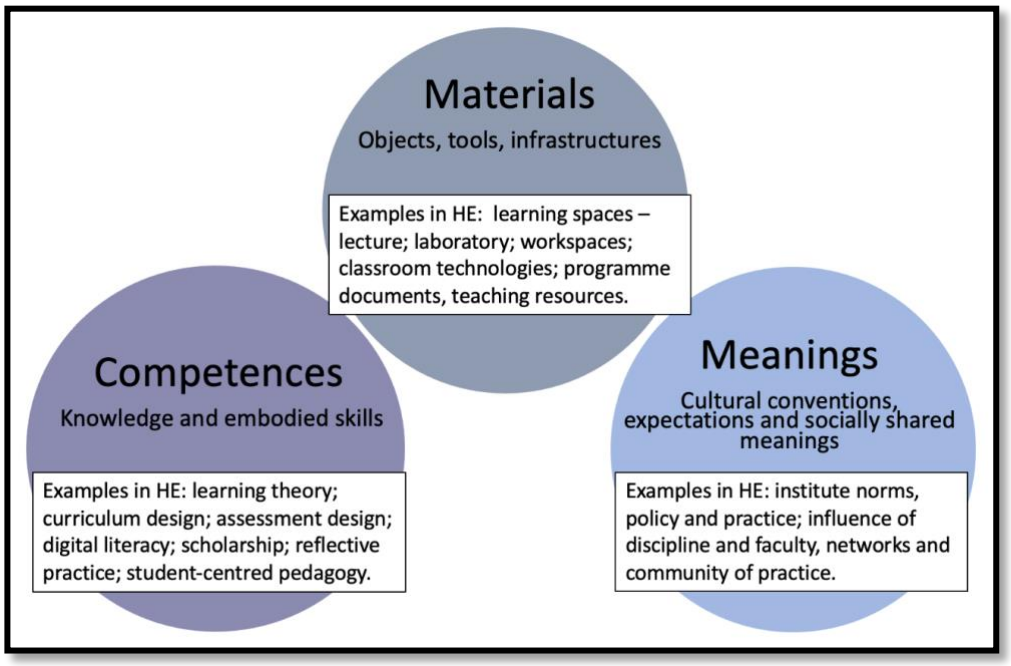

Figure 3.1 Elements of social practice and examples from Higher Education

The elements of SPT have been used by Shove et al. and others specifically to study consumer behaviour (2012; Spurling et al., 2013; Warde, 2014). Eteläpelto and colleagues focused their research on professional agency in the workplace, defining it within socio-cultural conditions, such as “material circumstances, power relations and discourses” and characteristics of the professional workers or subjects such as “identity, knowledge and competences”, which could also be applied to higher education (2013, p. 61). However, research by Trowler and Cooper (2002) led to the development of the

initial TLR, and its more recent version as a theory by Trowler provides a theoretical framework designed specifically for the context of higher education (Trowler, 2020, p.45). Potentially, the revised TLR theoretical framework can assist in the critique and understanding of the situated pedagogic practices of staff who teach in the Irish technological sector as it provides a recognisable means to consider day-to-day life and helps explain difficult concepts (Trowler, 2020, p. 28). In underpinning this study with SPT, the elements of materials, competences, and meanings inform the research design, including the choice of undertaking a multi-site case study and the variety of data collection methods deployed to answer the research questions. The TLR theoretical framework is also applied and tested to determine its effectiveness for understanding the findings and providing explanations.

3.3 Teaching and Learning Regimes (TLRs)

According to Shove and colleagues, activities are shaped and enabled by structures of rules and meanings, and these structures are, concurrently, reproduced in the flow of human action (2012, p. 3). In the context of HE, the concept of TLRs provides a lens to consider practices, specifically situated pedagogic practices, moving the focus away from the individual (Trowler, 2020; Trowler & Cooper, 2002). The concept of a TLR is, therefore, sociological and firmly located in a social practice perspective (Trowler, 2020, p. 28). The term “regime” within the context of higher education focuses on social relations and practices. However, the term also encompasses “power and agency, conflict and resistance to change” (Trowler, 2020, p. vi).

The workgroup, usually a department or unit within a TLR, engages in a common project over time, developing a way of thinking, feeling, and inter-relating within the material context in which the members work and within which there is an “ongoing negotiation of meaning and appropriate behaviour”, resulting in habits and routines which are “contextually specific” (Trowler, 2020, p. 19). As an educational developer, having an awareness of the constituents of a TLR leads to the development of a “practice sensibility”, which empowers me to mediate this space (Trowler, 2020, p. 2). It assists a change agent in conducting practice-focused ethnographic approaches, having developed an “acute sensitivity to the operation of social practices” within the

context (Trowler, 2020, p. 2). I recognised this practice sensibility as something I developed intuitively within my own institute and contend the same is true for an insider or outsider researcher undertaking a practice-focused ethnographic study who, through experience, has developed an understanding of the specific context within which the research is undertaken.

Boag used the earlier TLR model, comprising eight moments in an insider case study of a single HEI, to investigate the cultural characteristics of a single programme team, concluding that the TLR moments provide a useful analytical device to make sense of a large amount of data (2010). However, Trowler has acknowledged that the original TLR framework, comprising eight moments, had limitations and was considered inadequate by some researchers (2020, pp. 22–28). The main concerns related to partiality (Hannon et al., 2017), not being comprehensive enough (Boag, 2010) and lack of theoretical purchase (Ashwin, 2009). However, a revised version was developed to include additional moments, which it is claimed has taken the original “loose framework to a fully developed comprehensive theory” (Trowler, 2020, p. 164). The development has proved timely for this research study as the revised TLR is tested during the final stages of data analysis to consider if it can inform the change agenda in the Irish higher education technological sector.

3.3.1 TLRs within the technological sector

Explaining how I interpret the TLR theoretical framework in the context of this study will inform how it is subsequently utilised in understanding research findings and drawing conclusions. The IoTs developed their practice architectures over time, as indicated in chapter two, leading to their local “site ontology” or ways of “going on” (Trowler, 2020, p. 37). TLRs which exist within the institutes also have shared characteristics as part of the remit of the technological higher education sector. TLRs comprise eleven "moments" and are shaped by "proto-practice reservoirs", which incorporate four educational ideologies “enterprise”, “traditionalism”, “progressivism”, and “social reconstructionism” (1998, 2020, p. 82). To capture the integration of structure and agency within a TLR, “virtual” proto-practice reservoirs

also draw on discourses, symbolic structures, theories, and assumptions, all within the material world that condition them (Trowler, 2020, p. 72).

Proto-practice reservoirs also include aspects which will impact the success or otherwise of a change initiative. Some are self-explanatory and include:

- “domestication” of a change initiative within the specific context;
- “incorporating the initiative into frameworks of meaning” requiring an "anthropological awareness";
- “intuitive and emotional responses to change”;
- “agentic power of artefacts”, including resources and the material environment;
- “ripples inwards and outwards”, including national policy contexts;
- “ripples from the past to the future” the future emerges from the social reality of today with the presented routed in the past;
- “significance of embodied and procedural behaviours” if the change requires a change to a routine it may be challenging.

(Trowler, 2020, pp. 149–152)

In contextualising the research study in chapter two, it would seem that enterprise is the dominant educational ideology in the technological higher education sector however, each is prevalent as follows:

- Enterprise - focuses on employability with programmes designed for skills development and performativity to contribute to economic growth.
- Traditionalism focuses on creating new disciplinary knowledge and creating a new generation of disciplinary specialists or “to prepare students for professional life” (Macfarlane, 2004, p. 7).
- Progressivism – competence is one of the three major strands in the Irish National Framework of Qualifications; it includes the descriptors for the sub-strands context, role, learning to learn, and insight. These must be incorporated and assessed in programme design at all levels (Quality and Qualifications Ireland, 2021a). Before this, programme design in the RTCs and IoTs focused

primarily on developing knowledge and skills. Now consideration must be given to analytical and critical thinking and problem-solving in unfamiliar contexts (Appendix 2).

- Social reconstructionism – given the sector's remit in widening participation, this ideology is also prevalent, more recently addressing issues such as civic engagement, sustainability, and inclusiveness within the curriculum.

The moments of a TLR are "elements of significance" described as moments to indicate dynamism rather than something in a state of stasis or equilibrium (Trowler, 2020, p. 13). TLRs exist within HEIs, and although each moment usually relates to others, my interpretation of the eleven moments of a TLR in terms of the technological higher education sector is as follows:

1. **Power relations** - leading to consensus or contestation and tensions depending on who holds power. Institutes have hierarchical organisational structures with lecturers reporting to department heads.
2. **Implicit theories of teaching and learning** - involve the theories that underpin practices, including in the classroom, in assessment, choice and use of educational technologies.
3. **Conventions of appropriateness** - beliefs about appropriate behaviour for both lecturer and students which can lead to tensions when not adhered to.
4. **Recurrent practices** - describe the practices that have become embedded and accepted over time, for example, in the classroom and at meetings.
5. **Tacit assumptions** - the decisions made often through invisible or taken-for-granted assumptions about teaching in HE or assessment practices.
6. **Codes of signification** - used in marketing are pre-encoded and usually evoke an emotive response; examples in HE include peer assessment, feedback, images, and online learning.
7. **Discursive repertoires** - or the means of expressing a communication. In HE, this includes the language of managerialism, such as line managers and students as consumers.
8. **Subjectivities in interaction** - involve human interaction where an individual's attitudes, beliefs and identities may cause tension or agreement.

9. **Materiality in interaction** acknowledges the importance of the material environment in which practices occur.
10. **Backstories in process** - staff and students have backstories influencing their day-to-day responses to change.
11. **Regimes in interaction** - this acknowledges the bundled set of social practices that occur within an institute of which a TLR is a part. For example, tension may arise between those involved in teaching or research, particularly in teaching-intensive HEIs like IoTs.

Figure 3.2 sets the eleven moments out as they relate to "proto-practice reservoirs", "local context," and "repeated behaviours" however, it should be noted that in the real world, they are mutually infused and inseparably entangled (Trowler, 2020, p. 71).

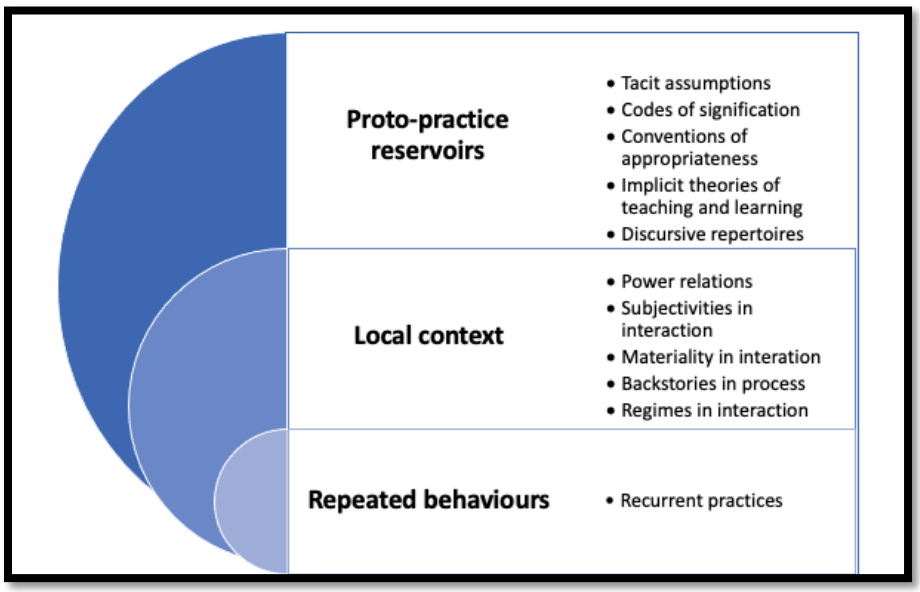

Figure 3.2 TLR moments categorised further according to Trowler (2020, p.72)

TLR has recently been adapted into a robust theoretical framework or theory which can be utilised for critiquing and explaining pedagogic practices and understanding the factors which condition changes to practice (Trowler, 2020). However, the updated TLR framework has not yet been deployed in studies in HE nationally and internationally, providing an opportunity to test it in the context of the Irish technological higher education sector.

3.4 Management of change in higher education

Resistance to change is a feature in organisations, including HEIs. Buller suggests organisations tend to “act in ways that are regular, consistent, and predictable” characteristics that are “natural enemies of change” (Buller, 2014, p. 3). Resistance to change has been identified by researchers in the context of HE, particularly within workgroups or departments and when studying the role of educational developers in change management (Land, 2001; Neame, 2013; Trowler & Cooper, 2002).

Models of change devised for business, based on hierarchical systems, are frequently applied to HE, such as Krüger’s iceberg model (1996). He maintains that managers often focus on the visible factors such as cost, the time needed to implement change, and input and output metrics to improve quality (1996). A focus of attention is required on the invisible factors that cause the main issues in change management, those relating to the people involved, such as power relationships, biases, and perceptions (1996).

Other strategies devised for business that focuses on the individual managing change rather than on the workgroup and context of change, including the socio-cultural conditions of the workplace, can meet with resistance. Buller contends that universities are essentially structured as distributed systems; therefore, approaches to change management, particularly “strategies developed for corporations, the military, and other types of hierarchical organisations”, are not appropriate for use in HE (2014, p. 18). However, in the US military, General Stanley McCrystal led a recent change in the management structure, as depicted in figure 3.3, overleaf. In conflict situations, the “command-like” structure, when reconfigured to the “command of teams approach”, although more flexible, was not adaptable enough to deal with the complexities of the 21st century and a digital, networked world (2015, pp.241-242). This structure is similar to the organisation within a university. McCrystal’s solution was a “team of teams” model (2015, p. 247). Exemplified by an organisation where those usually divided into disparate silos adapt to share a common bond based on trust. The model contrasts with the current organisational structures in higher education that often encourage a culture of "tribes and territories" (Becher & Trowler,

2001, p.1). In addition, top-down approaches to change management may make faculty suspicious and resist change (Buller, 2014). In HE, history, traditions and new managerialism appear to work harmoniously to retain the status quo. It is worthwhile to look outside of HE at developments elsewhere which make a difference and improve organisations.

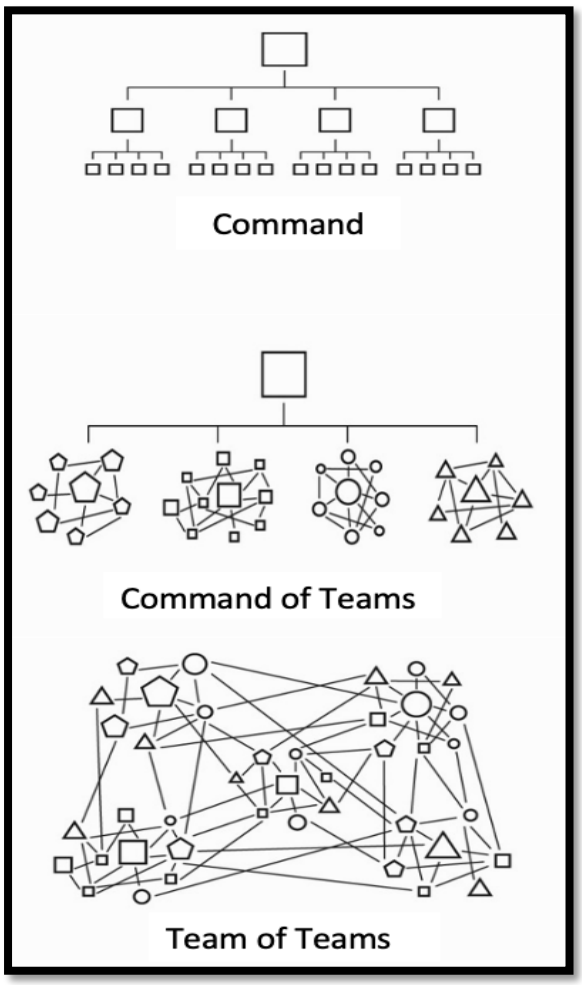

Figure 3.3 Evolving military management structure from McCrystal (2015, pp.241-242)

Fullan suggests:

> "...one of the basic reasons why planning fails is that the planners or decision makers of change are unaware of the situations that potential implementers are facing. They introduce changes…without attempting to understand the values, ideas and experiences of those who are essential for implementing any changes" (Fullan, 1991, p. 96).

As the transformation agenda in the new TUs is at an early stage, this is an opportune time to consider appropriate models of change management for the technological higher education sector informed by SPT to address concerns and resistance to change initiatives by moving the focus away from the individual. Developing pedagogic practices to meet the vision for a new TU will be part of that agenda, highlighting the need for professional development based on scholarship.

Change often requires learning something new. Schein identifies five types of learning anxiety that will most likely cause resistance to change (2004). For example, “loss of power”, as a member of a programme when a module is being changed, or there is a change to a committee structure or “a feeling of incompetence”, which may be temporary, if learning a new skill or technology is required are two examples which feature in HE (2004, pp. 329–330). Resistance can be covert or explicit, particularly with struggles over resources, a lack of confidence in a new initiative or an unwillingness to commit to change (Lewin, 1947). A common point of resistance in higher education occurs during programmatic review or the design of new programmes. Toohey suggests that adopting a “piecemeal fashion” to curriculum design, where lecturers are designing modules to suit their own needs, may result in differences in approach among individuals in a programme team, which can impact students negatively and cause confusion in terms of what is expected (1999, p. 68). When the management of this process is at an individual rather than at the team level, anxiety or resistance may occur, resulting in poorer student outcomes.

The culture within a work group or department is also significant when considering resistance. In one HE, the culture in one department may differ from another depending on their "assumptions, strategies, roles, and legacy” (Buller, 2014, pp. 24–25). Anything changing these distinctive features, if viewed as having a personal effect rather than affecting the university, may be met with an unwelcome or hostile response. This experience resonates as I have either experienced often emotive reactions as part of a change process in programme design, change initiatives or when restructuring occurs within an institute. Therefore, the need to manage differences between staff in a workgroup or department during a change process, taking

cognisance of TLR moments and proto-practice reservoirs at play, may serve to alleviate this type of resistance.

Various theories of change have been identified for use in higher education (Land, 2001; Trowler, 2015). Land identified nine change concepts in his study of academic developers as change agents (2001, pp. 10–18). In their guide for change agents at the meso-level in HE, Trowler, Saunders and Knight suggest five change theories in addition to core assumptions (2002, p. 7), indicated in table 3.1.

Change theories
Theory one - Technical-rational
Theory two - Resource allocation
Theory three - Diffusionist: epidemiological
Theory four - Kai Zen or continuous quality improvement
Theory five - Models using complexity

Table 3.1 Change theories adapted from Trowler, Saunders and Knight (2002, p.7)

Each theory may be selected as appropriate depending on the change required. However, the strongest contrast is between theory one and theory five. In the former, planning is done by experts with faithful adherence to the plan and a focus on the individual. Theory five involves adopting a collective approach with an expectation of unpredictable outcomes (Trowler et al., 2002, p. 7). Rather than focusing on individual behaviour, social constructivist approaches which rely on collaborative learning and collective thinking are more suitable for dealing with resistance to change initiatives, enabling sustainability and potentially systemic change (Lozano, 2013). However, systemic change requires the re-organisation of everyday practices, which means that the challenge goes beyond simply removing contextual barriers (Hargreaves, 2011).

Requirements include access to or the development of expertise in change management and a change-friendly culture within the workgroup or at the department level, whilst recognising the uncertainty factor in any change initiative (Trowler et al., 2002, p. 5). Jackson outlines a case study utilising complex adaptive systems theory (CAST) in an institution that had recently acquired university status, similar to three of the IoTs in this study (2013, p. 22). CAST is considered to be very similar to SPT in terms of change agency (Trowler, 2020, p. 131). The model was selected to help address fears and potential resistance amongst staff, and the "emergent and adaptive nature of change processes" was emphasised (Jackson, 2013, p. 25). Although the initiative had some success, Trowler suggests that the use of SPT as an alternative to CAST would have furnished a more "precise understanding of how to conceptualise local context" (2020, p. 137). There is an obvious theme emerging from the literature on change management which encourages shifting the emphasis from individual to the group or team level, using carefully selected change models underpinned with a practice perspective. This highlights the importance of having a knowledge of the theories of change when planning and implementing a change initiative, particularly SPT. Social practices are "engrooved or rooted in the past and habitual in nature, they are resistant to fundamental change" and, once enacted, may not always remain supported with attempts to return to previous practices or "to snap-back" (Trowler et al., 2002). In Fullan's view, change is "non-linear, loaded with uncertainty and excitement and sometimes perverse" (1993, pp. 21–22). Therefore having an awareness of the proto-practice reservoirs that exist within a TLR and the development of a "practice sensibility" may assist change agents in HEIs in implementing initiatives (Trowler, 2020, p. 153). Developing a practice sensibility also complements Buller's alternative view to change management in HE, that change is not something academic leaders manage; they should "lead, guide, initiate and occasionally capture" (2014, p. 25). Adopting this stance is relevant for the transformation agenda in the newly established TUs. There are implications for managers of change who have not yet developed a practice sensibility or expertise in change management models and theoretical frameworks for successful implementation and may continue to focus on operational issues when planning and implementing change.

3.5 Conditioning factors of pedagogic practice in a TLR

Factors which condition the development of pedagogic practices can either scaffold or restrict change to practice. Some conditioning factors can be identified as either the former or the latter depending on the TLR moments, which apply in a situated context, the people involved and the proto-practice reservoirs which permeate. I have identified the following conditioning factors in HE, which may scaffold or restrict change and help explain why lecturers adopt or discontinue particular pedagogic practices.

3.5.1 Academic identity and practice

Unlike the UK, Ireland currently does not have a teaching excellence or recognition framework, although the latter is in design. Irish lecturers who wish to gain recognition now generally use the UK Professional Standards Framework (Advance HE, 2011). In the past, teaching staff were recruited for their discipline expertise and industry experience, with implications for their academic and professional identity, which are conditioning factors in pedagogic practice.

Gale challenges previous research about academic identity by Barnett (2000) and Tight (2003) for assuming in general that HE was a "homogenous sector, modelled on older, research-orientated universities" without acknowledging the specific context of each institute in shaping the role of lecturers (2011, p. 216). She suggests that staff who are "recruited into a teaching-orientated university on the basis of their previous professional expertise such as nursing, education, law or design, rather than their academic research profile, seem likely to have a different experience of, and perspective on, academic identity" (Gale, 2011, p. 217). This applies to the Irish technological higher education sector with consequences for both staff and students as those new to teaching often rely on their own experience of teaching and assessment when they were a student, perpetuating traditional pedagogic practices which focus on the transmission of content and assessment through formal written exams (Kinchin & Gravett, 2022). Gale suggests that "context and access to particular influences and opportunities" are more significant than an "abstract sector-wide academic identity" and considers the role of those employed to teach in HE, selected

for their disciplinary expertise, to be a “particularly fruitful area” to study academic identity (2011, p. 225). Gale’s conclusions are of relevance to this study. Although the study does not focus solely on academic identity, the participants were appointed for discipline and subject area expertise, thus informing how they approach their teaching.

The National Forum’s Professional Development Framework offers guidance to staff to “reflect on, plan, and contribute to the evidence-based enhancement and transformation of their teaching and learning approaches” (2016, p. 1). Incorporating five domains, the first two reflect aspects of academic identity and personal values, as indicated in table 3.2.

Domain	Summary of area of focus
Domain 1: Personal Development: The “Self” in Teaching and Learning	Personal values, perspectives and emotions that are brought to teaching.
Domain 2: Professional Identity, Values and Development in Teaching and Learning	Professional and disciplinary identity, self-evaluation and engaging in continuous development.
Domain 3: Professional Communication and Dialogue in Teaching and Learning	The importance of excellent, clear, and coherent communication skills for the changing learning environment
Domain 4: Professional Knowledge and Skills in Teaching and Learning	Disciplinary knowledge and disciplinary approaches to teaching, including curriculum design, strategies for teaching and learning and assessment including feedback.
Domain 5: Personal and Professional Digital Capacity in Teaching and Learning	Personal and professional digital capacity and application of digital skills and knowledge to professional practice.

Table 3.2 Summary of the National Professional Development Framework domains

The NFETL framework also includes a typology of PD activities ranging from non-accredited - collaborative, unstructured-informal and structured-informal and accredited - structured (2016, p. 2). Since publication, during the capstone module of the postgraduate diploma or case programme, the domains and accompanying descriptors of the framework are used by students as part of a reflective and self-

assessment process to determine if their pedagogic practice meets the descriptors and to explore future professional development. The publication of a national recognition framework will provide an opportunity to formalise this process. The NFETL values which underpin the framework, namely, “inclusivity, authenticity, scholarship, learner-centeredness, and collaboration” (2016, p. 1), were informed by and are compatible with the professional values devised five years earlier by the IoT sectoral project (Chapter one, p.5). Values are a dimension of SPT and a key aspect of academic identity and pedagogic practice. Therefore a study underpinned by SPT will illuminate the values held by the participants in their specific context.

3.5.2 The discipline

Disciplines in HE have been described as a region of “recognisable identities and particular cultural attributes” (Becher & Trowler, 2001, p. 44). Considered central to the work of lecturers, it includes the responsibility of “handing on of the discipline and practices to the next generation” (Baume, 2007, p. 7) or the ideology of traditionalism (Trowler, 2020, p. 82). Hence, academics derive most of their professional identity from their discipline (Bostock & Baume, 2016; Trowler, 2012). The role of discipline is key when conducting a study into the practices of lecturers in the Irish technological higher education sector. Epistemological characteristics of the disciplines as “hard, pure, convergent, urban” or soft, applied, divergent, rural” were devised originally by Neumann, Parry and Becher (2002, p. 406). Trowler suggests mapping pedagogic practices to this categorisation is problematic as “they centre around the power of structures other than the discipline as well as the agentic role of individuals and groups to chart their own course in teaching and learning practices” (2009, p. 185). He recommends taking a more moderate approach as the “narratives of the discipline”, or how academics talk to each other about their discipline also needs consideration (Trowler, 2020, pp. 103–104).

Disciplinary practices are not stable and depend on the context in which they are adopted. Disciplines are "expressed very differently in different locales even in equivalent sites of practice” (Trowler, 2014b, p. 1725). Therefore, contextual factors such as the nature of the institute within a specific sector, with dominant ideologies and discourses and the materials available, both physical and digital, are relevant to

this study of pedagogic practices. A robust research design is required, which justifies a multi-site approach rather than relying on a single site or single department.

3.5.3 Time and temporality

Regional Technical Colleges (RTCs) were modelled on the Vocational Education System (VEC). Part of that legacy, which is still prevalent today, is described by Clegg as the "dynamics of time", which she posits received little attention in education literature (2003, p. 806). In the IoTs, teaching has become semesterised, with lecturers and students given timetables organised by the hour. Clegg's study of the development and implementation of policy in a UK university concluded that "there is considerable tension between time understood on the ground and the timescales of central learning and teaching initiatives" (2003, p. 803). She uses the notion of the "strategic centre" and "periphery" to describe how managers, administrators and teaching staff view time, indicating that "knowledge and practices of different parts of the organisation exist in tension with each other" she found that there were apparent tensions between the centre and the day-to-day world of schools or faculties on the periphery (Clegg, 2003, p. 805). The notion of visible and invisible time in higher education also requires consideration. In addition, the changing tempo of academic life with the increasing intensity of academic work resulting from the development of managerialism with neoliberal agendas adds to tension and contestation, leading academics to engage in resistance (Clegg, 2003, p. 805).

However, it can also be argued that with increased digitalisation, time can be used with greater efficiency in HEs, through the affordances of appropriate technologies. For example, to communicate, share resources, search for information, for class-based activities or in the management of assessment and feedback. When considering implications and next steps for HE post-Covid, early reports in an Irish and Australian context point to some positive outcomes for staff and students (Guppy et al., 2022; National Forum for the Enhancement of Teaching and Learning, 2022). Although contingent on adequate resourcing and support, it is apparent that time can also be a scaffolder of change.

The change in tempo outlined by Clegg is something I have observed and experienced during my time as a lecturer and educational developer. We have become busier doing rather than being. Impacted by temporality, practices in HE are influenced by the past and can be resilient and difficult to change. The modernist view of time in large organisations considers time as a commodity which can lead to increasing frustration with the additional workload associated with new managerialist approaches. Therefore, time and temporality may be viewed as both a scaffolder and a restrictor of change.

3.5.4 New managerialism

A neo-liberal agenda has impacted universities internationally (Bacevic, 2019; Cruickshank & Abbinnett, 2019; Levin et al., 2020; Pugh & Grove, 2017). Concerned with performance indicators, metrics and increasing administrative duties, in addition to the casualisation or precarity of staff, new managerialism has also become a feature of Irish higher education (Lynch, 2012). Some changes may be viewed as positive such as the publication of the first National Strategy for Higher Education with ensuing policy changes (Department of Education and Skills, 2011). However, it is evident that government policy approaches are shaped by a commitment to the knowledge economy and a vocational agenda (Department of Education and Skills, 2016; Government of Ireland, 2013).

Lynch argues that these developments are "market-led rather than education-led, which has profound implications not only for the definition of what it is to be an educator and an educational leader or manager but also for educators' personal lives" (Lynch, 2012, p. 99). She warns that an emphasis on the "product, not the person", both in terms of what is attained, counted and countable in turn creates a "culture of carelessness", that is "highly gendered and antithetical to caring inside and outside the institute, is already well advanced in higher education in Ireland" (Lynch, 2012, p. 99). This increasing emphasis on regulation is evidenced through quality assurance processes, key performance indicators and staff appraisals. The prevailing discourses of managerialism may threaten collegiality and the values of academic freedom and liberal education (Waring, 2017). However, Knight and Trowler suggest that "cultural

change for the better can occur when the focus of leadership attention is at the level of the natural activity system of universities: the department or a subunit of it", requiring academic leaders to be cognisant of the culture that prevails and question if it is one that conditions or restricts change (2000, p. 81). Sahlin and Ericsson-Zetterquist, in their critique of university governance, suggest that a collegial culture requires colleagues who trust each other, are experts in their fields, and meet and make decisions about important matters based on processes signified by critical conversations (2016). This stance tallies with an SPT perspective and the models of change which support the development of a collegial culture.

However, my experience in undergraduate and postgraduate teaching and as an educational developer is that the prevailing discourse may cause tensions and contestation. This applies particularly to middle managers or heads of departments, who are trying to lead teaching staff, administrative staff, students, and programmes, in addition to reporting to senior managers.

Clegg & McAuley counter against this dualism of managerialism versus collegiality as being over-simplistic and challenging us to imagine and create universities which are more caring places to practice (2005, p. 31). I agree with this stance and suggest SPT and the TLR framework, in particular, provide a perspective for developing workgroups within universities which are supportive of people and practices whilst acknowledging that ideologies, tacit assumptions, backstories and recurrent practices exist.

Land, in his study of the agency, context and change in academic development, suggests that when engaging in "domestication", managers focus on behaviour change at an individual level, influenced by the mission and status quo of the university and its prevailing cultures (Land, 2001, pp. 7–8). The polar opposite is a "liberating tendency" with "practice that runs counter to the prevailing purposes and cultures" and involves transformation (Land, 2001, p. 8). This stance is directly related to the ontological perspective of CR when challenging the status quo within an institute. Tensions may arise depending on the prevailing culture and whether a manager's orientation is towards the institution's needs, which may restrict change or if they are willing to use change initiatives to scaffold new practices. It also highlights the complex landscape

that must be navigated when planning and implementing change initiatives, including those involving changes to pedagogic practices.

3.6 Pedagogic practice

Defining the term pedagogic practices and considering the contemporary practices recommended for use in higher education is essential in a study of pedagogic practices. A modern definition of "pedagogy" views it as the "science or art of teaching", with the term "pedagogical practices" used to describe the methods and principles that inform educational techniques (Scott, 2014, p. 75). However, it is suggested that educational sociologists also make a distinction between the "expressed pedagogy (which the teacher purports to use) and their "observed pedagogy" in practice (Scott, 2014, p. 75). The former may be "liberal or "progressive", emphasising the needs and autonomy of the learner, whereas the latter may be conservative "aimed at preserving the authority and expertise of the teacher as a professional" (Scott, 2014, p. 75).

Giddens (1984) explains how practices become normalised, making it difficult for participants in a study to articulate. Having developed a "practical consciousness" or "feel for the game", they perform their practical skills with the practical sense they acquire (Trowler, 2020, p. 35). Giddens also suggests the idea of actors having a "discursive consciousness" with both practical and discursive consciousness making up the "psychological mechanisms of recall as utilised in contexts of action" (Giddens, 1984, p. 49). Therefore, when conducting a study of pedagogic practices, it is not sufficient to focus on what is expressed by the participants. It is beneficial to conduct teaching observations to determine if the classroom practices reported as progressive in an interview are observed or if a more conservative approach prevails (Scott, 2014). Relying on practical and discursive consciousness is insufficient in a study underpinned by SPT, as consideration is also required of the situation or context in which practices are performed, including the material environment in which they occur.

Kinchin and Gravett considered two prevailing discourses in HE, "dualisms" and "linearity" (Kinchin & Gravett, 2022, p. 7). Macfarlane listed nine dualisms or "binary oppositions" commonly used in the literature, divided into three main types, "moral,

othering or to categorise" (2015, p. 102). These dualisms include: "collegiality versus managerialism", discussed previously, "deep versus surface learning", and "student-centred versus teacher-centred" in depicting a good versus bad moral dualism. In addition, academic versus non-academic" is an example of "othering", which he considers the most disrespectful in higher education but still permeates (Macfarlane, 2015, pp. 101–102). In terms of categorisation, "teaching versus research"; "old versus new university" and "liberal versus vocational" are also prevalent and very applicable to the Irish technological higher education sector involved in this study (Macfarlane, 2015, pp. 101–102). This type of categorisation was evident in the contextualisation of the study outlined in chapter two.

Although Macfarlane suggests that "simplistic dualisms play a significant role in the cognitive assumptions of the academic community", he also cautions educational developers and researchers in higher education to use them carefully to avoid retarding intellectual development and critical thinking (Macfarlane, 2015, p. 101). From my experience, exploring dualisms in professional development activities helps to challenge the prevailing tacit assumptions and recurrent practices of a TLR and engage participants in critical and reflective thinking about their pedagogic practice.

In terms of linearity, Kinchin and Gravett have criticised the closed linear chain of pedagogic practice that "comprises the basic act of teaching as content delivery with an assumption that learning has happened", which also "presupposes no reason for reflection on practice or the need for the scholarship of teaching" (2022, p. 66). They offer an alternative and more complex model which sees the educator making connections and developing their pedagogic identity, as indicated in Figure 3.4.

They suggest that as long as the traditional sequence stays "intact and uncontested, it will proceed without inhibition", contending that the changing context of higher education pedagogic practice requires an appreciation of underpinning pedagogy and scholarship (2022, p. 66).

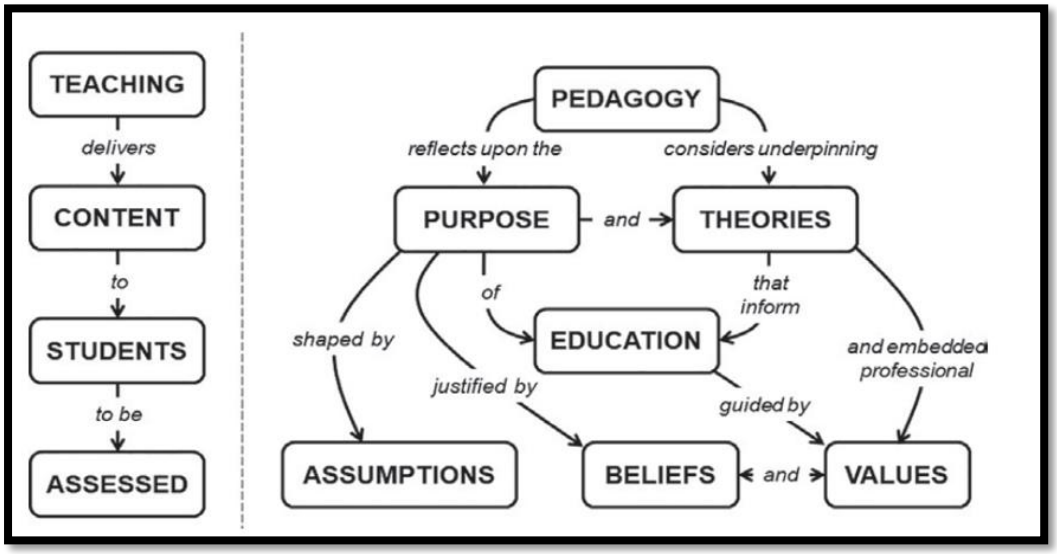

Figure 3.4 Comparing the linear sequence of practice with an emphasis on pedagogy

I agree with this stance, as challenging this linear sequence has been a motivating factor in my practice as an educational developer and core to the rationale for the case programme in this study. Also pertinent to this study is their suggestion that further research is required into concepts such as "theories, assumptions and beliefs" teachers hold about pedagogy (2022, p. 67). Therefore to identify and explain these concepts and their relationship to pedagogic practices in the Irish technological higher education sector, selecting to underpin this study with SPT and TLR and incorporating a variety of data collection methods, including classroom observations and digital artefact chosen by participants to represent teaching, provide a means for undertaking this type of research.

3.6.1 Developments in pedagogic practice

Traditionally, teaching and assessment in higher education have been associated with the transmission of content with examinations and essays at the end of the learning cycle. Students are considered "passive recipients" of learning (Bound et al., 2022, p. 5). Meyers and Nulty suggest that enhancing the outcome of learning for students requires curricula to be designed which involve real-world, authentic and relevant materials, tasks and experiences (2009, p. 567). Students engage in a "dialogic inquiry process" with a shift from being a passive recipient of knowledge from "an authoritative voice(s) to being an active agent in their own learning" (Bound et al., 2022, p. 145). This shift to a dialogic approach in teaching has more recently become

the focus of researchers in educational psychology, sociology, anthropology, and linguistics as teachers have accepted the importance of classroom interactions (Mercer, 2013). The shift has led researchers to advocate for moving from traditional to more progressive pedagogies involving a dialogic approach (García-Carrión et al., 2020; Mercer, 2013).

Using Vygotsky's (1978, 1986) sociocultural theory, Mercer posits the concept of the "social brain" to help counter "neuro-myths" such as "learning styles" and "right/left laterality", suggesting that in educational settings, a dialogic approach for collective reasoning leads to "appropriation, co-construction and transformation" in students (Mercer, 2013, pp. 163–164). He argues that using socio-cultural theory does not deny the role of the individual in sense-making, and engaging in a dialogic approach allows for the effective sharing of information, guides learning and helps critically evaluate ideas to find creative solutions (2019). Although the studies were conducted mainly with schoolteachers, these findings also apply to a higher education context. Mercer suggests that the research base is now significant enough to include the dialogic approaches to teaching in the professional development of teachers (2019, p. 5). I agree with this view of encouraging the use of dialogic approaches in practice as it enables both lecturer and student to engage in a collaborative process of building knowledge and inquiry, using the language and terminology of the subject, whilst negotiating meaning.

In HE, various pedagogic practices have been developed to support a dialogic approach, including classroom-based activities and assessment methods that shift the focus from the traditional assessment of learning to a perspective which sees assessment as and designed for learning (Earl, 2003; Sambell, 2013a). This includes changes to feedback practices and the use of authentic assessment (Sambell et al., 2019). As students conduct real-world tasks in meaningful contexts, authentic assessment is inextricably linked to applied learning or authentic pedagogy (Newmann et al., 1996; Swaffield, 2011). Ashford-Rowe et al. (2014) conducted a meta-analysis of the literature on authentic assessment, suggesting that for an assessment to be considered authentic, it must be challenging, with an output in the form of a product or performance. The design requires the transfer of knowledge and metacognition. In

addition, attention needs to be paid to how accurately the output can be assessed. The environment and tools needed for the student to complete the assessment require consideration. Finally, both feedback and collaboration, particularly between students and lecturers, are features of authentic assessment, meaning students are stakeholders in the process (Ashford-Rowe et al., 2014, pp. 2–5; McDowell & Sambell, 1999). Knight and Yorke (2003) have critiqued authentic assessment and consider its use in the secondary school system as problematic because the “performances offered as authentic assessments have a strong individual component which may well not fit normative expectations of an assessment system” (2003, p. 99). However, they also acknowledge that due to academic freedom, there is more scope in HE to implement it effectively than in secondary schools (Knight & Yorke, 2003, p. 99). Ashford and Rowe et al. (2014) suggest that the Australian Qualifications Framework (AQF), which is similar to the Irish NFQ, provides a “taxonomic structure of levels and qualification types” with criterion-based assessment (2013, p. 11). The AQF focuses on knowledge and skills and their application, whereas the Irish version was devised to include the strands, knowledge, skills and competence. The specific sub-strands relating to competence are competence in role, competence in context and competence insight (Quality and Qualifications Ireland, 2021a). Ashford and Rowe et al. conclude that within the context of a “more rigorous and applied higher education framework, the consideration and implementation of more authentic forms of assessment become important” (2014, pp. 8–9). They also suggest that further research is required to consider the impact of these developments on assessment practice, an essential aspect of pedagogic practice.

The role of artefacts in SPT and TLRs has been highlighted previously, including assessment artefacts. Markauskaite & Goodyear, in their study of professional learning in health settings, suggest that teaching staff were designing and students constructing artefacts for "accountability", "pedagogical", or "professional" reasons (2017, p. 242), as indicated in table 3.3, overleaf.

Type of artefact	Hybrid learning for profession	Work-place focused learning
Accountability **Examples**	Formal tests Quizzes, formal exams	Experience records Practice logbooks, work placement portfolios
Pedagogical **Examples**	Educational artefacts Essays, concept maps, presentations on a specific topic	Deconstructive artefacts Analyses and reflections on professional settings and practices
Professional **Examples**	Rare/hybrid professional artefacts Designing a health promotion campaign, developing guidelines	Common professional artefacts Field case studies, simulated professional practices, oral communication role-play

Table 3.3 Categories of assessment artefacts: Accountability, pedagogical and professional

Although these are not exhaustive lists, the categorisation provides a framework for determining the appropriate assessment artefacts to include in contemporary assessment design for professional learning of relevance to the subject areas involved in this study.

In a study of end-of-course traditional assessment, Struyven and colleagues concluded that new assessment approaches are required, which shift the emphasis for students from a "quantity" to a "quality" view of learning (2006, p. 203). This critique applies to traditional laboratory practical classes requiring reports written up for each practical, identified as a recurrent practice, particularly in disciplines such as engineering and science and health studies (Bree et al., 2020). Other researchers have reported on the impact of inquiry-based approaches in the development of science teachers (McLoughlin et al., 2014). I concur with this approach which requires a shift in thinking and practice from traditional methods. Rather than focusing on the product or outcome of an assessment such as an exam or laboratory notebook, the learning process becomes an integral part of the design of an authentic assessment, including the assessment artefact.

There is a wide range of publications produced from educational research focusing on the "how" of contemporary pedagogic practice. Tables 3.4 and 3.5, overleaf, outline examples of pedagogic practices, their benefits and researchers with reference to literature contributing to these developments.

Pedagogic Practices	Example	Benefits	Researchers and literature
Effective/high-impact practices for higher education.	Collaborative assignments, cross-modular assignments and projects, capstone courses, undergraduate research; first year experience. Engaging classroom practices.	Addresses the traditional, linear approach.	(Gibbs, 2014; Kuh, 2008; Slater, 2013; Smith & Baik, 2021).
Threshold concepts.	Designing curricula to address difficult concepts, troublesome for students to understand. Includes practices, in the classroom or online, which support students understanding of threshold concepts.	Shifts focus on content to concepts that bind a subject together and have the potential to transform student's learning experience.	(Land et al., 2005).
Linking research to teaching and theory to practice.	Collaborative assignments, cross-modular assignments and projects, capstone courses, undergraduate research; first year experience.	Student as partners in co-creation of knowledge.	(Hattie & Marsh, 1996; Healey et al., 2014, 2020; Hennessy, 2014; Meyer & Land, 2003).
Reframing assessment.	Alternative assessment, feedback, inclusive assessment. Emotive response to feedback.	Shift from traditional exam-based approach. Scaffolding students in the receipt of feedback and development of assessment literacies.	(Boud & Molloy, 2013; Carless, 2016; Nicol & MacFarlane-Dick, 2006; O'Regan et al., 2016; Winstone et al., 2019; Winstone & Carless, 2019; Y1Feedback, 2016a; Yorke, 2003; Ajjawi et al., 2022; Winstone et al., 2017; McDowell & Sambell, 1999; Sambell et al., 2019).

Table 3.4 Contemporary pedagogic practices and reported benefits

Pedagogic Practices	Example	Benefits	Researchers and literature
Authentic assessment.	Students conducting real world tasks in meaningful contexts.	Requires transfer of knowledge and metacognition.	(Ashford-Rowe et al., 2014; Bloxham & Boyd, 2007; Sambell, 2013a; Tai et al., 2022).
Student agency in assessment	In designing assessment and engagement in feedback process.	Empowerment and reciprocity.	(Carless, 2020; Sambell, 2013b).
Collaborative testing and two-stage examinations.	Students complete a quiz or exam individually, followed by in a group under test conditions.	Peer learning, timely feedback and clarification of mis-conceptions.	(Cantwell et al., 2017; Haberyan & Barnett, 2010; Michaelsen & Sweet, 2011).
Reflective practice and the pedagogy of unlearning.	Use of new technologies or development of practice.	Open to change and adopt practice.	(Ashwin et al., 2016; McLeod et al., 2020; McWilliam, 2008; Wellington & Austin, 1996).
Inclusive approaches to curriculum design	Designing curricula for a diverse student cohort.	Identifying shifting from practices which exclude.	(Carrillo & Flores, 2020; Costa et al., 2022; Peruzzo & Allan, 2022).

Table 3.5 Contemporary pedagogic practices and reported benefits (Continued)

In the Irish technological higher education sector, there is no requirement to undertake professional development in teaching before or after commencing in a teaching role or to engage with such contemporary literature or research to inform practice. If engaging in scholarly activity to enhance pedagogic practice is not a priority for lecturers, or they do not engage in professional development opportunities such as the case programme for this study, it is likely that the traditional, didactic approaches to teaching, assessment approaches and dominant discourses will remain uncontested within a workgroup or department.

3.6.2 Digital technologies for pedagogic practice

The impact of technological developments since the 1990s has been well documented and described as the “digital turn” (Jones, 2013, p. 169). Selwyn, in a recent blog, suggests that the development of digital literacies matches the technologies available

for example, in the 1980s, this was basic computer skills, and in the 1990s, the focus shifted to internet literacy (2022). In the decades 2000 and 2010, the emphasis was on cyber security and skills for the 21st century, such as online communication, creativity, and collaboration. In the 2020s, it will be technologies that are “used on” people, such as artificial intelligence and learning analytics (Selwyn, 2022).

Each of these phases of technological development influenced the trajectory of pedagogic practices in HE. Upskilling of staff was required in addition to the need to embed the use of technologies in the curriculum to prepare students for living and working in a digital age (Killen, 2015). Selwyn argues that the increasing use of technologies in universities has been a key contributor to the managerialist culture, impacting students, academic and administrative staff (2014). However, it is also posited that current and emerging technologies, when used to promote co-constructivist, student-centred learning situated in real-world contexts, offer an alternative to the linear and time-constrained delivery strategies described earlier (Hedberg & Stevenson, 2014, p. 43). Marton and Sâljo’s (2005) seminal work on approaches to learning and the implications for “generation Z" appears to strengthen the argument for adapting pedagogic practices accordingly (Meeks et al., 2013, p. 1). However, with widening participation in HEIs as the student demographic becomes more diverse and with increased digitalisation, it could be argued that a multi-modal approach will benefit all students. To provide for this the case study programme for this study incorporated the development of digital literacies in all modules, irrespective of the theme.

Figure 3.5, overleaf, illustrates Hedberg and Stevenson’s multimodal and multi-representation model in pedagogic practice as newer forms of digital interaction develop, providing new dimensions for understanding and representing the traditional “text, time and place” associated with traditional higher education (2014, pp. 26–27).

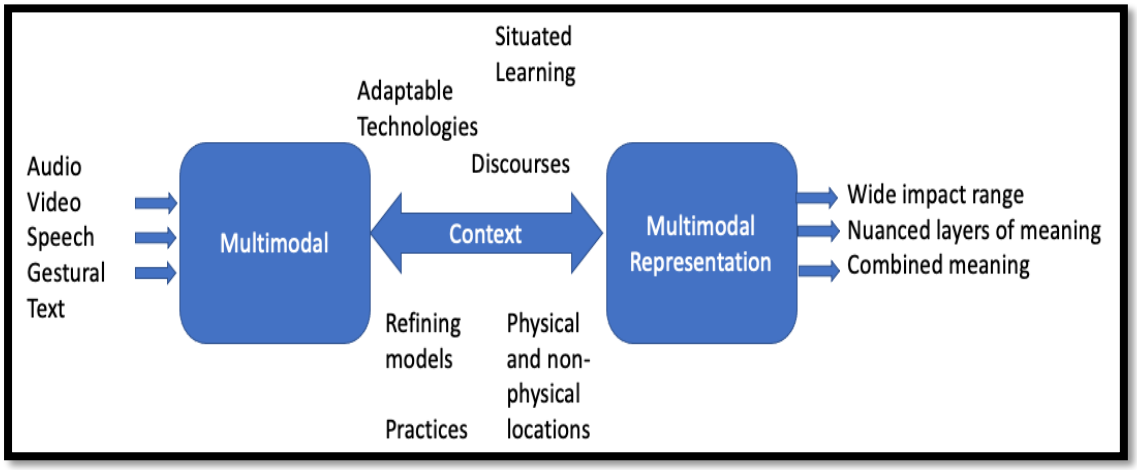

Figure 3.5 Multimodal interaction and representation

The rise of digital media as an alternative to print has impacted HEIs as part of a technological shift leading to rapid changes in knowledge production. Therefore, being a knowledge expert is no longer enough. Mastery of a broader range of multimodal communicative genres is required (Molek-Kozakowska, 2022). Zheng's study of the "mode integration" of text, images, and video in PowerPoint slides for language learning, concluded that this practice helps students gain a better understanding of the topic it can also attract students' attention and engagement in the class (2019, p. 1138). Similar results were evident with using screencasts for maths teaching in higher education when combined with a student activity such as an MCQ (Ahmad & Doheny, 2014; Badariah et al., 2013). This approach has also been adopted as part of the rationale for the flipped classroom for maths teaching (Toivola et al., 2022). As technology is constantly being updated, pedagogic practices will also be adopted, adapted or discontinued. Therefore, the uptake and use of these technologies is an area that requires further study.

Virtual Learning Environments (VLEs) have become a critical part of the digital infrastructure of higher education institutes internationally. This development has been influenced by student demand and by the increasing emphasis on providing flexible approaches to learning (Risquez et al., 2011). In an Irish context, several studies conducted by a national research group, #VLEIreland, have shown a preponderance to use of the VLE as a document repository and means of communication rather than exploiting the features that promote student engagement and online assessment (Farrelly et al., 2018; Harding, 2018; Risquez et al., 2011). Key

findings which also apply to the use of any learning technology include the lack of time to invest in the development of skills and resources. In addition, critics claim the VLE is a walled garden; although offering substantial control over the environment in which learning activities take place, this feature may also stifle creativity in learning design (Beasley, 2012). However, it has been found that such technologies can provide a more inclusive learning experience for students, especially for those with specific learning difficulties (McMahon, 2016; Peruzzo & Allan, 2022). This study provides an opportunity to consider the use of technologies such as the VLE by participants in the Irish technological higher education sector and the rationale for how they are used to support pedagogic practice.

Although a landmark policy on funding has been published recently to address years of under-funding in Irish HE (Department of Further and Higher Education, Innovation, Research and Science, 2022), prior to Covid 19, the lack of investment in infrastructure was highlighted in a report by New Media Consulting (NMC) which was very critical stating that in Ireland, educators are often trying to design new, innovative learning models that must be integrated with outdated, pre-existing technology and virtual learning environments (Johnson et al., 2015, p. 8). The timeline outlined in table 3.6, overleaf, coincides with this study into pedagogic practices therefore, the forecast proves helpful when considering the trajectory of pedagogic practices mediated through technology. The report was published to inform Irish higher education leaders and decision-makers of the timeline for expected technological developments supporting teaching, learning, and creative inquiry (Johnson et al., 2015, pp. 1–4).

However, given the timelines, it must be acknowledged that Covid 19 caused a dramatic transformation in the use of technology for teaching. In response to the pandemic, significant technological investment occurred to ensure continuity of student provision. Considering the demographic of students in the Irish technological higher education sector and the reported underinvestment, initiatives such as Bring Your Own Device (BYOD) would seem ambitious without adequate resourcing. In order to realise the potential of educational technologies, HEIs are advised to take a strategic approach when moving from the traditional classroom to the use of multi-modalities, including a blend of face-to-face and online learning (Galvis, 2018).

Time to Adoption Horizon: One year or less - by 2016
Bring Your Own Device Flipped Classroom Mobile Learning Online Learning
Time to Adoption Horizon: Two to three years - by 2018
Badges/Microcredit Games and Gamification Learning Analytics Open Content
Time to Adoption Horizon: Four to five years - by 2020
Adaptive Learning Technologies Collaborative Environments Digital Identity Social Networks

Table 3.6 NMC 2015 Technology Outlook for Higher Education in Ireland

In the last decade, the concept of the digital university has also gained traction, with some universities offering blended or fully online programmes, including Massive Open Online Courses or MOOCs for professional development (Jones, 2013). The use of technology in teaching and assessment practice has also provided models and approaches for the design and implementation of digitally enhanced learning (Bayne, 2014; Bayne et al., 2015; Costa et al., 2018; Groff, 2013; Guppy et al., 2022; Lea & Goodfellow, 2013; Selwyn, 2010, 2014; World Economic Forum, 2016). These include strategies such as the flipped classroom, which has more recently been used to support established approaches such as Problem Based Learning (PBL) and Team Based Learning (TBL) (Connolly et al., 2022; Michaelsen & Sweet, 2011; Parmelee et al., 2012; Sweet & Michaelsen, 2012). With increased digitalisation, these pedagogic approaches are mediated through the VLE or by using purposefully designed learning platforms to “support creative activities and group” learning (Bullock, 2021; Lee & Son, 2011, p. 552).

Ní Shé and colleagues conducted a meta-analysis of the literature relating to online learning and preparing online educators, highlighting the complexities involved (2019). They identified seven elements of the role of an online educator: “managerial; pedagogical; social; technical; assessor; facilitator; content expert” they also highlight three key components for online teaching to be effective: “presence; facilitation and supporting students” with eighteen associated core competencies (Ní Shé et al., 2019, pp. 62–63). However, with the sudden requirement for emergency online teaching during Covid 19, these findings show how potential difficulties arose for staff and students who were not prepared or never envisaged teaching or learning online.

The move to emergency online learning raised issues in relation to equality of access, digital skills and literacies and lack of physical resources, particularly in the early stages (Carrillo & Flores, 2020; Costa et al., 2022). The negative impact on staff and students in terms of social isolation and subsequent concerns since the return to face-to-face teaching relating to poor student attendance, dropout rates or students opting for employment over engaging in higher education are causing concern (Leal Filho et al., 2021; O’Brien, 2022a, 2022b; Williams, 2022). This included issues relating to boundary management and work-life balance for staff when the "intersection between work" and "non-work domains" or the home became blurred (Adisa et al., 2022, p. 1). Although solutions and strategies are being suggested to increase student engagement and interactions in an online environment with an emphasis on inclusive practices mediated through technology, resourcing and staff development are required to enable these approaches and address boundary management (Adisa et al., 2022, pp. 12–13; Bernardo et al., 2022; Peruzzo & Allan, 2022).

Literature is continuously emerging post-Covid, and it is evident that further research is required to understand the context and circumstances in which higher education institutions have had to develop these practices and select technologies to support the move from face-to-face to online teaching and assessment (Carrillo & Flores, 2020; Sambell & Brown, 2021). As the final data collection in this study coincided with the completion of teaching in 2020, the point-in-time data relating to the initial impact of the pandemic and the views of participants in terms of the effect on the trajectory of their pedagogic practices form part of this study.

3.7 Collegiality, communities, and networks

In their 2009 study of university teachers, Roxå and Mårtensson introduced the concept of "critical friends" to academics concluding that, academic staff or university teachers rely on a limited number of individuals to test ideas or solve problems related to teaching and learning (2009, p. 556). This has also been suggested by previous researchers (Becher & Trowler, 2001), Therefore, professional relationships are conditioning factors in changing pedagogic practices, either as scaffolders or resistors.

Teaching in higher education is a "solitary business" and a classroom can be a form of silo (Roxå & Mårtensson, 2009, p. 549). In addition, there may be a tendency not to offer opposing views to change initiatives in a workgroup to avoid direct competition with others, thereby maintaining the status quo and resisting change (Becher & Trowler, 2001). Indeed, Roxå & Mårtensson consider "significant networks" amongst "critical friends", irrespective of physical or organisational boundaries, as an area for further enquiry (2009, p. 556). This applies to lecturers who commit to the development of their pedagogic practice in groups that are diverse in terms of discipline, career stage and geographic location.

In an Irish context, the importance of developing collegiality and shared discourse about teaching practice has been identified (Hanratty, 2018; O Brien et al., 2022). The idea of having a safe space to discuss practice has been associated with engaging in a long-term accredited programme (McAvinia et al., 2015; Postareff et al., 2007). Although these networks or communities may occur within a broader TLR, it must be acknowledged that a TLR in itself does not assume this type of consensus and often involves conflict due to the proto-practice reservoirs and TLR moments that exist as they are bundled in a more extensive set of social practices (Trowler, 2020, p. 16).

However, I suggest that networks or communities of practice, such as a group engaging in a professional development programme over an extended period with a shared purpose of critiquing assumptions, values and discourses, may be influential in developing pedagogic practices (Meessen et al., 2011). As such, they may be viewed as scaffolders of change to pedagogic practices within a TLR.

3.8 Professional development (PD) in an Irish and international context

In Ireland, the universities were funded to establish Centres of Excellence for Learning and Teaching (CELTs) in 1996 (Davies, 2010; Walsh, 2014). IoTs were only established in 1997 and were not privy to this government funding. In the late 1990s, one of the fourteen IoTs set up a dedicated centre for staff development. Subsequently, institutes developed various approaches for the professional development of teaching staff with the provision of accredited and non-accredited opportunities.

As indicated previously, there currently is no recognition framework such as the UK Teaching Excellence Framework (TEF) in Ireland. Participation in PD is not mandated, with lecturers engaging in PD on a voluntary basis. The provision of accredited development programmes has become common internationally (Baughan et al., 2015; Chalmers & Gardiner, 2015). However, it is reported that in many developed economies and particularly in Europe, teachers are not required to hold such qualifications (Parsons et al., 2012).

In the UK, teaching qualifications in HE are linked to a Professional Standards Framework (Advance HE, 2011). Although there appears to be a consensus that university teacher development programmes have a positive impact on teachers and students, "the extent and longevity of their impact on the teachers, and the teaching and learning culture of the institutions are less well researched and evidenced" (Chalmers & Gardiner, 2015, p. 81). It has also been suggested that participation in these activities falls under the realm and theory of “ontological individualism”, and when considered in relation to PD programmes, with an assumption that increasing numbers of qualified staff will enhance the overall quality of their teaching, that of the department and in an institute generally (Trowler, 2020, p. 129).

Evaluation evidence from accredited programmes indicates varying results (Baughan et al., 2015; Chalmers & Gardiner, 2015). Some researchers have shown concerns about the negative impact if participants who engage remain resistant to change (Brew & Peseta, 2008). However, others identified that PD programmes incorporating a “time lag”, such as the flexible pathway in the case study programme, were found to have a

more positive effect on outcomes for student learning (de Rijdt et al., 2013, p. 54). Gibbs and Coffey suggest that in departments where teaching is not valued, those trying to implement new approaches were pressured to "conform" to traditional teacher-focused practices (2004, p. 9). Similarly, Trowler and Cooper contend the regime within a PD programme may be very different to that experienced within the academic department of the participant, making it difficult for them to exercise agency to implement change to their practices, as informed by the programme (2002). Earlier studies indicate there appears to be a lack of a direct link between professional development programmes and enhanced student learning (Bamber, 2008; Trowler & Bamber, 2005). Those who are critical also suggest that development does not always manifest itself in changes to practice (Chalmers & Gardiner, 2015). However, Roxå & Mårtensson, in their study of the effects of teacher training at the meso-level and beyond, concluded that where both informal and formal conversations within a TLR and implicit theories and discourses are aligned with the development of practice, a positive impact may ensue within and beyond the workgroup in which it takes place (2012). I agree with this stance, whilst accepting that resistance to change can be a deterrent and cause innovators to revert to previous practices.

In the Irish context, literature relating to professional development (PD) is emerging to coincide with the more recent establishment of units offering specific accredited programmes, particularly in the technological sector. Palmer explored teaching in the sector, although reporting a mainly transmission-focused approach concluded, at that time, that accredited PD was not necessarily required (2009). A critique of studies in Ireland and internationally focused on lecturers' perceptions or the evaluation of accredited programmes is presented in table 3.7, overleaf. The table outlines the limitations, recommendations or conclusions by the authors or my response in terms of relevance to this study.

Limitations	Recommendation or my response informing research design	Author
Reliance on self-reporting of perceptions through electronic questionnaires.	Recommends further research which focuses on the development of personal strategies by individuals to respond to and seek to influence the impact of continued structural and cultural change in the HE sector in Ireland.	(Donnelly, 2008).
Reliance on self-reporting of perceptions through electronic questionnaires.	Response - development of a more robust research design which does not rely solely on discursive and practical consciousness (Giddens, 1984).	(Slowey & Kozina, 2013).
Reliance on self-reporting of perceptions through electronic questionnaires.	Response: assumes participants will return to a supportive environment in Faculty/School/ Department, changes to practice will occur without contestation and with the appropriate resources and physical infrastructure are available. This requires follow-up research.	(Donnelly et al., 2017).
Conducted a single case study, in an Irish HE, utilising interviews and an electronic survey as data collection methods.	Recommends further research over an extended time period, as the views of lecturers are often neglected in educational literature.	(Hanratty, 2018).
Meta-analysis of evaluation evidence focusing on short-term effects rather than changes to practice.	Recommend further research addressing issues of context" in addition to "tracking studies" with participants after a period of time has elapsed as changes may be progressive or even "slow burn", "impact needs to be viewed not from the perspective of changes shortly after participation, but in the medium-term – a year or more after participants had concluded" (Parsons et al., 2012, p. 38).	(Parsons et al., 2012, p. 37).
Reliance on self-reporting of perceptions through semi-structured interviews in one Australian university.	Concluded "teachers" views of the nature of teaching and learning in their discipline and of their role as teachers" are important, but "rarely considered" (2004, p. 373). Also "a focus on academics" experience of teaching separated from their larger experience of being a teacher may encourage oversimplification of the phenomenon of university teaching, in terms of academics' underlying intentions when teaching" (2004, p. 373).	(Åkerlind, 2004).
Meta-analysis of international literature relating to the impact of accredited professional development.	Concluded few studies that have considered the long-term impact of programmes, "on the whole there appears to be little systematic investigation of impact across programs or of programs over time" (Chalmers & Gardiner, 2015, p. 20).	(Chalmers & Gardiner, 2015, p. 20).

Table 3.7 Critique of a selection of evaluation literature

Shove et al. (2012, p. 2) concur with Warde, who contends "the source of changed behaviour lies in the development of practices; understanding their emergence,

persistence and disappearance is of the essence" (2005, p. 140). Therefore, capturing this trajectory requires a specific focus on the pedagogic practices instead of the individuals who adopt them. This trajectory includes the impact of Covid 19. Research emerging indicates that centres for learning and teaching are being recognised for the significant part played in supporting staff in changing practice when the pandemic "destabilised academic norms" in institutes of higher education (Stanton & Young, 2022, p. 1). Trowler suggests that "trajectories of practices are highly unsustainable" due to their dependence on the "recurrent integration of artefacts, meanings, and forms of competence by groups of practitioners who perform practices", thereby emphasising the importance of considering the contextual factors which condition pedagogic practices (Trowler, 2020, p. 125). Although this research study is not an evaluation of the case study programme, gaps in the literature addressing postgraduate programmes have been identified, substantiating this study of pedagogic practices underpinned by SPT. The need to consider the theories, assumptions, and beliefs of teachers in the situated context of HE is evident from the literature. There is also a paucity of literature which focuses on implementing change to pedagogic practice over an extended period in and beyond the Irish technological higher education sector.

3.9 Conclusion

This chapter has identified and critiqued literature pertinent to the study to inform and address the research questions. Gaps in the literature have been identified, which justify this study of the pedagogic practices of lecturers in the Irish higher education technological sector. Unlike previous studies, which focus on individual behaviours, adopting a practice perspective provides the opportunity to study in-depth the adoption and implementation of practices, including their trajectory and factors which condition them. Examining why lecturers in the sector adopt or may discontinue particular practices has not been explored from this perspective previously. The following chapter will provide an in-depth overview and justification for the research design, including the methodology and methods used to generate, analyse, and interpret the research data.

Chapter 4: Methodology

This multi-site case study examines the pedagogic practices of lecturers working in the Irish technological higher education sector. Underpinned by Social Practice Theory (SPT), it moves beyond a narrow focus on the individual to focus on the practices (Shove et al., 2012). The study involves participants who taught for one year after completing a Postgraduate Diploma in Learning, Teaching and Assessment. The programme was developed for the sector to provide lecturers employed to teach in specific discipline areas the opportunity to develop their pedagogic practices.

Informed by the theoretical frameworks outlined in the previous chapter, the research questions are initially revisited, and the selected research methodology is justified by considering ontological and epistemological perspectives. Any underlying assumptions in the research design are addressed. In addition, issues such as bias, including the challenges when acting as both an insider and outsider researcher, are considered. Ethical considerations and limitations of the study are discussed. In conclusion, the potential significance of this research study is outlined based on preliminary findings.

4.1 Research questions

RQ. 1 Within the Irish technological higher education sector, what is the trajectory of pedagogic practices over time in Teaching and Learning Regimes (TLRs)?
RQ. 2 Why do teaching staff choose to adopt or discontinue some pedagogic practices?
RQ. 3 What are the conditioning factors for the pedagogic practices that teaching staff in the Irish technological higher education sector adopt and sustain?
RQ. 4 How and how effectively does Social Practice Theory (SPT) explain changes to pedagogic practices and provide insights to guide change management?

4.2 Research design underpinned by theory

When conducting research, it is essential to engage with the different philosophical arguments as to what constitutes science, knowledge and truth to make justified decisions about methodological choices. In trying to understand social phenomena such as pedagogic practice, which is “complex and deeply embedded in its context”, qualitative research is considered an effective approach as it is adaptable and

innovative, allowing the researcher to design a strategy to meet the needs and objectives of the study (Audet & d'Amboise, 2001, p. 1). In addition, using a multi-site case study approach adds to the rigour of the research design (Yin, 2003, 2018). The approach provides the opportunity to gain in-depth knowledge of the pedagogic practices participants adopt or choose to discontinue, from across four institutes in the technological higher education sector, including conditioning factors.

The selection of SPT underpinned choices in the research design of this study. SPT was previously used in research studies, for example, in health care Maller (2015) and higher education (Boag, 2010; Lisewski, 2018; O'Donovan, 2020). However, this study focuses specifically on the situated pedagogic practices of lecturers in the Irish technological higher education sector. Knox advocates philosophical and methodological pluralism advising researchers to consider the interconnection between theory and method when designing research (2004, p. 124). I took this approach by adapting the SPT elements devised by Shove et al. to the context of HE to inform the research design (2012)

Various frameworks were considered and discounted for selection in this study. Initially, I considered adopting a phenomenographic research perspective to study the lived experiences of the lecturers (Marton & Booth, 2013). However, as that approach avoids active engagement with existing theory it was discounted, as it places constraints on what could be explored in the study and how data could be analysed.

Grounded theory was also considered, initially introduced by Glaser & Strauss to help legitimise qualitative research by relying on a positivist stance; it involves a prescribed approach to the collection and analysis of data (Bassey, 1999; Glasser & Strauss, 1967). Therefore the theory is grounded in the data that emerges, and the development of theories occurs after the collection and analysis of data. Critics of grounded theory argue that it is impossible to totally free oneself of preconceptions when collecting and analysing data, which is considered necessary by Glaser and Straus (1967). I agree with this stance, and as utilising classic grounded theory requires the researcher to re-enter the field to conduct further interviews until data saturation is reached, the approach was deemed unsuitable for conducting this study of pedagogic practices as it would limit methodological choices.

4.2.1 Social Practice Theory and Critical Realism

I consider theories espoused by Archer appropriate for this research, particularly as she suggests that a social practice approach or praxeology moves beyond the epistemology of social constructionism through the insistence that social structures exist and impact significantly on practices (2010). In trying to resolve the tensions between structure, agency and culture, Archer is critical of Gidden's focus on structural determinism in which the agent is powerless; alternatively, she offers the ideas of "reproduction and transformation" where the practice is pivotal (Archer et al., 1998, p. 361). Concurring with Hillyard (2010), Trowler considers SPT an under-utilised approach to deploying ethnographic-style or practice-focused ethnographic research in higher education (2014a). This practice-focused ethnographic research study is designed to test the TLR theoretical framework, which is situated firmly in a social practice perspective, to explain and understand the pedagogic practices of lecturers in situated contexts.

Adopting a CR position allows a focus on social reconstructionism advocated by Archer, which may result in challenging the status quo and have an unsettling effect on power relations (Archer, 2016). This can happen at the micro-level of the classroom when new pedagogic practices are introduced or at the meso-level of a workgroup or academic department. Spurling et al. consider practices to be observable expressions of social phenomenon (2013). Adopting this perspective provides a framework to study, explain and understand the pedagogic practices of the participants and critique the factors which condition them.

In keeping with Bhaskar (2008), CR provides an ontological depth in accepting that reality is stratified into the domains of the "empirical, the actual and the real" (O'Mahoney & Vincent, 2014, p. 14). Therefore, it offers a scientific alternative or middle ground between the polar opposite positions of positivism and constructivism (Denzin & Lincoln, 2011). CR does not engage in the methodological imperialism of other approaches; as an alternative, the perspective supports making methodological choices that "depend on the nature of the object of study and what one wants to learn about it" (Sayer, 2000, p. 19). It is contended that the best explanation of reality happens through engagement with existing theories, even if they prove fallible

(Fletcher, 2017, p. 7). Therefore, adopting CR as an ontological perspective and using SPT and TLR as theoretical frameworks to study pedagogic practices in specific contexts informs the choices made when selecting data collection methods which are fit for purpose.

The selection of CR as the ontological and epistemological perspective for this study is justified by the literature. However, it is also argued that there is a "serious lack" of guidance for devising a CR-informed methodology to undertake research that is both interesting and insightful (Ackroyd & Karlsson, 2014, p. 45; Fletcher, 2017). Danermark et al. devised a six-stage explanatory research model based on a critical realist ontology (2001). The model has been used in empirical studies (Meyer & Lunnay, 2013). Informed by other theoretical approaches, I adapted this model to devise a rigorous and systematic approach to the research design, including methodology and data analysis for this study. Table 4.1, overleaf, illustrates the three iterations I designed and describes each stage, including the strategic objectives for each stage and the theories informing them.

Iteration	Theory-driven research design informed by CR ontological perspective	Strategic Objectives	Theories
First iteration	**Stage 1: Description** Study of pedagogic practices identified. Descriptive accounts. Contextualisation. Identifying values and previous experience. **Stage 2: Analytical resolution** Selecting existing theories. Critique of SPT and TLR theoretical frameworks. Methodological triangulation of data to match SPT elements. Confirmation document approval - Lancaster University. Ethical approval process and approval - Lancaster University and my HEI.	**Placing myself in the research** **Selecting existing but potentially fallible theories** SPT elements - retroduction to select methods for triangulation appropriate to a practice perspective.	**Critiquing theories applicable to educational research** **Selecting SPT elements:** Materials, Competences and Meanings (Shove et al., 2012). TLR (Trowler 2020)
Second iteraton	**Stage 3: Intensive data collection across four sites** Transcribing data, re-reading, and importing into NVivo™ data management tool. Setting up a database and organising data according to cases. **Stage 4: Habitual abduction and redescription** Data coding - interesting features of the data in a systematic fashion across an entire data set. Collecting data relevant to each code. Identifying demi-regularities and searching for tendencies. Data Reduction – ongoing analysis to refine the specifics of each tendency and the overall story the data tells, generating clear definitions and names.	**Familiarising myself with the data** **Initial coding in NVivo™** Open coding - searching for demi-regularities. Refining and distilling more demi-regularities to identify tendencies. Assigning data to tendencies to portray meaning. Descriptive accounts. Reordering, coding on and annotating.	**Critical realist approach devised informed by theory and theorists:** (Ackroyd & Karlsson, 2014; Braun & Clarke, 2021; Campos, 2011; Danermark et al., 2001; Downward & Mearman, 2007; Fletcher, 2017; Hurrell, 2014; O'Mahoney & Vincent, 2014; Ritz, 2020).
Third iteration	**Stage 5: Creative abduction - testing and validating** Developing and setting up a mapping tool in Excel™ to identify TLR proto-practice reservoirs and moments of the TLR. Re-reading data for each participant and systematically. Identifying examples from the TLR theoretical framework. Completing the mapping process. Comparison between different theories and abstraction. **Stage 6: Concretisation and Contextualisation** Selection of vivid, compelling extract examples, final analysis of selected extracts, relating back to research questions, literature and producing a scholarly report.	**Explanatory accounts** Extrapolating deeper meaning, drafting summary statements and analytical memos. Assigning meaning. Generating concepts.	**Trialling the framework** Including the: • Proto-practice reservoirs • Eleven moments

Table 4.1 Theory-driven research design informed by Critical Realism (CR)

4.2.2 Abductive and retroductive inference

In CR, the processes of abduction and retroduction are used as an alternative to inductive and deductive approaches (Campos, 2011; Ritz, 2020). Although Bhaskar (2009) considers abduction and retroduction as synonymous with each other, it is also suggested they are complementary to each other and can provide “novel explanations” in qualitative inquiry (Ritz, 2020, p. 456). Retroduction is “the phase whereby one reaches a conclusion about what must be the case, supposing a certain premise is true” (Ritz, 2020, pp. 462–463). The first phase of the research design started with an available hypothesis with the elements of SPT informing methodological choices as triangulation is considered part of the process of “retroduction” (Downward & Mearman, 2007, p. 77). Abduction is “the phase of theorising whereby one reaches a conclusion that, if it were true, would explain the observed facts” (Ritz, 2020, pp. 462–463). In conducting research as a critical realist, during research design and data analysis, "abduction and retroduction" have the potential to say more about the world than ‘deduction or induction’ by adding “theory” to data. (O’Mahoney & Vincent, 2014, p. 18). Abductive inference allows for elaborating and estimating the explanatory power of a given theory in data analysis (O’Mahoney & Vincent, 2014, p. 19). Campos describes two types of abductive inference which I use during data analysis "habitual abduction" and "creative abduction" (Campos, 2011, p. 7). The former was used during data analysis to identify demi-regularities initially followed by tendencies, as this stage was informed by theories I was very familiar with. During the final data analysis stage, I used "creative abduction" when mapping the data to test the revised TLR theoretical framework devised specifically for the higher education context. This process was undertaken to identify the dominant proto-practice reservoirs and uncover the multiple dimensions of SPT using the moments of the TLR. Habitual and creative abduction provided me with a sound basis to re-describe the observable everyday objects of social science provided by the selected data collection methods to determine causation and uncover “regularities in events” (O’Mahoney & Vincent, 2014, p. 17). Therefore I adopt a reflexive approach when interpreting the data by applying and combining my knowledge of theory with what is observed to devise credible explanations.

The approach to data analysis was undertaken to address research questions and consider the effectiveness of the recently revised TLR framework in the context of the Irish technological higher education sector.

4.3 Defining the multi-site case study

The postgraduate diploma programme, outlined in chapter one, defines the overall case determining the sampling strategy. At the start of this study, twenty-eight graduates from 2011 to 2015 fulfilled the requirement of having completed one year of teaching after being awarded the postgraduate diploma. This purposive sampling formed the basis for selecting the four institutes involved in the study, as outlined in chapter two. The selection also provided distance when conducting the research as it addressed the power imbalance that would have been present previously between the participants when they were students and myself as their lecturer. The rationale for selecting the case programme is as follows:

- the participants in the study are at various stages in their academic careers and from diverse disciplinary backgrounds, including civil, mechanical and software engineering, science, health science, psychology, film-making and social sciences, providing interesting data for comparison.
- the research design involved four IoTs in the study, including the awarding institute for the postgraduate programme. This institute engaged in sharing expertise and professional development modules and a process of capacity building with two institutes. Therefore, it was anticipated that the approach adopted would provide comparative value when analysing the emerging data.

Utilising the framework devised by Shove and colleagues, the programme acted as a conduit to explore situated pedagogic practices, including routinised behaviours and the theories and assumptions that underpin them (2012). Therefore, the research design was deliberately selected to develop a methodology that moves beyond examining individual practices and relying on self-assessment and self-reporting by participants and is limited in time to the point of engaging in a programme of study. The design provides a broader focus of inquiry into pedagogic practices, the material environment in which they occur and the contextual factors which conditioned their adoption.

In adopting a CR ontology, both extensive and intensive data collection methods may be deployed. Intensive methods were selected for this study of pedagogic practices as they are concerned with "what makes things happen in specific circumstances" through examining the "qualitative nature of phenomena and the intricacies of context" (Downward & Mearman, 2007, p. 92). Subsequently, the findings may lead to further investigation using extensive methods such as surveys. To address the research questions, a variety of intensive methods for data collection were selected as follows:

- individual semi-structured interviews;
- focus group interviews;
- observations of teaching;
- digital artefacts shared by participants to represent their current practice.

Table 4.2 provides an overview of the total number of participants (N = 19) who participated in semi-structured interviews, their further participation and the timeline for data collection. N/A signifies not applicable. Regarding digital artefacts, N = refers to the number submitted to me by the site. In some cases, more than one artefact were submitted by one research participant. Full details and analysis are provided in chapter 5. Those who did not participate in the study were from Broagh and Toome, reasons included no longer working in an IoT (N = 3), being on leave (N = 3) or did not respond to the email invitation to participate in the study (N = 3).

Potential participants by site	Semi-structured Interviews	Focus group interviews pre-Covid 19	Focus group interviews post-Covid 19	Observations of teaching	Digital artefact to represent practice
Year	2018-19	2018	2020	2019-2020	2017-2020
Broagh: N = 16	N = 9	N/A	N = 8	N = 5	N = 8
Anahorish: N = 1	N = 1	N/A	N/A	N/A	N = 2
Derry Garbh: N = 3	N = 3	N = 3	N = 2	N = 2	N = 2
Toome: N = 8	N = 6	N/A	N = 2	N = 2	N = 3
Total N = 28	N = 19	N = 3	N = 12	N = 9	N = 15

Table 4.2 Participation rate by research method and associated timeline

The timeline included the semester when the case study institutes were forced to close due to emergency remote teaching. Although initially considered as part of the study, this event and its impact on practice are included as part of the findings.

Therefore, the initial selection of the case programme led to the opportunity to devise multiple cases for analysis, as indicated in figure 4.1.

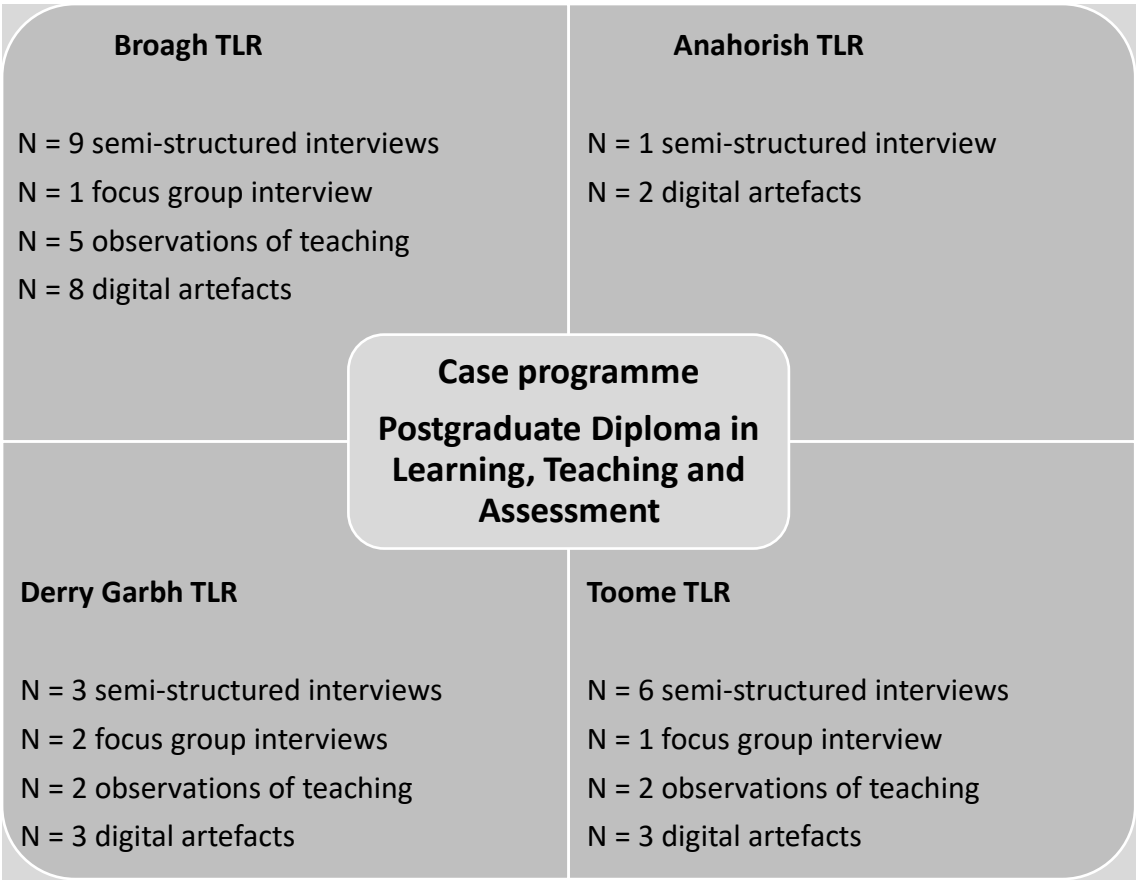

Figure 4.1 Multiple case design for holistic single units of analysis

4.3.1 Participant information

Tables 4.3 and 4.4, overleaf, outline further details relating to the participants, including discipline, subject areas and participation in data collection. The participants' identities have been anonymised, and I devised pseudonyms to meet ethical requirements. The participants in the study represent a range of disciplines and subject areas germane to the Irish technological higher education sector.

Sites	ID	Data Collection	Discipline	Subject Areas
Broagh	Niamh	Interview Focus Group	Science	Psychology
	James	Interview Focus Group Observation Digital Artefact	Engineering	Geology/Geotechnology
	Grace	Interview Focus Group Digital Artefact	Science	Science Molecular Biology Biology
	Anna	Interview Observation Digital Artefact	Social Care	Social Care/Childcare - Creativity
	Ellen	Interview	Hospitality and Leisure	Food and Beverage
	Elaine	Interview Focus Group	Science	Cell Biology
	Maria	Interview Focus Group Observation Digital Artefact	Science	Biochemistry Toxicology Research Methods
	Emily	Interview Focus Group Observation Digital Artefact	Science	Environmental Management
	Leah	Interview Focus Group Observation Digital Artefact	Hospitality and Leisure	Anatomy and Physiology
Anahorish	Adam	Interview Digital Artefact	Computing	Web Programming

Table 4.3 Discipline and main subject areas by site

Sites	ID	Data Collection	Discipline	Subject Areas
Derry Garbh	Evanne	Interview Focus Groups (2) Observation Digital Artefact	Psychology	Psychology
	Aaron	Interview	Computing	Game Development
	Rory	Interview, Focus Group (2) Observation Digital Artefact	Film and Media	Animation
Toome	Laura	Interview	Business	Marketing
	Claire	Interview	Hospitality and Leisure	Culinary Arts
	Dean	Interview Focus Group Observation Digital Artefact	Hospitality and Leisure	Accountancy Maths Economics
	Lisa	Interview	Mechanical Engineering	Electrical Science Automation
	Sam	Interview Focus Group Digital Artefact	Outdoor Education Environmental Management and Conservation	Outdoor Education Environmental Management and Conservation
	Jenny	Interview Digital Artefact	Quantity Surveying	Quantity Surveying

Table 4.4 Discipline and main subject areas by site (Continued)

There was also a range of teaching experience amongst the participants from one participant who had just been appointed to a full-time, fixed-purpose role to one participant who had twenty-two years of teaching experience in higher education.

After completion of the postgraduate diploma, one participant had been promoted to a senior lecturer position as a head of department. Another, who was a head of department had been promoted to an academic role in quality assurance. Another was seconded to a centre for educational development. In terms of participation in data collection, a key aspect of the protocol devised for the study allowed for participants to opt-in or out at each stage of the data collection process.

Explanations for where participants opted out after the initial interview are as follows:

- focus group interviews - timing did not suit, they were no longer in a teaching role, or as there was only one participant from Anahorish, conducting a focus group was inappropriate for that site.
- classroom observations - timing did not suit due to Covid 19, no longer in a teaching role, or health and safety issues for me as an observer.
- digital artefacts to represent current practice - no longer in a teaching role or selected not to engage.

4.4 Intensive data collection

As this is a practice-focused ethnographic study, the research design provides an opportunity to consider both what is purported by the participant in interviews and what is observed in practice (Scott, 2014). I deliberately selected not to rely solely on data from semi-structured and focus group interviews. Therefore, data collection methods were extended to include classroom observations and the collection of digital artefacts to represent practice in the design. Thus concerns are addressed about the dimensions of “discursive consciousness” or what participants say about their practices and “practical consciousness”, or the tacit assumptions held about practices which are difficult to convey (Giddens, 1984, p. 49).

Underpinning this study with SPT allows for the agency of materials, technologies, and objects in everyday life's construction to be elevated in the design (Reckwitz, 2002; Shove et al., 2012). Therefore, in this study of pedagogic practices amongst participants from the four HEIs, rather than considering materials, technologies, and objects as external factors, they are viewed as part of the active elements of pedagogic practices and are incorporated into each of the data collection methods. Digital artefacts shared by participants are another means of examining the role of materials, technologies, and objects in practice through their design and use of resources to support student learning.

Table 4.5 indicates how selecting this varied methodological toolbox is justified as it identifies how the choices were informed by the elements of SPT, aligned to the examples of pedagogic practices in HE, to provide data which will address the research questions.

RQ	Elements	Components	Examples in HE Practice	Data Collection Method
RQ. 1 RQ. 2 RQ. 3	Materials	Objects, tools, infrastructures	Learning spaces – lecture rooms and laboratories Workspaces Classroom technologies Software Social media	Semi-structured interviews Classroom observations Teaching artefacts
RQ. 1 RQ. 2 RQ. 3	Competences	Knowledge and embodied skills	Theories underpinning practice Learning and teaching strategies Reflective practice Student-centred learning Inclusive practice Classroom management Digital skills and literacy Assessment literacy Assessment design Curriculum design Scholarship of teaching	Semi-structured interviews Classroom observations Teaching artefacts
RQ. 1 RQ. 2 RQ. 3 RQ. 4	Meanings	Cultural conventions, expectations, and socially shared meanings	Institute norms Institute policy and practice The influence of discipline Community of practice/collaborative learning	Focus groups reflections Semi-structured interviews Digital artefacts

Table 4.5 Alignment of the elements of SPT to HE

4.3.1 Semi-structured interviews

Semi-structured interviews were designed to investigate the three elements of social practice theory, materials, competences and meanings (Shove et al., 2012, p.14). As part of the design of qualitative methods, interview protocols were developed, which included an opening and closing script and interview questions (Appendix 3). Initially, both a pilot semi-structured and focus interview were conducted. The protocols were

then revised where necessary. I adopted a flexible approach by responding to the data emerging. For example, a pilot interview initially conducted in Broagh informed the decision, as suggested by Grace (Broagh), to request that the remaining participants review the capstone portfolio submitted for their final award before being interviewed. This allowed participants to reflect on aspects such as their personal philosophy statement, evidence presented outlining initial changes to practice during the programme and the key literature which influenced them during their studies.

In the interview process, the questions acted as a guide and can be categorised by Rubin and Rubin as “main questions”, “probes”, and “follow-up questions” (2012, p. 7). However, the interview process was viewed by me as an opportunity to use Holstein and Gubrium’s model of engaging in active interviewing and responding to the participants' answers (1995). Therefore, interviews included techniques such as “prompts”, “drawing on scholarship”, “theorising with the interviewees" and “checking new ideas” (Cousin, 2009, pp. 84–89). An interview helps display how people make sense of their social world (Cohen et al., 2007, p. 268). Interviews were designed to be qualitative, moving beyond the descriptive, allowing the participants to expand on areas of interest specific to their work situation. They were focused on stimulating thought about pedagogic practices to produce knowledge through this interpersonal interaction whilst ensuring a positive experience for the interviewee (Cohen et al., 2007, pp. 272–273).

Participants were asked to identify and reflect on critical incidents to explore current and past practices. This approach supported the consideration of practices not only as behaviours but to incorporate the underlying theories, values and emotions associated with those practices. The portfolios became “mediating artefacts”, providing catalysts for discussion (Trowler, 2014a, p. 11). The values underpinning the case programme were used for reflecting on the trajectory of practices, how these were adopted or discontinued and how their material environment played a role in their adoption within the TLRS of the research participants.

4.3.2 Focus group interviews

Focus groups were undertaken with participants on three sites to examine how the

culture within their academic units and institutes impacts the adoption of practices. In addition, conditioning factors which influence the trajectories of practices were explored further to include consideration of the influence of institute norms, policies, disciplines, and participants' views relating to involvement in networks or community of practice (CoPs). Although the aim of the focus group is data generation, it is a social event that can be enjoyable for all participants by using group dynamics to generate data (Catterall & MacLaran, 1997). Morgan identifies focus groups as a qualitative research method leading to "exploration and discovery, context, depth, and interpretation" (1998, p.8). In this study, informed by Morgan, focus groups were designed to be a process of “sharing and comparing” among participants (1998, pp. 11–13). This type of group interaction is one of the considerable benefits of using focus groups. They are a relaxed means of gathering rich data about how people talk about a topic, how they respond to the views of others and therefore are a means of determining attitudes (Catterall & MacLaran, 1997). However, focus groups need to be planned and managed as group interaction can be poor, and data analysis, as with all qualitative data, can be challenging (Jarrell, 2000). Including focus groups in this study was deliberate as they were designed to allow participants to re-engage with the research topic and generate robust discussions.

The timing of two of the focus groups coincided with the introduction of emergency remote teaching due to Covid 19. Given the influence of the pandemic on the trajectories of practice, it was decided to invite the participants from Derry Garbh to participate in a second focus group to ascertain their views on that lived experience and its impact on pedagogic practices.

4.3.3 Classroom observations

Classroom observations were conducted, which provided the opportunity to examine the social practice elements of competences and materials (Shove et al., 2012, p.14). Before the observation, I engaged in a virtual meeting with the research participants. The purpose was to prepare the participant for the observation and explain the purpose of the observation as outlined in the protocol (Appendix 3).

There is currently no formal model available in the Irish technological higher education sector for conducting teaching observations. Therefore, to address the aspect of competence, I selected to use an adapted version of the University of South Australia Developmental Model for the peer review of teaching (2014). This was approved as part of the ethics process (Appendix 3, p. 179). Participants who volunteered to engage in this part of the study were invited to provide details of the lesson plan before the observation. They selected from nine dimensions for learning and teaching the areas of practice I would focus on during the observation. Using this approach, the observation protocol was deliberately designed and shared for reflection and discussion before the observation. In keeping with the elements of SPT, the protocol became a "mediating artefact", providing a catalyst for engagement during each stage of the observation of practice (Trowler, 2014a, p. 11). The observations were conducted in keeping with Gosling's peer observation guide for observers (2002). I was present in the classroom before students arrived, did not participate in the class, and remained unobtrusive so that the lecture could proceed uninterrupted. In addition to focusing on pedagogic practices, other areas included in the observation were an integral part of the research study. The following were incorporated:

- suitability and use of the physical learning space for the class, for example, tiered lecture rooms, flat classrooms, and laboratories.
- provision and use of classroom technologies and software.
- use of classroom materials and teaching resources.

I took contemporaneous notes which fully described all the aspects of the observation. A post-observation meeting was held with each participant to allow for a debrief and raise any further salient points.

4.3.4 Digital artefacts to represent current practice

In the final data collection method, participants were invited to share digital artefacts to provide evidence of innovation in their learning, teaching and assessment practice and to represent their current practice. This method was selected to address the SPT elements of materials, competences and meanings and the use of technology which has become ubiquitous in our social world, including when teaching in a HEI. Artefacts

are a means of data collection in qualitative studies as they are media through which "social power is expressed" (Blaxter et al., 2010, p. 153). They are influenced by the cultural context in which they were designed and may be viewed as attempts at persuasion. In this study, participants were invited to self-select and share a teaching artefact representing their current practice. The artefacts were shared with me electronically. Examples include assessment briefs and digital screencasts. The design and purpose of the artefact were examined during data analysis. In accordance with a case study approach, a database comprising multiple data sources, including primary and secondary sources, was devised for this study (Balbach, 1999; Yin, 2014). This allowed for the convergence of multiple sources of evidence during data analysis, as indicated in figure 4.2, and was mediated through NVivo™ software.

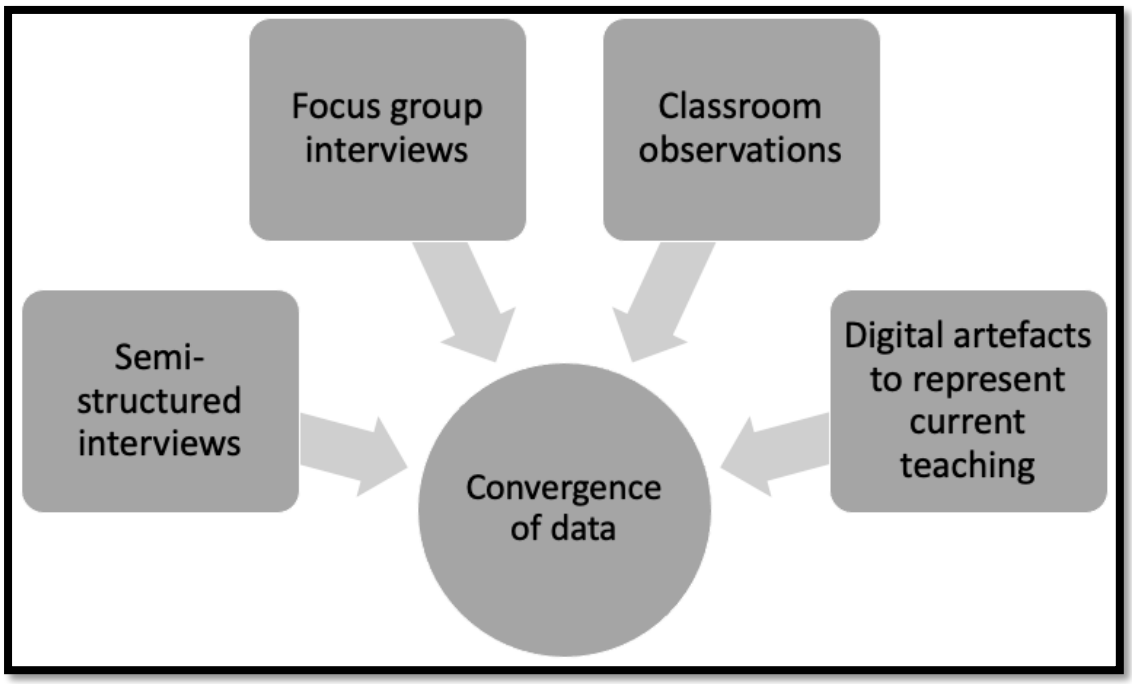

Figure 4.2 Convergence of multiple sources of evidence

As this was the first time TLR theory was trialled in Irish HE, I devised a step-by-step procedure for the systematic analysis of data and a process for mapping the evidence of proto-practice reservoirs and the eleven moments of the TLR, as follows:

Step 1: After completing the coding process to identify demi-regularities and tendencies, I revisited the NVivo™ database, and all data was re-examined.

Step 2: Examples of proto-practice reservoirs and the eleven moments of the TLR identified for each participant. I systematically recorded these using Excel™ for all four data collection methods.

Step 3: I then devised templates in Excel™ for mapping the findings, using symbols to identify the data collection method where the example or examples occurred.

Figures 4.3 and 4.4, overleaf, illustrate the completed TLR mapping process. Both figures reflect the complexity of bundled and nested practices within a TLR (Trowler, 2020; Trowler & Cooper, 2002). The findings are considered when addressing the research findings in chapter five.

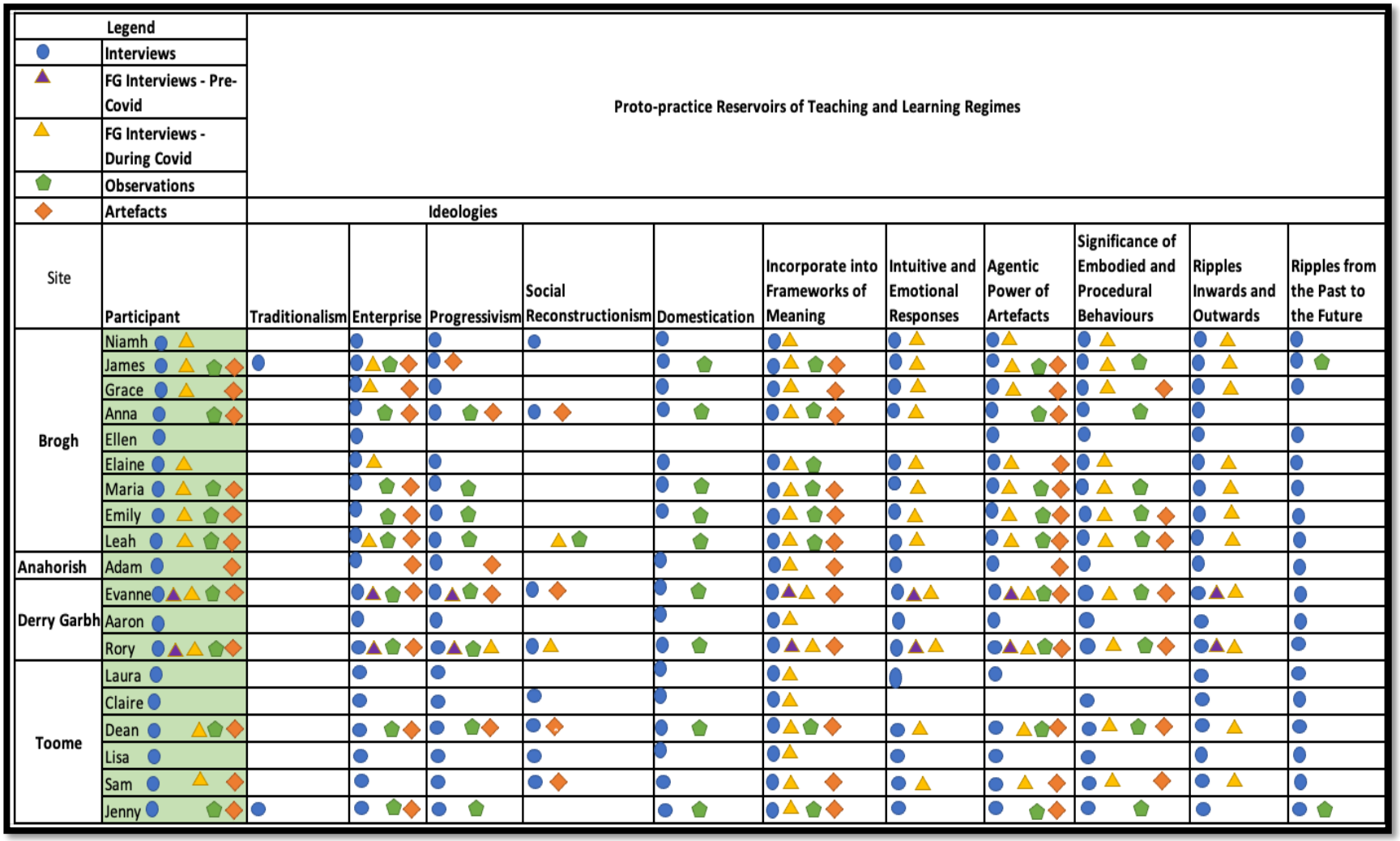

Figure 4.3 Mapping data to the proto-practice reservoirs of the TLR

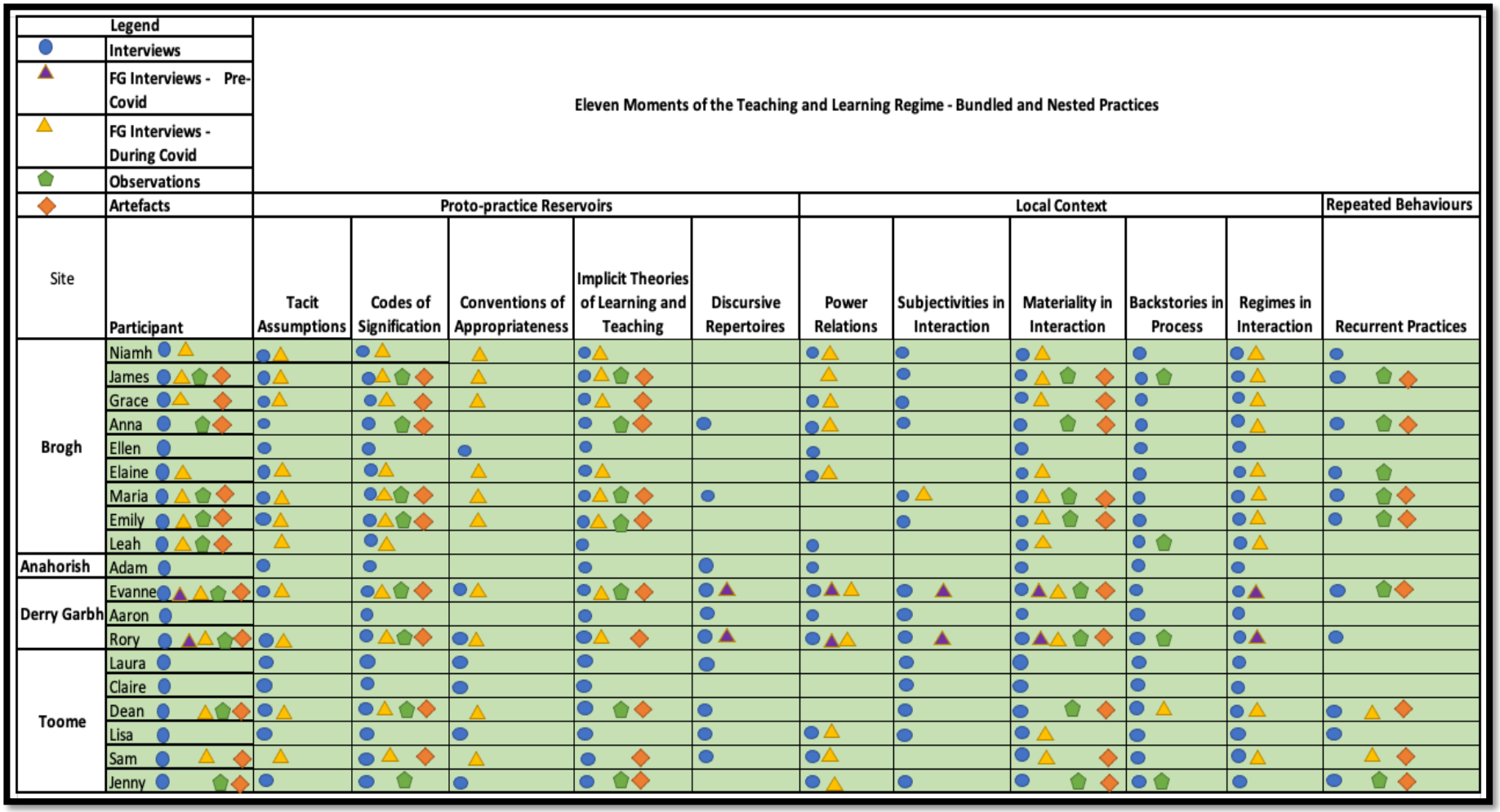

Figure 4.4 Mapping data to the eleven moments of the TLRs

4.4 Ethical considerations

Ethical approval was sought from Lancaster University and the Ethics Committee of my institute, following the specific procedures required. Both applications were approved. However, my own institute's Ethics Committee requested approval to be sought from the Academic Registrars in each institute before participants were invited to participate by email. The role of the Academic Registrars as gatekeepers is controversial (Oliver, 2010). It is reasonable to argue that lecturers are entitled to participate in a research study irrespective of this permission in the interest of academic freedom. However, as data collection involved repeated visits to the case study sites, it was useful and appropriate to have written approval from senior management.

As part of the ethics application, I committed that the project would be conducted in keeping with the British Education Research Association (British Educational Research Association, 2011). The pragmatic research paradigm argues that research methods must be "fit for purpose" (Johnson & Onwuegbuzie, 2004, p. 17). This means that they are more likely to be ethical, and their ethical considerations are attended to at the different stages of the study. Ethically, the investigation was designed to cause no "harm to participants" and to ensure no "deception" took place (Bryman, 2008, p. 118). A key principle in the research design was creating an "atmosphere of equality between researcher and respondent" by valuing the respondents' expertise and skills (Oliver, 2010, pp. 107–109). Concerning "privacy", Bryman (2008, p. 123), in my reporting participants' "confidentiality" has been ensured (Bell & Waters, 2018, p. 78). Participants were provided with information about the study in advance and informed consent was received at each data collection point (Shove et al., 2012). Participants were informed of their right to withdraw at any of the stages of data collection.

4.5 Developing a robust research design

When designing any empirical research study, defending the robustness of the research design is essential. This research was designed to ensure the research questions would be answered using a carefully selected set of qualitative research methods aligned to the elements of SPT, providing participants with the opportunity to engage and contribute at

different times in the study (Shove et al., 2012). According to Trowler, there are "six key axioms" underlying strategic practice-focused research in higher education (2020, p. 47). These are a focus on new practices, the context for their introduction, the interconnections between existing practices, the congruence between current practice and change initiatives, if practices have become domesticated, and, finally, to determine if problems have arisen in any of the locations to that HE which may impact others (Trowler, 2020). This study investigates the pedagogic practices of lecturers who had completed postgraduate studies to develop their pedagogic practices. Therefore the research topic and design align with these axioms. It is further justified by the holistic multiple case study design where each site was organised as a single case for comparative analysis (Yin, 2018, p. 14).

The selection of a variety of research methods, the data collection and analysis for this practice-focused ethnographic study allowed me to access “multiple dimensions of social practice” in this case, situated pedagogic practices encompassing “saying: doing: relating: feeling and valuing” (Trowler, 2014a. p. 11). Therefore a range of methods should also be used to obtain a complete picture of the phenomena being studied (Dinham, 2002, p. 331). The choices of research methods offer me the opportunity to consider pedagogic practices through the lens of the six key axioms outlined earlier. Methodological triangulation, or using multiple data sources to enhance the research's rigour, can “help to counter all threats to validity” (Robson, 2002, p. 174). Using a mixed qualitative methods approach avoids relying on "discursive and practical consciousness" (Giddens, 1984, p. 49) and introduces “complementarity” (Johnson & Onwuegbuzie, 2004, pp. 21–22).

The approach strengthens the validity of the research design, particularly as the research was undertaken across four sites involving various discipline areas. In addition, the participants were at different career stages with a range of experience of working in HE. It is argued that each site or institute is an example of a community (Cohen et al., 2007, p. 181). The extended fieldwork which was conducted in each of these sites or communities is one of the strategies suggested by Johnson and Onwuegbuzie to promote the validity of qualitative research (2004).

The selection of a methodological approach informed by CR adds to the robustness of the research design. Although each of the data collection methods, when considered individually, has weaknesses identified by Yin (2018) outlined in table 4.6.

Method	Issues associated
Interviews may:	• cause bias due to poorly articulated questions or incur response bias. • have inaccuracies due to poor recall. • encourage reflexivity - where the interviewee says what the interviewer wants to hear.
Observations may:	• cause bias due to participant-observer manipulation of events. • encourage reflexivity - actions may proceed differently as the research participants are aware they are being observed.
Artefacts may:	• have issues relating to selection.

Table 4.6 Potential issues with data-collection methods selected

However, the research design for this study has addressed these issues. It is an empirical study as multiple methods were selected, which offers the opportunity to triangulate and verify data and provide complementarity. The protocols for each data collection stage were deliberately designed and adapted, where required, to avoid such weaknesses.

4.7 The insider-outsider dichotomy

To strengthen the validity and robustness of social research, the researcher needs to outline their personal motivation for the research (Cresswell, 2013; Crotty, 1998). Therefore a researcher is required to select their position as either "insider" or "outsider" researcher (Bonner & Tolhurst, 2002, p. 7). An insider researcher selects to undertake their research amongst the group to which they belong whilst an outsider researcher does not belong to the group which is the focus of the study. However, It has been suggested that “as communicating humans studying humans communicating, we are inside what we are studying”; therefore, we are all insiders (Ellis & Bochner, 2000, p. 743). Indeed, DeLyser asserts that “in every research project, we navigate complex and multi-faceted insider-outsider issues” (2001, p. 442).

I could be considered both an insider and outsider researcher when conducting this research project as the study involved those who had previously achieved the postgraduate award, which I coordinated. The research participants were once taught and assessed by me at various stages during their flexible learning pathway to a postgraduate award, particularly those who work in my institute. All were taught at the capstone module stage when participants were required to provide a portfolio of evidence documenting changes to practice underpinned by scholarship.

My role as an educational developer has led me to develop knowledge about the technological higher education sector through professional engagement, including formal and informal networks. Bonner & Tolhurst (2002) outlined three key advantages of being an insider in the research domain:

- an excellent understanding of the group's culture.
- the ability to interact naturally with the group and its members.
- a previously established, and therefore greater, relational intimacy with the group.

The advantages apply to my engagement as, across all sites involved in the study, I see myself as acting in the middle between insider and outsider researcher. This position is informed by my career in education, particularly working in HE for the past twenty-two years. That experience has led me to develop a "practice-sensibility" and "ethnographic style", which enabled me to act professionally as a researcher whilst taking cognisance of the contexts and personal journeys of each participant (Trowler, 2020, pp. 45–60). There is no doubt that the research participants were aware of my interest in teaching in HE; however, the data collection methods were selected to enable the participants to say what they thought rather than what they thought I, as the researcher, wanted to hear in interviews and observations, thereby reducing responder bias. Their choice of artefact was left open for self-selection of an artefact to represent current practice. Therefore, in this investigation of pedagogic practices, I would prefer to position myself as a co-investigator and co-learner to minimise the power differential between myself and those participating in the research (DeLyser, 2001). Acting particularly as an insider researcher is not a new experience. Although I

brought my own biases, I am confident that the rigorous and professional approach to conducting the research addresses these concerns.

4.8 Potential limitations

Pertinent to this study are credibility issues held by quantitative purists, namely, the influence of the researcher's personal bias on the results and the inability to generalise results (Johnson & Onwuegbuzie, 2004). However, Cresswell suggests that “reliability and generalisability play a minor role in qualitative research” (2003, p. 195). I concur with Yilmaz, who posits that “transferability” is a far more appropriate criterion for this type of qualitative research design (2013, p. 320). The timing of this study is significant, with the establishment of the new Technological Universities. As indicated in chapter 2, three of the institutes involved in the study have become part of TUs. Therefore the findings and contributions of this study are transferable in that specific context. The research design and conclusions can be shared through engagement with educational developers in the sector and nationally through professional groups such as the Educational Developers in Ireland Network (EDIN), the Irish Learning Technology Association (ILTA), and the National Forum, particularly in the development of a national recognition framework.

It must also be acknowledged that social practices, such as pedagogic practices, by their very nature, are difficult to capture. Conducting one observation may not represent a participant's practice fully and is a snapshot of practice. There are difficulties in capturing the structures that condition practices physically but also in terms of the power, ideologies and symbolic structures that condition them (Trowler, 2020). Although conducting research on the ground may focus on the day-to-day activities that form practice rather than aspects such as the educational ideologies including “progressivism, traditionalism, enterprise and social reconstructionism” that shape behaviours (Trowler, 2020, p. 120). It could also be argued that the discourse, symbolic structures, theories and assumptions that underpin pedagogic practice within a TLR are challenging for the researcher to ascertain and elucidate. However, these potential limitations are addressed by using an authentic, systematic and auditable approach to data collection and analysis, specifically in the use of four different qualitative data collection methods.

The time period for the study increased the rigour as it allowed me to engage with the participants over an extended period. The selection of appropriate theoretical frameworks assists in addressing these limitations. SPT was used initially to inform the research design, and subsequently, TLR theory was used to verify, explain and understand findings.

It is essential to acknowledge the influence of the ideational realm when conducting this research, comprising "the reservoirs of educational ideologies, symbolic and assumptive structures" drawn on by academics when they perform practices (Trowler, 2020; Trowler, 2005). Therefore, I acknowledge the significance of proto-practice reservoirs, as understanding their effects is key to changing practices which may infer personal bias. However, "panning up" or considering these ideational, discursive and symbolic structures from above and at a remove from the participants allows me, as an insider or outsider researcher focus on the proto-practice reservoirs or building blocks of social practices drawn on by the social agents or teaching staff, and expressed in practice repertoires (Trowler, 2021, p.2). Although these issues are faced by any insider or outsider researcher in higher education, throughout this study, I have made my values and experiences explicit. The robustness of the research design in this study includes using multiple sites and various data collection methods to ensure data triangulation and to counter discursive and practical consciousness (Giddens, 1984). The design features, including data collection over an extended period, should address concerns relating to the ideational realm.

4.9 Conclusion

This study was designed to investigate the pedagogic practices of staff in the Irish technological higher education sector. The theory-driven research design for this study is novel, utilising various qualitative methods and. involving four geographically dispersed HEIs, over an extended period, adding to the reliability and robustness of the study. The design involved devising a technique for systematically recording and mapping qualitative data to the proto-practice reservoirs and eleven moments of the TLR theoretical framework and has the potential to be replicated in other educational settings. In the following chapter, findings are presented and discussed.

Chapter 5: Findings and Discussion

This practice-focused ethnographic study involved nineteen participants working at either the micro-level (teaching staff) or the meso-level (teaching staff who changed to a middle-management role), from four geographically dispersed HEIs in the Irish technological higher education sector. The study was designed to deploy a mixed qualitative methods approach, including semi-structured and focus group interviews, classroom observations and digital artefacts selected by participants to represent current practice.

Purposive sampling determined the participants and involved lecturers from four Institutes of Technology (IoTs) who taught for at least one year after completing a postgraduate programme to enhance their pedagogic practices. The focus of this study is on the practices rather than the individuals. In presenting the findings, I will identify the TLR moments and proto-practice reservoirs to offer explanations pertinent to the Irish technological higher education sector.

In terms of sequencing, the chapter is structured to address the research questions:

RQ. 1 Within the Irish technological higher education sector, what is the trajectory of pedagogic practices over time in Teaching and Learning Regimes (TLRs)?

RQ. 2 Why do teaching staff choose to adopt or discontinue some pedagogic practices?

RQ. 3 What are the conditioning factors for the pedagogic practices that teaching staff in the Irish technological higher education sector adopt and sustain?

RQ. 4 How and how effectively does Social Practice Theory (SPT) explain changes to pedagogic practices and provide insights to guide change management?

5.1 Within the Irish technological higher education sector, what is the trajectory of pedagogic practices over time, in Teaching and Learning Regimes (TLRs)?

To address this question, I document the practices reported by participants in semi-structured and focus-group interviews, starting with early-career pedagogic practices followed by current practices, including those mediated through technologies. The data is triangulated by reporting on the findings from classroom observations, and the

digital artefacts participants shared to represent current practice. Table 5.1, provides a summary of the disciplines and subject areas represented in each of the sites.

Sites	Discipline	Subject Areas
Broagh	Science	Psychology
	Engineering	Geology/Geotechnology
	Science	Science - Molecular Biology and Biology
	Social Care	Social Care/Childcare - Creativity
	Hospitality and Leisure	Food and Beverage Studies
	Science	Cell Biology
	Science	Biochemistry, Toxicology, Research Methods
	Science	Environmental Management
	Hospitality and Leisure	Anatomy and Physiology
Anahorish	Computing	Web Programming
Derry Garbh	Psychology	Psychology
	Computing	Game Development
	Film and Media	Animation
Toome	Business	Marketing
	Hospitality and Leisure	Culinary Arts
	Hospitality and Leisure	Accountancy, Maths, Economics
	Mechanical Engineering	Electrical Science Automation
	Outdoor Education, Environmental Management and Conservation	Outdoor Education, Environmental Management and Conservation
	Quantity Surveying	Quantity Surveying

Table 5.1 Summary of disciplines and subject areas involved in the study

During data analysis, three main tendencies arose that described the trajectory of practices: early career pedagogic practices, developing classroom and assessment practices and the use of digital technologies to enhance practices.

5.1.1 Early-career pedagogic practices

Findings for early-career practices focused on a traditional transmission approach with written examinations as the common form of assessment. This finding was reported in a previous study about teaching in the Institutes of Technology (Palmer, 2009). The backstories of participants in this study informed their initial practices, as they were employed to teach in an IoT for their disciplinary expertise, industry experience or for

both. They described taking a traditional, transmission-focused approach in the classroom at first.

> "I was recruited because of my discipline rather than because of any I suppose pedagogical background…. without any educational qualification or indeed training" (Laura, Toome, Int).

Another described their experience as:

> "someone said you have a PhD in that, go and teach…so really it was a lot of just standing up in front of students and reading off either acetates or PowerPoint" (Maria, Broagh, Int).

Or there was a focus on preparing content:

> "just spending every single weekend, preparing, preparing, preparing material for the lecture" (Jenny, Toome, Int).

Early career practices were influenced by participants' experience of working in industry or how they had been taught in the past. There was strong evidence of commencing their teaching role with tacit assumptions about what their role and that of their students entailed, influenced by their backstory and conventions of appropriateness. This is exemplified in the following:

> "I suppose when any new practitioner begins…they don't really know what the rules of the game are. If somebody said to me 20 years ago, you're going to be a lecturer I would have thought it would have been you know with a gown and a podium and waxing lyrical for hours on end about something" (Dean, Toome, Int).

This comment also reflects the discursive repertoires and ripples from the past which are still associated with pedagogic practices in HE.

Tacit assumptions, backstories and recurrent practices at play at the start of early-career practices were also described as, "when we start we just replicate what we know" (Grace, Broagh, Int). A requirement to teach modules designed by someone else was mentioned as impacting negatively on their practice, particularly if the assessment was not valid.

> “you just take over somebody else’s modules…what I was doing was 80 percent on exams, 4 percent or 5 percent on a continuous assessment and 15 percent on practicals. But it becomes evident it is not working for lecturer or students” (Emily, Broagh, Int).

The material environment was also identified as a conditioning influence on the trajectory of practices. Over-reliance on projectors, initially using acetates or, more recently, PowerPoint, was also apparent, highlighting the role of materiality.

> **“**I remember my very first lecture and I came in with my acetates and I put them up on the board, up on the projector and I literally went from one acetate to the other and I don’t think I actually interacted with the class at all (Anna, Broagh, Int).

This highlights the conventions of appropriateness expected in early-career for both lecturers and students in the classroom. In terms of embodied and routinised behaviours, these initial practices generally meant the lecturer was physically positioned near the technology at the top of a room and students were seated passively listening and taking notes (Bound et al., 2022). The participant accounts of early career practices are in keeping with Kinchin & Gravett’s traditional, linear sequence of practice, presented in chapter three (2022).

These findings about early-career practices are not exclusive to the technological higher education sector or Irish HE. They have been reported internationally (Bound et al., 2022; Gale, 2011; Meyers & Nulty, 2009). Therefore, understanding the trajectory of changes to practice, including the conditioning factors, both scaffolders and restrictors, can provide insights into how staff can be supported to move beyond a transmission model of teaching and assessment, to be discussed further in section 5.4.

Assessment practice during the early-career stage was reliant on the use of traditional exams. Inheriting modules designed by someone else was considered problematic, particularly if they were poorly aligned (Biggs & Tang, 2011). Maria indicated:

> "well, I inherited this, but then I substantially changed it...incorporated things like doing an annotated bibliography" (Broagh, Int).

This was an interesting development in assessment practice as to provide evidence of scholarship, participants undertaking the capstone module of the postgraduate diploma must complete an annotated bibliography in their portfolio.

Feedback also followed a traditional format, occurring at the end of a learning cycle or semester unless students were involved in practical classes. Although, some participants began to recognise that the impact of these interactions was unsatisfactory and they did not necessarily result in improved student performance. Indeed, some reported being frustrated if students do not respond to feedback, primarily devised in a written format, indicating the emotive responses, codes of appropriateness and tacit assumptions at play during the early-career stage. These findings have been reported previously, including the issues of students not acting on feedback to improve their work or "feeding forward" or if students do not recognise feedback when it occurs in classroom settings (Reimann et al., 2019, p. 1279). The emotive response of students to the recipience of feedback, particularly in a written format, has been reported, especially applying to first-year students who have not as yet developed assessment literacies (Nicol & MacFarlane-Dick, 2006; Winstone et al., 2019a; Winstone & Carless, 2019; Y1Feedback, 2016b, 2016a).

5.1.2 Moving beyond traditional approaches

The trajectory of practices from early-career, reported during semi-structured and focus group interviews, involved three key aspects:

- change in practices in the classroom.
- changes to assessment practice.
- the use of digital technologies to mediate changes in practice.

In the physical classroom, the change in practices saw a shift from a transmission focus and not expecting to have all the answers for students to an emphasis on facilitating learning, where students were expected to take ownership and responsibility for their learning:

> "the primary activity in class isn't taking notes any longer" (Laura, Toome, Int).

Changes evident across all sites involved the use of a more collaborative approach, learning with and from students, learning through fun, allowing for mistakes and not expecting to have all the answers. These changes to practice were in sharp contrast to early-career practices and are in keeping with the literature on student engagement (Bound et al., 2022; Healey et al., 2014; Trowler, 2010). They further exemplify the shift in the conceptualisation of learning theory amongst participants, challenging previous tacit assumptions and recurrent practices in the TLR. The trajectory of changes involved "unlearning" initial or recurrent practices and moving from a "sage on stage" (Rory, Derry Garbh, Int) to adopting creative approaches for increased student engagement, for example, when teaching animation (McWilliam, 2008).

The traditional way laboratory-based classes are conducted and assessed was changing to ensure students are making the connection between theory and practice (Hattie & Marsh, 1996; Healey et al., 2014, 2020; Hennessy, 2014; Meyer & Land, 2003). Prompted by the desire to move beyond approaches that encourage rote learning and instead encourage critical thinking and problem-solving. This change was described as "merging theory and practice" (Elaine, Broagh, Int). When theoretical and practical elements are not split into separate classes in a traditional manner but are combined and taught by the same lecturer was described as "the joy I find of being able to do the theory and practical aspects of a particular subject" (Elaine, Broagh, Int). This adaptation led to an emphasis on collaboration between lecturer and students and co-creation of knowledge in conjunction with practice of requiring students to prepare in advance for laboratory sessions and the use of low stakes assessment (García-Carrión et al., 2020; Mercer, 2013, 2019).

The introduction of agile practice or adapting teaching to respond in real-time to feedback in the classroom was also identified as enhancing the dynamic in the classroom. It involved seeking and responding immediately to feedback received from the student through various formats such as observation, the use of Socratic questioning, classroom technologies, class activities and discussion. One example was described as an "old school strategy" with first-year students working out solutions on the whiteboard using mind maps (Grace, Broagh, Int). She suggested:

> "Biology is a broad subject. This gives the opportunity to watch out for any weakness in foundational or fundamental knowledge…I can see from what develops, where the weak points are, you know where maybe there was maybe some miscommunication or misunderstanding" (Grace, Broagh, Int).

This strategy was used as a method to incorporate formative feedback into classroom practice and challenge the tacit assumptions of first years who may expect a transmission model due to their own backstories and experience in post-primary education. Responding to feedback in the classroom became an essential part of the pedagogic practices of participants. Reciprocity occurs by informing both students and lecturers of miscommunication or misunderstanding (Winstone & Carless, 2019; Y1Feedback, 2016b). Although not part of the formal assessment process and occurring in the classroom, these strategies can be viewed as assessment for learning (Earl, 2003; Sambell, 2013a). Factors conditioning this change, which will be discussed further in section 5.3, included engagement in professional development, change initiatives and professional values, informed by intuitive responses, leading to a focus on enhancing student engagement.

5.1.3 Changes to assessment practice

Reducing assessment load emerged across all sites was a requirement either directed by managers or informed by personal experiences and by engagement in professional development. However, participants noted that trying to implement change regularly meant challenging tacit assumptions and beliefs held by colleagues about the nature of assessment. This was evident, particularly when trying to implement a change to the assessment balance in favour of continuous assessment (CA), which was frequently met with resistance from colleagues arguing that final exams should still be required and concerns about grade inflation.

> "I would look at the assessment from a very different way and people kind of tend to say, "oh, you're dumbing it down…oh, you remove your exam, you're just giving them more for it" (Lisa, Toome, Int).

This resistance was not specific to any discipline area but was common, in particular, in the disciplines of science and engineering. However, there was evidence of

implementing change with some modules revised to incorporate 100% continuous assessment or the balance shifting between continuous assessment and final exam towards the former. The trajectory of change was influenced by the realisation that some assessment practices were not fit for purpose. One key reason for the change was to alleviate the workload on staff and students. A lack of scalability of assessments or poorly aligned assessment strategies were also mentioned (Biggs & Tang, 2011; Bloxham & Boyd, 2007). Described as:

> "I spent all my weekends marking. And now I've realised with tools like Bigg's constructive alignment that learning outcomes can be assessed in the assignments, but they don't necessarily have to be assessed in the exam. And I was doing both, probably putting too much on the students" (Jenny, Toome, Int).

When used as part of an assessment strategy in previous practice, participants began to consider essays as problematic in an assessment strategy. A preference for students engaging in alternative assessments emerged. For example, researching a topic and making in-class presentations were introduced as one alternative (Emily, Broagh, Int). Others discontinued essays, opting for preparing a synopsis or outline on a topic for feedback with several iterations when drafting. The process is scaffolded as the assessment brief is accompanied by clear assessment criteria or a rubric. However, students are challenged to make connections and think critically about the assessment task. There was also further evidence of challenging tacit assumptions about how assessments should be designed and conducted. This involved a move to designing reliable, valid and authentic assessments (Ashford-Rowe et al., 2014; Swaffield, 2011). For example, Adam claimed to have become "a reluctant user of end-of-year exams" over time for this reason (Anahorish, Int).

The introduction of "two-stage assessment" was evident in adopting Team Based Learning (TBL) and also used to assess knowledge of practical work (Nicol & MacFarlane-Dick, 2006, p. 213). This dialogic approach requires students to continue learning after the first test by completing the assessment again under test conditions in small groups with the opportunity to discuss, negotiate and clarify responses.

The change from requiring formal laboratory reports or traditional write-ups transforms the student experience from repeating the same procedure after each laboratory session to working collaboratively and questioning methods and results.

> "we'll have dealt with the nitty gritty of the basics of the lab report and what should be in there…then it becomes more design-based, with students doing a report over for example, five labs which allow continuity and a deeper approach to learning" (Elaine, Broagh, Int).

Breaking down assessments rather than having a high-stakes examination was also evident as a change to assessment practice.

> "online quizzes all these things ...small chunks of assessment as opposed to the big exam" (Lisa, Toome, Int).

The introduction of field trips as part of the students' experience and assessment practice was mentioned by participants from Broagh and Toome, from different subject areas. Although it was noted that this required the support of the Heads of Department, it was not always supported by colleagues. The advantage to students included experiencing peer review, peer feedback and client or customer feedback. This was advantageous to a programme team focused on building community partnerships for authentic practical assessment (Markauskaite & Goodyear, 2014).

A variety of assessment strategies were suggested by participants as alternatives to traditional exams and essays or to develop professional practice. When considered in relation to the assessment artefacts students are required to produce for professional and work-based learning, they can be categorised into "accountability, pedagogical and professional" in accordance with Markauskaite and Goodyear (2017, p. 272), as indicated in chapter three. This categorisation is displayed in table 5.2, overleaf.

Type of artefact	Hybrid learning for profession	Work-place focused Learning
Accountability	**Formal tests** Multiple Choice Questions MCQs. Project work with explicit requirements and student choice and if necessary, an exam based on project work. Written assignments. Group projects with individual marking.	**Experience record** Observations for therapeutic approaches or counselling. Portfolios of evidence. Logging orienteering exercises using GPS tracking.
Pedagogical	**Educational artefacts** Oral Presentations. Poster presentations.	**Deconstructive artefacts** Field trips with reflective reports.
Professional	**Rare/hybrid professional artefact** Real life activities such as students presenting enterprise project at a trade exhibition.	**Common professional artefacts** Skills tests or Objective Structured Clinical Examinations (OSCEs). Competency-based assessment particularly on placement. Field trips with reflective reports. Simulated professional practices.

Table 5.2 Categorising assessment artefacts

James (Broagh, Int) spoke of introducing an innovative approach in developing a screencast of an exemplar of laboratory reports for civil engineering. This involved recording his voice, pen movements and written feedback when outlining the standards required in a report. The trajectory for introducing this change to practice was influenced by his engagement in a National Forum-funded initiative aimed at assisting students in the development of assessment literacies with a focus on receiving and responding to feedback. The effectiveness of using exemplars for this purpose has been reported in previous studies (O'Regan et al., 2016; Sambell &

Graham, 2020). The introduction of rubrics to make standards explicit to students, in providing feedback with opportunities for resubmissions and as a self-assessment tool was identified in interviews (Bloxham & Boyd, 2007). Rubrics with comments can assist students in improving their marks leading to a dramatic improvement for those who engaged. This was exemplified by:

> "and when you're designing your assessment, whether it's a rubric or a very detailed marking scheme, if you tell them what it is you want, they will more than likely reach it…" (Elaine, Broagh, Int).

Rubrics were devised and shared in paper format and also in Turnitin™ and the VLE as they help with consistency in marking by reducing subjectivity and making it clear to students where they got marks. However, there were also concerns about the practice of using rubrics stifling students' creativity. An example of the ripples inwards and outwards from the proto-practice reservoir in this TLR is evident in relation to comments by the external examiner who cautioned the lecturer to avoid rubrics becoming a "tick the box exercise" (Sam, Toome, Int). However, to address this, students were also rewarded for creativity, which the external examiner supported. Also arising in Toome, it was suggested that the design for rubrics needed to be broad enough to encapsulate "complex multi-disciplinary or interdisciplinary projects" whilst also accommodating creativity (Rory, Derry Garbh, Int).

Although acknowledging that rubrics were time-consuming to develop, their benefit was evident, particularly for early-stage undergraduates, to enable the development of assessment literacies (Carless, 2020; Sambell & Brown, 2021). For some, the rationale for this change to assessment practice involved a commitment to adopting an equitable and inclusive approach for students (Nieminen, 2022; Tai et al., 2021). To:

> "level the playing field for students who have not excelled using rote learning in school and to challenge those who have. Instead, they are learning industry-related skills from the start" (Emily, Broagh, Int).

Incorporating feedback approaches was a notable change to practice mentioned by all research participants. Described as a shift in feedback practice, from occurring at the

end of the learning and a transmission focus to a more contemporary approach and one that involves active participation by students (Carless, 2020; Y1Feedback, 2016b). Examples include moving from providing feedback solely in a written format to a more dialogic approach, which happened in and outside the classroom, involving lecturers, peers and others and focused on improving performance (García-Carrión et al., 2020; Mercer, 2013, 2019). Strategies included feedback during classroom teaching, on work in progress and using two-stage assessments, outlined previously, where students are required to negotiate responses in a group while under test conditions (Cantwell et al., 2017; Haberyan & Barnett, 2010; Michaelsen & Sweet, 2011).

Feedback should have a "quick turnaround to give students a chance to feedforward and improve their final submission" (Niamh, Broagh, Int). Giving first years the habit of meeting for feedback introduces a dialogic approach (Carless, 2016; Winstone & Carless, 2019). Although changes to feedback practice were reported across all sites, in Broagh the domestication of contemporary feedback practices, particularly in first-year, was evident across all data-collection points. This change was informed by engagement in professional development and funded enhancement initiatives, highlighting also the influence of ripples outwards and inwards in a TLR (Bree et al., 2020; O'Regan et al., 2016; Y1Feedback, 2016a)

When justifying the development of peer feedback skills for maintaining a professional approach and respect for peers in preparation for industry, a focus on the ideologies of "enterprise and progressivism" was again in evidence, as indicated when mapping data to the proto-practice reservoirs in Figure 4.3 and 4.4 (Trowler, 2020, p.82). In Toome, this was supplemented by Jenny. As part of their assessment of third-year quantity surveying, students were required to give presentations to first years after industry placement. This practice was justified as the third years, having worked in industry, can identify threshold concepts (described as learning thresholds) from their college or work life, which, if not fully understood, prevent students from progressing with their learning (Meyer & Land, 2003). The approach was enhanced by the classroom practice of allowing students to learn through trial and error until they have understood the threshold concept. A focus on threshold concepts for the technical aspects of animation was also reported by Rory during their interview. This practice was

introduced to enable students to progress quickly to the stage of producing creative work linked to authentic assessment (Rory, Derry Garbh, Int). Combined with allowing draft submissions with feedback at various stages before final submission, students were scaffolded throughout the module. In some cases, the introduction of peer assessment with first years at the start of the year was deemed unsuccessful and discontinued. As an alternative, it was timed for the end of the year when students have developed skills in evaluative judgement, in addition to devising and giving feedback (Tai et al., 2018). The experience highlights the need to scaffold students in developing their evaluative judgement (Boud & Molloy, 2013), devising and giving feedback to peers whilst acknowledging the emotional aspects involved in this type of reflexive practice (Ajjawi et al., 2022; Winstone et al., 2019b; Winstone & Carless, 2019). The trajectories of practices differed for each participant, depending on when they started teaching, their level of experience, and in particular, on the specific modules they selected to complete as part of their flexible pathway to a postgraduate award as their choice was based on personal and professional interests. This finding is consistent with previous studies (Rienties et al., 2013; Teräs, 2016).

5.1.4 The use of digital technologies to enhance classroom and assessment practice

The trajectory of practices was influenced by professional development and the availability of digital technologies to enhance teaching. Of significance were the stages in technological enhancements outlined in chapter three (Selwyn, 2014). James recalled the introduction of the World Wide Web to the institute in the late 1990s, "I remember sending my first email, and so much has changed since" (Broagh, Int). Figure 5.1 indicates the technologies in use arranged by the frequency of mentions in semi-structured and focus group interviews, pre-Covid19.

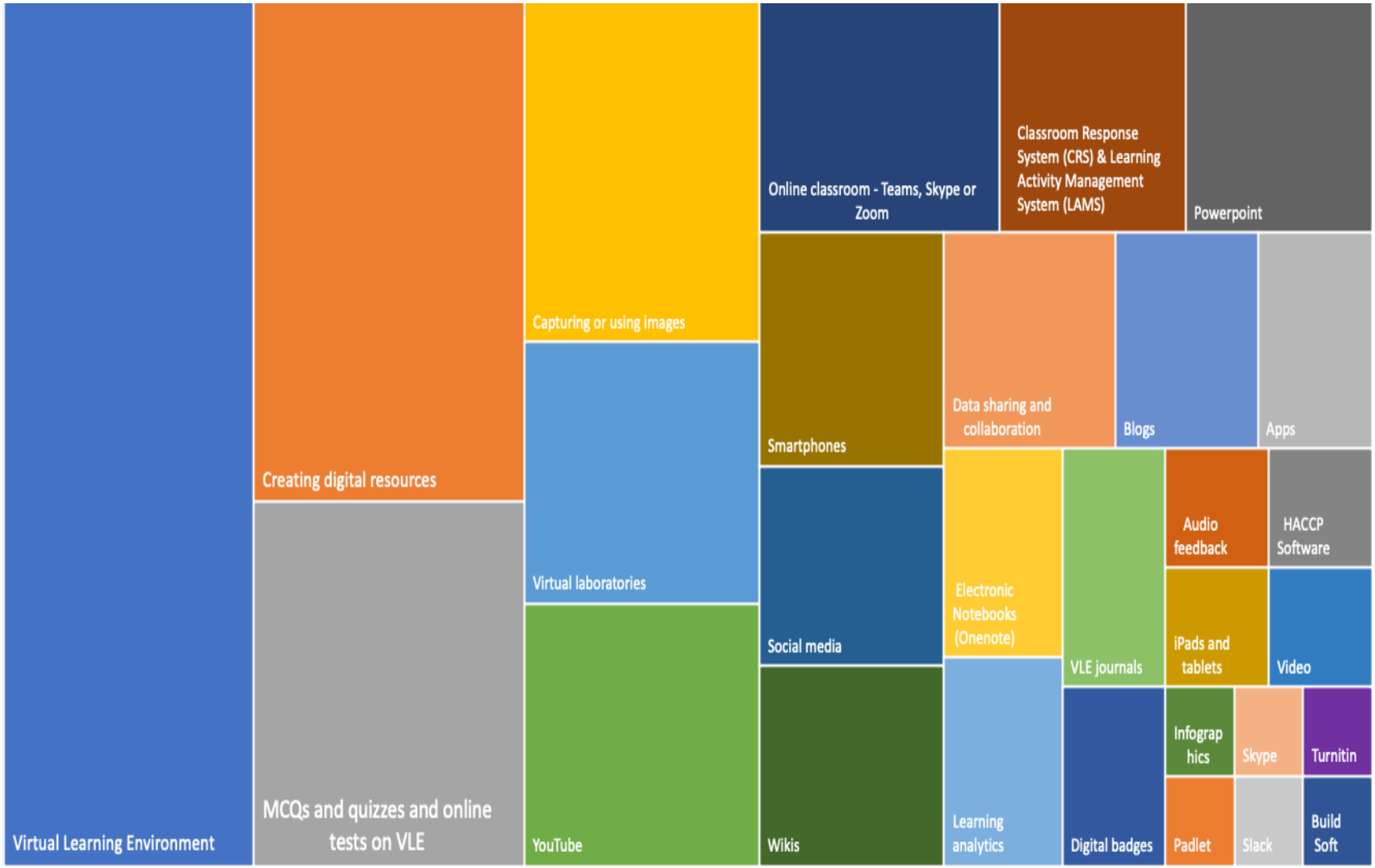

Figure 5.1 The frequency of digital tools reported

There was strong evidence that technology is viewed as a tool, when appropriate, to aid teaching. James suggested he was “neither a technophile nor technophobe, I would see technology as a tool to teach and only a tool where relevant” (James, Broagh, Int). A similar opinion was offered in Derry Garbh, “it’s not about the technology, it’s about the pedagogy” (Rory, Derry Garbh, Int).

When comparing the technologies identified with those suggested in the NMC Technology Outlook for HE in Irish Education, nine of the twelve listed in table 3.6 are indicated (Johnson et al., 2015). The use of technologies identified, such as the online classroom, electronic notebooks, virtual laboratories and the design of screencasts, also became a key part of the pedagogic practice of participants in response to Covid 19 and emergency remote teaching. In focus group interviews conducted with participants from Toome, Derry Garbh and Broagh at the end of the academic year in 2020, participants acknowledged that developing the knowledge, skills, and competence in the use of these technologies when engaging in professional development was of benefit in their response to Covid 19 when required to teach and assess online. Participants also expressed concerns for colleagues unfamiliar with these technologies if restrictions continued further.

The VLE was considered by participants an important pedagogical tool. The affordances of a VLE range across a continuum from document repository to using various elements for interaction, managing assessment and feedback and communication with students (Farrelly et al., 2018). However, some viewed the VLE as a restrictor of practice as it stifled creativity or was irrelevant to their practice (Beasley, 2012). Anna recalled being introduced to the VLE in the early 2000s, but she did not think it suited her subject. Having completed the postgraduate programme when she was required to use different features as a student changed her view, commenting, "it is now critical to everything I do" (Broagh, Int), indicating how tacit assumptions can be changed through engagement in professional development.

In Broagh and Derry Garbh, Classroom Response Systems (CRS) were used to generate discussion, engage and motivate students and provide timely feedback to students and to the lecturer during class time. The use of CRS was in evidence during two classroom

observations. The impact of using these technologies to generate discussion or clarify misconceptions has been documented previously (Y1Feedback, 2016b). According to Maria, in requiring students to use technologies, they were "motivated to learn something because they would realise that this is something they're going to need in their work or to complete their project" (Maria, Broagh, Int). The emphasis on motivating students is what drives lecturers to "adopt good practices" (Maria, Broagh, Int). Therefore, this multi-modal approach was incorporated into pedagogic practice to increase student motivation (Molek-Kozakowska, 2022). The impact on students learning was described as when students "engage with different technologies" as part of their practice, "they learn transferable skills" (Maria, Broagh, Int). This is in keeping with studies focusing on academic and digital literacies (Goodfellow, 2011; Lea & Goodfellow, 2013). Therefore, incorporating appropriate technologies was considered justified in order to ensure that students develop digital literacies which can transfer to other settings (Killen, 2015). Quizzes, either paper-based or, using a CRS when used anonymously, allow students the opportunity to correct and clarify misunderstandings and participants, if using them in their practice considered them effective, particularly for first years, to increase engagement in a safe environment (Y1Feedback, 2016b). Some participants had started with paper-based and moved to use various digital alternatives. MCQs quizzes and online tests were the third most frequently mentioned technology. Highlighting the impact of the case programme on the use of technologies, their trajectory, including adopting and discontinuing use, Maria commented that it

> "really gave a good focus because we all got exposed to a lot of different technologies and some of them, I still use, and others dropped off the radar, but it gave me that interest to try new technologies" (Maria, Broagh, Int).

Participants reported using quizzes on the VLE, considering them to be beneficial to students by providing immediate feedback to the student and excellent feedback to the lecturer. As engaging in quizzes on the VLE is not limited to the physical classroom, they are considered an inclusive, flexible and student-centred approach (Nieminen, 2022; Tai et al., 2021). The flexibility affords the opportunity for students to engage when it suits them, with immediate feedback. Quizzes such as MCQs are also for used summative assessment with some variety in question types including the use of

images. However, others had changed assessment practice and were no longer using MCQs because their experience was that students were guessing or ticking the box, indicating that MCQs need to be designed well. Their preference was to design assessments requiring the application of knowledge.

The use of these current technologies emphasises the significance of materiality and the shift in practice, breaking away from the traditional linear approach to "text, time and place" to using the affordances to enhance student learning inside and outside the classroom (2014, pp. 26–27). For example, mediated through technology, the use of the flipped classroom and flipped laboratory was mentioned by participants in Broagh, Anahorish, Derry Garbh and Toome either in semi-structured or focus group interviews or both. This practice involves students engaging with materials selected or designed by the lecturer, shared through the VLE in advance of class, leaving class time to focus on discussion and problem-solving (Johnson et al., 2015; NFETL, 2015; Toivola et al., 2022).

One variation on the approach which was reported by Maria (Broagh, Int and FG Int) is the introduction of Team Based Learning (TBL), a pedagogic approach developed by Michaelson and Sweet, which requires a significant change in practice (2011). Adopting this strategy was informed by a change initiative introduced in the institute, funded by the National Forum. Students engage with resources collated by the lecturer and shared on the VLE, in advance of the class. At the start of class, students first complete an individual readiness assurance test. This test is then repeated in their team, requiring negotiation. These Multiple Choice Question (MCQ) tests are conducted using a selected technology platform with students using mobile devices. TBL is underpinned by social constructivism, and a key aspect is an interactive element which follows the initial assessments and involves students engaging in application exercises on the topic and presenting findings over a series of classes during the semester (Michaelsen & Sweet, 2011; Parmelee et al., 2012; Sweet & Michaelsen, 2012). TBL requires a dialogic approach and is in keeping with the development of the "social brain" advocated by Mercer, as the preconditions for TBL include "open-ended tasks", "higher order questioning", and engagement with peers and the lecturer (2013, 2019, p. 260). The contrast between TBL and the recurrent transmission-focused practices at

the early-career stage is stark. However, the trajectory of change to practice described by Maria, was conditioned by engagement in the postgraduate programme, an interest in classroom technologies and a desire to increase student engagement, indicated by:

> "the student response systems, on foot of doing my Pg. Dip., I applied to the National Forum for funding and got lovely clickers (laughter). You know that was a good opportunity, and probably if I hadn't done the Pg. Dip. I may never have gone down that road"(Maria, Broagh, Int).

This type of change from traditional classroom practice was also commented on by Elaine, "… so what I've gotten rid of is the silence" (Broagh, Int). She outlines how she transformed laboratory practice by flipping her laboratory classes and discontinuing the traditional practice of daily "recipe-based" laboratory reports by introducing Electronic Notebooks (ELNs) for data collection and collaboration (Bree et al., 2020). Her practice changed from waiting until correcting reports at the end of the learning cycle or semester to identify where students had misunderstood concepts to establishing a process for identifying issues during teaching (Winstone & Carless, 2019). Requiring a change to the assessment strategy and introducing a new technology to support co-creation and collaboration between students and the lecturer in real-time, the change to practice introduced a new dynamic to the experience for both student and lecturer and included timely feedback (Sambell et al., 2019). The trajectory for this change was aligned to engagement in the postgraduate programme and acting as a change agent by acting as disciplinary lead on a funded change initiative in the faculty, focusing on Technology Enhanced Assessment Methods (TEAM) in science and health settings (Bree et al., 2020).

> "The TEAM project, I suppose in terms of our department, has helped facilitate change...I was the lead and I suppose the ideas become the norm...it's changing the way they teach, but it's also changing the students" (Elaine, Int, Broagh).

A similar approach was used in Anahorish by Adam for students working on projects involving programming code, with the addition of learning analytics to track the development of the student work (Johnson et al., 2015). Adam was an early adopter of the VLE into his practice as he commenced on the flexible pathway after starting teaching. This approach was mediated through an alternative platform with increased

functionality. Although, in keeping with Selwyn (2014) the issue of the ethical use of learning analytics or student data was considered when adopting this practice described as “Big Brother versus engagement and motivator for students?” (Adam, Anahorish, Int). However, in this case, the lecturer justified the approach, which prompted an intervention or follow-up with students deemed at risk (Selwyn, 2014). Learning analytics were also used in an alternative way in Toome, to respond to colleagues who were sceptical of introducing the flipped classroom to first years. Lisa (Toome, Int) reported she used data from the VLE to demonstrate the level of student engagement after the introduction of this change initiative by a new member of staff, indicating a normative re-educative approach to change management as a new head of department (Trowler et al., 2002).

Four significant changes to traditional laboratory classes and assessment practices in both science and engineering, identified in table 5.3, required changes to recurrent practices, embodied behaviours and involved the agentic use of physical and digital resources (Trowler, 2020). They involved challenging the tacit assumptions and discursive repertoires of practices in a laboratory class for both lecturer and students. The use of images in the laboratory setting was also reported as a change to practice mediated through specialist technologies and supporting a multi-modal approach allowing access to samples which could not be prepared for ethical reasons.

Each of the changes to laboratory practice reflects an emphasis on combining an authentic learning environment with authentic assessment whilst encouraging meta-cognition and the development of digital and assessment literacies (Ashford-Rowe et al., 2014; Bree et al., 2020; Killen, 2015; Meyers & Nulty, 2009; Newmann et al., 1996; Swaffield, 2011). Table 5.3, overleaf, outlines these changes by case study site. Although the conditioning factors are discussed in detail in section 5.4, they are identified also.

Site	Discipline/subject	Change to practice	Conditioning factors - scaffolders
Toome	Mechanical Engineering	Laboratory session followed by an online quiz as an alternative to the traditional laboratory report, providing immediate feedback to lectures and students.	Professional values Postgraduate modules National Forum funded change initiative Centre for Learning and Teaching.
Broagh	Biology	Flipped laboratory - where students are required to engage information prior to the lab and complete a quiz before the practical commences.	Professional values Postgraduate modules National Forum funded change initiative Centre for Learning and Teaching Collegiate departmental culture.
Anahorish Derry Garbh	Computer Programming	Flipped laboratory - supported by digital tutorials and engaging in exercises or with selected resources in advance of class. The dynamic changes with less time spent on a traditional pre-lab talk. The approach transforms the traditional lab experience for both lecturer and student with a shift from working on minor problems to focusing on more complex areas.	Professional values Postgraduate modules National Forum funded change initiative.
Broagh	Cell Biology	Traditional laboratory report completed once by students followed by collaborative engagement by lecturer and students using an Electronic Notebook (ELN) to work on data over an extended period to link theory with practice and develop industry-related skills.	Professional values Postgraduate modules National Forum funded change initiative Centre for Learning and Teaching Collegiate departmental culture.

Table 5.3 Significant changes to traditional laboratory practice

Findings show evidence of the introduction of pedagogic practices which focus on linking theory to practice in line with the ideologies of “enterprise and progressivism”

identified when mapping data to the proto-practice reservoirs of a TLR (Trowler, 2020, p. 82). They are associated with the remit of the Irish technological higher education sector, in terms of preparing students for the workplace.

5.1.5 Triangulation of data

Rather than relying on self-reporting and the "discursive consciousness" and "practical consciousness associated with interview situations (Giddens, 1984, p. 49), the findings from semi-structured and focus group interviews are triangulated with the other methods of data collection. To address the SPT element of "competence", the dimensions of teaching were observed (Shove et al., 2012, p. 14). Table 5.4, indicates the dimensions which were evident for each participant during the teaching session using the University of Southern Australia (UNISA) developmental model for peer review (2014), discussed previously and adapted for the study (Appendix three).

Participant	James	Anna	Maria	Emily	Leah	Evanne	Rory	Dean	Jenny
Discipline	Engineering	Social Care	Science	Science	Anatomy and Physiology	Psychology	Animation	Accountancy	Quantity Surveying
Title of lesson observed	Light - density - reflection - refraction - spectrum	Interactional approaches to Social Care	Basics of Pharmacology	Designing research posters	Heat treatments in SPA management	Abnormal Psychology	Digital skills for animation	How to account for VAT	eTendering
Location	Engineering Science laboratory	Creative laboratory	IT laboratory	IT laboratory	Flat classroom	Tiered lecture theatre	IT laboratory	Tiered lecture theatre	IT laboratory
Dimensions of Teaching Observed									
Students are actively engaged in learning	Didactic	Evident	Evident	Evident		Didactic	Evident	Evident	Didactic
Students' prior knowledge and experience is built upon	Evident	New concept	Evident	Evident	Evident	New topic	New skills	Evident	Evident
Teaching caters for student diversity	Evident	Evident	Evident	Evident	Evident	Evident	Evident	Evident	Evident
Students are encouraged to develop/expand their conceptual understanding	Evident	Evident	Evident	Evident	Evident	Evident	Evident	Evident	Evident
Students are made aware of key learning outcomes	Evident	No reference to LOs	Evident	Evident	Evident	Evident	No reference to LOs	Evident	Evident
Actively uses links between research or industry and teaching	Evident	Evident	Evident	Evident	Evident	Evident	Evident	Evident	Evident
Uses educational resources and techniques appropriately	Evident	Not relevant	Evident	Evident	Evident	Evident	Evident	Evident	Evident
Presents material logically	Evident	Not required	Not required	Evident	Evident	Evident	Evident	Evident	Evident
Seeks feedback on students' understanding and acts on this accordingly	Evident	Evident	Evident	Evident	Evident	Evident	Evident	Evident	Evident

Table 5.4 Mapping observations to the dimensions of teaching to address competence

Although didactic approaches were observed, a focus on student engagement, linking research to teaching and facilitating student diversity was evident. However, the UniSA model is limited as it primarily focuses on the actions of the lecturer as an individual. Therefore, relying solely on these dimensions does not give a full account of the practices of both staff and students in the classroom. In adapting the model and classroom observations through the inclusion of the SPT elements of materials, competences and meanings, I provide a more detailed description of what was observed in the classroom. To supplement the UniSA model, both the lecturer and student practices were observed during the teaching sessions in addition to the physical and digital infrastructure. These finding are outlined in tables 5.5, 5.6 and 5.7.

Title of lesson	Physical infrastructure	Digital infrastructure	Teaching Practices	Students Practices
Light - density - reflection - refraction - spectrum Duration: 2 hours Participant: James Broagh	Modern Engineering Science laboratory with workstations in vertical rows facing screen. Suitable for lesson.	Computer, projector, and screen.	Didactic initially – 20 minutes telling students information. Use of humour and analogies and relating to everyday – Bart Simpson and the Black Hole, Professor Brian Cox, Astrophysicist Examination preparation - sample questions and exam tips, marking and weighting and lab report submissions. Answering questions for students at this stage. Prepared experiment briefs circulated. Demonstration of techniques used in measurements and explaining. Questioning/checking for understanding and redirecting questions. Moving around the room to each student when completing tasks. Seeking feedback and clarifying misunderstanding. Actively linking examples from industry to class. Consolidation of lesson.	Listening, commenting, and questioning. Completing measurements and calculations in pairs at pre-arranged workstations. Comparing and discussing results and seeking clarification from lecturer. Students required to relate classwork to industry, giving examples. Answering questions during consolidation phase.
Interactional approaches to Social Care – material fixedness Duration of class: 2 hours Participant: Anna Broagh	Creative laboratory Space allocated to creative work with two large tables and materials for artwork/creative work. Suitable for lesson.	Projector, and screen. (No computer available).	Explaining paper-based practical exercise for use with clients using the theme “empathy. Probing questions to justify choices interaction with groups. Moving around the room to each student group and making suggestions for resources to use when completing tasks. Focusing on building confidence and creating a safe environment. Students encouraged to develop concepts and apply to future scenarios in the workplace. Feedback given regularly – peer to peer and lecturer to student. Photographs for shared blog.	Working in groups to complete task. Selecting materials and ideation to problem solve. Discussions with peers. Presenting and justifying design to lecturer. and work group as safe space for sensitive topic. Taking photographs with smartphones.
Basics of Pharmacology – metabolism of drugs Duration of class: 2 hours Participant: Maria Broagh	IT laboratory with fixed seating and moveable seating. The space was unsuitable for a lesson using Team Based Learning as movement for both students and the lecturer were restricted.	Computer, projector, and screen. Classroom Response System (CRS). Student computers, which were not required for the lesson.	Provide pre-prepared materials on the VLE in advance of class. Facilitating session using the TBL sequence. Managing readiness assurance tests. Monitoring students as they progress through application exercises. Socratic questioning. Moving around the room to each student when completing tasks. Use of humour. Facilitating gallery walk.	Students complete Readiness Assurance Process (RAP) in advance of class using pre-prepared materials. Students complete Individual Readiness Assurance Test (IRAT) on paper. Teams complete Team Readiness Assurance Test (TRAT) using CRS on phones. Students engage in applications exercises related to topic. Answers displayed simultaneously and debated. Students present and critique work in a gallery walk.

Table 5.5 Analysis of observations - physical and digital infrastructure and classroom practices

Title of lesson	Physical infrastructure	Digital infrastructure	Teaching Practices	Students Practices
Designing scientific research posters Duration of class: 2 hours Participant: Emily Broagh	Modern and large IT Laboratory with fixed tables and moveable seating which allowed groups work together. One long wall used for display and review of exemplar posters. Suitable for lesson.	Computer, projector, and screen. Student computers.	Briefing student using a combination of Power Point, and the VLE including assessment brief and rubric for scientific posters. Managing groups in the design of posters. Facilitating the critique of exemplar posters. Monitoring progress, all draft posters were reviewed, and feedback given. Lecturer used student names and gave feedback individually and in groups. Questioning choices made. Moving around the room to each student when completing tasks. Clarifying requirements for printing and public display of posters.	Working individually and collaboratively in groups to design scientific posters. Using computers for research and design. Questioning. Critiquing exemplar posters. Roleplaying presentation of exemplar posters – questioner and presenter roles.
Heat treatments SPA management Duration of class: 3 hours Participant: Leah Broagh	Flat classroom with moveable tables and chairs. Suited to lesson as the furniture could be rearranged to suit.	Computer, projector, and screen.	Review of visit and practice session in care facility. Use of Power Point to introduce imagery, videoclips and activities. Demonstration of techniques with physical examples of all heat therapies available in a contemporary spa. Questioning, relating to management role. Moving around the room to each student when completing tasks. Feedback sought and lesson adapted to ensure clarification of concepts or techniques which were not understood. Use of humour.	Feedback and review of experiences, responses linking to care settings and business opportunities. Watching and listening to presentation. Engaging in activities at various points during class. Application of techniques. Active engagement in discussion and feedback based on industry experience
Abnormal Psychology Duration of class: 2 hours Participant: Evanne Derry Garbh	Tiered lecture theatre, which was dated, seating in need of repair. The space was unsuitable. A flat classroom with moveable seating would be more appropriate for the lesson as movement for both students and the lecturer were restricted. Movement was restricted when checking for understanding or if students were engaging in small group activities.	Computer, projector, and screen. Classroom Response System (CRS).	Use of PowerPoint to introduce and sequence lesson. Use of Rorschach inkblot cards physical and on YouTube, a projective test used in psychology. Menti™ (Classroom Response System) Word cloud and a sentence completion test to ascertain student perceptions. The Draw a Person Test, Beck Depression Inventory and Personality Inventories were used as points for discussion. Questioning and redirecting questions, seeking feedback, and adapting the lesson to accommodate any points requiring clarification. Linking to practical laboratory sessions. Quiz for review.	Listening. Providing opinions/reactions to images. Discussing. Questioning. Use of smartphones for CRS responses to Word Cloud activity, sentence completion tests and quiz for review.

Table 5.6 Analysis of observations - physical and digital infrastructure and classroom practices (Continued)

Title of lesson observed	Physical infrastructure	Digital infrastructure	Teaching Practices	Students Practices
Digital skills for animation Duration: 3 hours Participant: Rory Derry Garbh	Modern IT Laboratory. Furniture arranged to allow students view large screen used by lecturer.	Computer, projector, and screen. Student computers.	Using the computer, screen, and Adobe High Definition (HD) software to create a soundscape. Presented a step-by-step approach to creating a soundscape in response to student questions. Focus on "playing with the software." Moving around the room to each student when completing tasks. Moving from teacher-directed – explaining and demonstrating to encouraging peer-to-peer work to resolve issues. Classroom Assessment Technique – Minute Paper used at the end of the session to capture anonymous feedback to determine areas of focus for the next session.	Students questioning – rendering videos, managing files and sound. Students worked individually at computers, completing each step in the process. Students actively engage with the lecturer when seeking clarification or if requiring the demonstration of a technique to be repeated. Where issues arose, these were solved by engaging with peers or the lecturer. Complete Minute Paper at the end of class.
How to account for VAT Duration: 1 hour Participant: Dean Toome	Tiered lecture theatre which was dated with podium. Whiteboard	Computer, projector, and screen. Student computers.	Use of PowerPoint to introduce lesson. Accounting exercises related to current topics and businesses presented for completion after worked example on whiteboard. Exercise on VAT payment for a 5-star hotel from a business section in newspaper. Questioning and checking for understanding with application to common SMEs and services. Solutions presented after student worked on examples. Moving around lecture theatre to discuss solutions and answer queries. Use of humour and examples relevant to students.	Listening. Completing exercises on paper. Students volunteering to talk through and complete exercises on whiteboard. Questioning lecturer.
eTendering Duration: 2 hours Participant: Jenny Toome	Modern IT Laboratory with dual screens. Very suited to class.	Computer, projector, and screen Student computers	Didactic initially – revising previous lesson using PowerPoint which student could download and annotate. Practical tasks explained to students, in keeping with industry requirements – preparing eTenders. Linking to personal experience and requirements for placement. Questioning and checking for understanding. Moving around the room to each student when completing tasks. Review and feedback at the end of lesson in preparation for next class.	Listening and annotating slides. Students working individually and in pairs at computers, completing questions relating to eTendering. Completing Gapfill questions of on VLE. Questioning lecturer.

Table 5.7 Analysis of observations - physical and digital infrastructure and classroom practices (Continued*)*

As indicated, some didactic approaches were observed. The descriptions highlight the change from a traditional transmission approach. Findings also include the use of multi-modal artefacts and strategies to increase staff and student dialogue and reciprocal engagement. The approaches used by participants engaging in an inquiry approach when using TBL as a pedagogic approach or when implementing creative approaches without constraints with social care students had the highest levels of student-to-teacher and peer-to-peer interactions, in keeping with previous findings and reports (Connolly et al., 2022; Looney, 2022; Michaelsen & Sweet, 2011; Sweet & Michaelsen, 2012).

Depending on the class and topic, various practices were employed by the lecturers to address the SPT element of meanings, including the use of multi-modal teaching artefacts and digital technologies. In keeping with codes of signification in a TLR (Trowler, 2020), using visuals and imagery to explain concepts or skills or to generate discussion and emotive responses was evident (Zheng, 2019). Practices to increase dialogue and the relational aspect of teaching were observed, including the use of reciprocal feedback. Maria (Broagh) uses the approach as part of TBL which was referred to in their interview when discussing face-to-face teaching, the focus group interview when discussing how they adapted to emergency remote online teaching and their classroom observation session was implemented through TBL.

In triangulating the data, the SPT element of materiality and the design and purpose of the artefacts used in the situated practice of the participants in the TLR was examined further. Table 5.8, overleaf, outlines the artefacts selected by participants to share with me to represent current practice, which provides further evidence of materiality in interaction, competences and meaning-making.

When examining the artefacts shared, with reference to the eleven moments of the TLRs it is evident that, for example, in the design of assessments and rubrics, participants are deliberately trying to inform students of the rules of the game to avoid them making tacit assumptions. The use of images as codes of signification was also evident in both PowerPoint slides and digital tutorials (Zheng, 2019).

Site	ID	Subject	Artefact	Purpose in practice
Broagh	Niamh	Psychology	Digital tutorial or screencast.	Created for students to use to recap on difficult concepts and for revision.
	James	Geology/ geotechnology	Assessment brief.	Devised to make the requirements and standard explicit in student-friendly language.
	Grace	Molecular biology	Alternative assessment to terminal exam.	Design of an open book examination in response to Covid 19.
	Anna	Social care - creativity	Blog for student creative work.	Open access blog created for sharing and reflecting on creative work by lecturer and students.
	Elaine	Cell biology	Digital tutorial or screencast.	Created for students to use to recap on difficult concepts and for revision.
	Maria	Biochemistry	TBL Application exercises.	Exercises purposefully designed to engage student teams in the application of new knowledge.
	Emily	Environmental management	Assessment brief including rubric.	Devised to make the requirements and standard for scientific poster explicit in student-friendly language for first years.
	Leah	Anatomy and physiology	PowerPoint slide deck.	Designed to structure an interactive teaching session, with selected images and video clips embedded with signposting and details of student activities.
Anahorish	Adam	Web programming	Two digital tutorials or screencasts.	Created for use by students as part of a flipped lab approach. Students engage with tutorials in advance of teaching and use MCQs for testing with immediate feedback.
Derry Garbh	Evanne	Abnormal psychology	PowerPoint slide deck.	Designed to structure an interactive teaching session, with selected images and video clips embedded, signposting and details of student activities, in combination with CRS.
	Rory	Animation	PowerPoint slide deck.	Designed to structure an interactive lab teaching session focusing on threshold concepts, with selected images and tasks embedded.
Toome	Dean	Accountancy	Digital tutorial.	Created for use by students as part of a flipped class approach. Students engage with tutorials in advance of teaching. Made available with MCQs for testing with immediate feedback.
	Sam	Outdoor education /environmental management and conservation	Module descriptor with accompanying assessment brief, rubric, and feedback sheet.	The module learning and teaching strategy adopts a flipped classroom approach. The assessment strategy is devised not just to measure knowledge but to challenge students to think critically and devise solutions. Students can submit drafts for feedback on both assignments for module completion.
	Jenny	Quantity Surveying	PowerPoint slide deck.	Designed to structure an interactive teaching session, with selected images and tasks embedded.

Table 5.8 Digital artefacts submitted to represent practice

Although interview data showed the use of PowerPoint was one of the practices many participants reported had been displaced, it is evident that it is still used, albeit in a more sophisticated way. There is an emphasis on PowerPoint to provide structure and signpost interactive elements in a teaching session. Images and videos were also embedded to convey meaning or evoke emotive responses from students (Zheng, 2019). Leah (Broagh), teaching Anatomy and Physiology, and Evanne (Derry Garbh), teaching Abnormal Psychology, used PowerPoint, with images and embedded video clips selected to offer explanations or promote discussion and reactions from students. Interactive elements were signposted in the slides, and details of the student activities were outlined. Similarly, Rory (Derry Garbh) used PowerPoint in an animation laboratory session, structured according to threshold concepts. These contrast significantly with early-career practices where PowerPoint was used as part of a didactic or transmission-focused teaching session when students remained as passive recipients.

The use of resources to support flipped approaches was also evident with an emphasis on encouraging student engagement, both in and outside the classroom, including in advance of teaching sessions, allowing the lecturer to take up the role of “guide on the side”, “facilitator” or as a “meddler in the middle” (McWilliam, 2008, p. 263). In combination with the artefacts as observed in the classroom (See tables 5.5 - 5.7), the shared digital artefacts provide evidence of how participants use the “agentic power of materials” to support their approaches to learning, teaching and assessment both within and outside both the physical and virtual classroom (Shove et al., 2012, p. 45).

The digital artefacts offer the opportunity to confirm participant responses in interviews specifically in relation to TBL, threshold concepts for animation, and design of scientific posters by first years for review in public, integrating rubrics into assessment practice, using imagery and video and the use of timely feedback.

5.2 Why do teaching staff choose to adopt or discontinue some pedagogic practices?

Trowler and Cooper suggest that all "practice is underpinned by theory which regularly is tacit and can be of poor quality", but when made explicit and carefully explored, can

be valuable (2002, p. 223). The theoretical perspective a lecturer holds will inform the pedagogic practices they adopt or discontinue and will also influence their interactions within a workgroup and their contribution to a change agenda.

5.2.1 Making the implicit explicit, learning theory underpinning practice

Tables 5.9 and 5.10 outline the learning theories and theorists which were mentioned explicitly by the participants in semi-structured or focus group interviews.

Theory	Theorist/s	Mentioned by	Practices	Sites
Social constructivism	Lev Vygotsky	Anna, Ellen, Maria, Emily, Rory, Laura, Jenny, and Adam.	Classroom, assessment and feedback practice.	Broagh Anahorish Derry Garbh Toome
Behaviourism	Ivan Pavlov and B. F. Skinner	Emily, Adam, Claire, and Grace.	Teaching skills-based subjects.	Broagh Anahorish Derry Garbh
Zone of proximal development	Lev Vygotsky	Aaron, Dean, and Lisa.	Classroom, assessment and feedback practice.	Derry Garbh Toome.
Scaffolding	Lev Vygotsky	Anna, Adam, Aaron, and Claire.	Classroom, assessment and feedback practice.	Broagh Anahorish Derry Garbh Toome
Banking theory	Paulo Freire	Dean.	VLE – quizzes and screencasts	Toome
Pedagogy of the oppressed	Paulo Freire	Dean.	Classroom, assessment and feedback practice.	Toome
Deschooling society	Ivan Iilich and Paulo Freire	Dean.	Classroom, assessment and feedback practice.	Toome
Threshold concepts	Ray Land	Jenny and Rory.	Classroom, assessment and feedback practice.	Toome Derry Garbh
Constructive alignment	John Biggs	Maria, Laura, Jenny and Rory.	Programme and module design. Classroom, assessment and feedback practice.	Broagh Toome
Hierarchy of needs	Abraham Maslow	Claire.	Classroom, assessment and feedback practice.	Toome
Bloom's Taxonomy	Benjiman Bloom	Claire.	Programme and module design.	Toome
Experiential Learning Model	David Kolb	Lisa, James and Sam.	Design of apprenticeship programme. Classroom, assessment and feedback practice.	Toome Broagh

Table 5.9 Learning theorists and theories referred to by participants

Theory	Theorist/s	Mentioned by	Practices	Sites
Novice to expert	HL Dreyfus and SE Dreyfus	Leah.	Classroom, assessment and feedback practice to scaffold learning.	Toome
Idea of the university	Cardinal John Henry Newman	James.	Classroom, assessment and feedback practice. Project-based learning	Broagh
Unlearning how to teach	Erica McWilliam	Rory.	Classroom, assessment and feedback practice.	Derry Garbh
Approaches to learning	Ference Marton and Roger Säljö	Jenny.	Classroom, assessment and feedback practice.	Toome

Table 5.10 Learning theorists and theories referred to by participants (Continued)

It was also evident from the descriptions of practice in interviews, classroom observations and the digital artefacts submitted that implicit learning theories were shaped by the dimensions of social practice, namely, "relating, feeling and valuing" (Trowler, 2014. p. 11). Each of these dimensions shapes the practices that are adopted or may be discontinued. For example, Anna indicated her classroom practice was based on the values of creativity as a subject. This involved working with students through facilitation as part of a team with interactive group work and application of learning to situations which may arise in the workplace. Anna sees her role as moving students from novice learners to competent professionals. A commitment to social reconstructionism and social entrepreneurship was evident in the class-based activities during the observation, with students being scaffolded at the start leading to more freedom and independent learning, an essential part of creativity.

Additional implicit learning theories underpinning practice were also in evidence, particularly in relation to classroom practices, use of technology and assessment design. Maria suggested her practice was underpinned by social constructivism but commented about the role intuitive responses play in practice "I think a lot of what we do is intuitive as well. So you're working to a particular theory, but you don't necessarily know what it is" (Maria, Broagh, Int).

Developing student self-esteem and self-efficacy was considered a key aspect of practice, and the remit of the technological higher education sector, including the ideology of social reconstructionism, is in evidence.

For Sam, treating students as individuals and adopting teaching to suit was considered a professional value:

> "a lot of students are the first in their family to attend third level or get a degree…for some it is a big struggle because they are up against the culture at home, where they were brought up, their school etc" (Sam, Toome, Int).

Implicit learning theories underpin assessment practice leading to practices being adopted or discontinued, which were informed by a commitment to implementing authentic assessments, or assessments that enable students to transfer their knowledge, skills and competence to other scenarios or contexts outside of the classroom (Ashford-Rowe et al., 2014; Swaffield, 2011). Being too vague with students in relation the standards expected in an assignment, was considered poor practice and discontinued, which was common occurrence across all sites. One respondent spoke of the "Pygmalion effect…your expectations effect students" (Laura, Toome, Int).

Or suggested by another:

> "it makes sense that you had to outline to students what was expected of them, it makes sense when you gave them an assessment you would tell them how it will be graded what you were looking" (Niamh, Broagh, Int).

Jenny acknowledged she initially had a "teacher-led strategy" which changed to "one hour me and the rest of it, let's get them interacting" (Jenny, Toome, Int). A practice confirmed in the observation of teaching on the topic eTendering (Table 5.7). However, during the interview, Jenny also expressed concern about how to engage "generation Z" (Meeks et al., 2013, p. 1). She committed to developing her practices further to include gamification and the flipped classroom. Underpinned by threshold concepts and authentic assessment, this change to pedagogic practice was being considered to motivate students and increase their engagement in learning (Ashford-Rowe et al., 2014; Johnson et al., 2015; Marton & Säljö, 2005; Meeks et al., 2013). For Jenny, the value of being open to change in practice and responding to feedback in the class was considered key to successful teaching (Baume, 2011). This also indicates how practices are shaped and influenced by context and subject to change.

The value of being open to change, specifically the need to remain open to new ideas both in their discipline and the teaching of the discipline, was apparent amongst all participants. Undertaking the postgraduate diploma on a voluntary basis indicates this was not necessarily a change in practice. However, the value was made explicit throughout the flexible pathway, and the commitment to continuous improvement was evident.

5.2.2 The impact of Covid 19 on the choices to adopt or discontinue selected pedagogic practices

When questioned about the immediate impact of Covid 19 on practice, participants indicated emotive responses such as uncertainty, isolation, and anxiety about what was coming next (Leal Filho et al., 2021). In identifying pedagogic practice as social practice, the sense of isolation was summed up by one respondent in a focus group:

> “I have to say, over the past few months I suppose, I never felt as alone as a lecturer. I missed going down my corridor, my community of practice is my corridor. It’s the building, it’s meeting people and asking questions and that was gone. And, you know, I really lamented that, it was such a huge loss” (Maria, Broagh, FG Int).

This finding has been identified also in recent studies (Leal Filho et al., 2021). This sense of isolation also occurred among students leading to concerns being reported about drop-out rates on the return to college (O’Brien, 2022a; Williams, 2022).

It was apparent that many tacit assumptions were held about teaching, especially where students continued to do their work with less direction. Niamh commented:

> "I learned to trust students to do the work on their own. Letting them do more themselves without having to hold their hand” (Broagh, FG Int).

Teaching online was challenging for most participants as it was not how they ever envisaged teaching, a common reaction across Broagh, Derry Garbh. This comment reflects the reaction which drew emotive responses, it also captures conventions of appropriateness expected for staff and students:

> "I did not sign up to teach online or for students to see my rooms" (Evanne, Derry Garbh, FG Int 2).

however, there was also a very strong feeling that students should not be disadvantaged, particularly those with broadband issues. Changes to practice identified during the initial restrictions included:

- recording screencasts for sharing on the VLE.
- using more interactive features in the VLE.
- providing worked examples with a camera using screencasting software.

However, for some, this involved a steep learning curve in addition to spending extra preparation time. Responding to Covid 19, saw the introduction of new technologies to continue provision, for example:

> "the enhancement initiative to support staff with Team Based Learning was devised for face to face and had to be redesigned to offer online" (Maria, Broagh, FG Int).

Moving to an online version required sourcing and getting approval for introducing a new platform or Learning Activity Management System (LAMS) and, in turn, developing the expertise to train staff involved in implementing TBL online (Bullock, 2021; Lee & Son, 2011).

However, the most dramatic change was in relation to assessment practice, particulalry, in the design of alternative assessments and supporting students. Examples included changing a three-hour exam to MCQs with different question types to ensure the assessment was valid (Sambell & Brown, 2021). Considered very time-consuming, the change was fair for students. Having worked really well, this change will be continued as part of practice.

> "The work I put in there certainly will be useful to me…I can build on it" (Grace, Broagh, FG Int).

Participants in Broagh, Anahorish and Derry Garbh increased student agency by including students in the design of alternative assessments, leading to a more inclusive

approach to practice. For one respondent moving from final exams to MCQs and continuous assessment was justified to address disadvantaged students with broadband issues and assumptions that they have uninterrupted access to technology (Nieminen, 2022; Tai et al., 2022). This change in assessment practice rebalanced the power relations that usually existed between staff and students by giving students agency in the design (McDowell & Sambell, 1999). Examples of students collaborating in the design of alternative assessments to make them feel at ease and address concerns about online assessment occurred in Broagh, Derry Garbh and Toome.

The introduction of open-book assessments was another change to practice. With Masters level students, this was introduced to give broader scope and ensure the approach taken by students was more exploratory. Initial concerns that students would "just reproduce lecture notes" were unfounded, and this change will be retained as part of their practice. (Grace, Broagh, FG Int). There were other examples of retaining open book assessments "not necessarily as an end-of-year exam but as a different form of assessment" (James, Broagh, FG Int). Additional changes to assessment practice included the submission of portfolios of evidence. Participants indicated that any effective changes to assessment practice would be retained after Covid, particularly where they were deemed fairer, more reliable and valid (Bloxham & Boyd, 2007).

However, there were challenges to assessment practice during Covid 19. For those still using laboratory reports, the main challenge was submitting laboratory work. Moving from hardcopy to digital, particularly where students did not follow instructions provided, made submissions very difficult to read and time-consuming to correct. Although there was overall agreement that, in general, the new online assessment practices, or at least elements, would be retained, concern was raised in terms of equity of access to broadband, computers and spaces suitable for learning and completing assessments, reflecting the agentic effect of the material environment for both staff and students. Exacerbated by the move to emergency remote teaching, participants expressed concern for students not having the basics such as computers or access to printers. In some cases, students had to resort to using smartphones for access to resources, attending classes or completing assignments. Tacit assumptions

by managers about the extent of students' digital literacies, because they are from the Snapchat or Instagram generation, were also reported and needed to be challenged with support required for the development of basic digital skills, particularly in the first year in keeping with previous studies (Bayne & Ross, 2007; Costa et al., 2018). Concern was expressed that students were missing the social element of learning associated with being present physically on campus or in the classroom (Costa et al., 2022).

There were examples of how practices can shift over time, emerging when required (Bamber et al., 2009; Trowler, 2020). When interviewed initially, Grace indicated that although she learned how to design screencasts as part of the postgraduate diploma, she was restricted by time and workload to continue this practice (Clegg, 2003). She indicated:

> "the students used them and I got very positive feedback from them…it's visually engaging at the same time they're getting the aural information…but the reality of it was the time that is required to pull something like that together is very significant" (Grace, Broagh, Int).

Subsequently, Grace indicated in a focus group interview that after the commencement of emergency remote teaching, she returned to creating screencasts to support students engage with troublesome knowledge and threshold concepts (Land et al., 2005). MCQs for assessment had become part of her practice again in supporting student learning. James also reported adapting his practice by using VLE more for interaction and, at the request of students, re-adopted the practice of devising digital tutorials with equipment funded by a previous enhancement initiative.

One respondent spoke of their experience of teaching mature part-time students in the online classroom prior to Covid 19. Initially, their practice involved teaching synchronously and providing recorded sessions to offer flexibility for students. However, after the first iteration, they changed their practice by providing online resources in advance of class which included recorded lectures. Asynchronous sessions were used for formative feedback and dialogue, with no new material introduced, leading to increased student engagement and interaction and is in keeping three key

components for effective online teaching: “presence; facilitation and supporting students” (Ní Shé et al., 2019, p. 62).

Another interesting development which was resisted in Toome was the requirement to use learning analytics from the VLE as it became apparent the information generated was not a reliable report of the quality of student engagement, as by just logging-in students were “ticking boxes for the college but not really engaging” (Sam, Toome, FG Int). This led to criticism of directives from management, and redirecting time and effort into pedagogic practices to enhance student engagement, using screencasting software as synchronous delivery was not working. The response indicates a reliance on technical-rational change theory or top-down approaches may meet justifiable resistance at the micro-level of a TLR (Trowler et al., 2002).

There were some key lessons learned from March to June 2020. Research participants from the three sites involved in the focus group interviews believed that a snap back to old practices would not occur post-Covid, which will be an area for future study.

The stance of social reconstructionism was evident, with participants questioning if full-time students could really be considered full-time due to personal commitments to part-time jobs, travelling to college, and family responsibilities. Therefore, the opportunity to provide more flexible approaches in programme design and to widen participation was evident, leading to criticism of the traditional Central Application Office (CAO) or points system used for entry to Irish HE. In addition, in terms of assessment design, the opportunity to move to a more project-based assessment and change from a terminal high-stakes assessment was considered more inclusive, with better learning opportunities for students. However, concerns were raised about work-life balance and the setting of boundaries between work and the home domain, which has implications for the future delivery of online or blended programmes and working from home (Adisa et al., 2022).

In summary, and to answer the research questions relating to the trajectory of pedagogic practices and why staff chose to adopt or discontinue particular practices, it was evident across all sites of changing pedagogic practices from a siloed, teacher-led

approach with a more connected emergent model. These practices changed as participants developed their knowledge of pedagogy, technical skills and professional identity influenced by professional development and supportive professional networks or communities of practice. The reasons some practices were adopted and subsequently discontinued were identified as:

- lack of time;
- meeting resistance from colleagues;
- lack of resources, such as technology, broadband or suitable physical space;
- adoption of new technologies considered more pedagogically appropriate.

Figure 5.2 summarises the fundamental changes to practice which emerged from the findings. These included the deliberate use of classroom and laboratory strategies which were selected to promote student engagement.

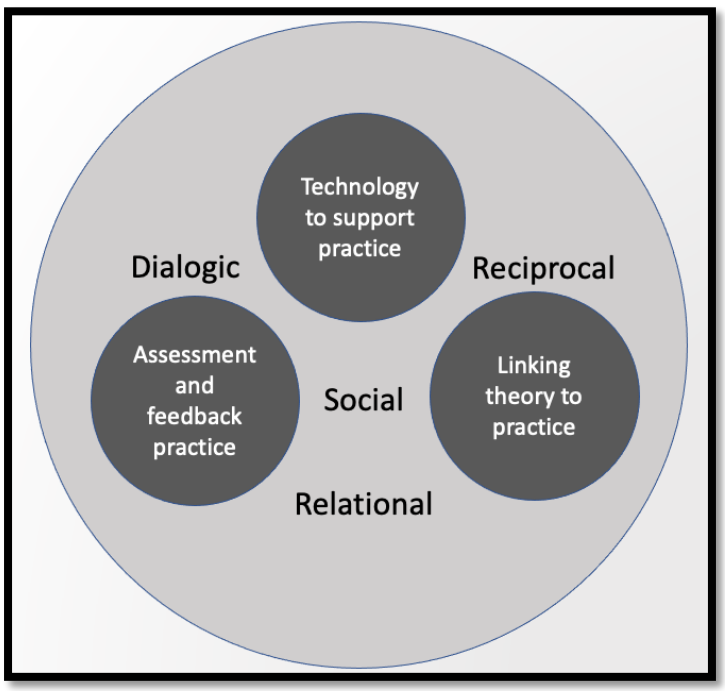

Figure 5.2 Summary of fundamental changes to pedagogic practice

The changes to pedagogic practices involved the following principles. The:

- **social**
- **relational**
- **dialogic**
- **reciprocal**

This study has identified that all four principles are key contributors to developing and changing pedagogic practices and apply to both teaching staff and students. They are considered an important part of practice to create a supportive learning environment. (García-Carrión et al., 2020; Mercer, 2013, 2019). The principles relate to all aspects of pedagogic practice, classroom teaching, whether face-to-face or online, designing assessment, including feedback practice, engaging with colleagues and acting as change agents. When juxtaposed with the siloed culture and structures associated with HE both inside and outside of the classroom, they provide a framework to inform the development of practices.

5.3 What are the conditioning factors for the pedagogic practices that teaching staff in the Irish technological higher education sector adopt and sustain?

The abduction stage included the analysis of interviews and focus groups which revealed demi-regularities, further reduced to regularities and two over-arching tendencies relating to conditioning factors and sustainability of practices. The two main tendencies emerged as conditioning factors that either **scaffold** or **restrict** change in pedagogic practices. Regularities were identified as “people and power”, “digital and physical infrastructure”, “developing pedagogic practices” “policies and work processes”. These mainly applied internally in the institute or workgroup. However, external examples included government policy, funding agencies such as the National Forum and external networking activities. Being identified as a scaffolder or restrictor of change to pedagogic practices was dependent on the participant, workgroup or department, or site, indicating the complexity of implementing successful change initiatives.

5.3.1 People and power

The role managers play, in particular head/deans of school/faculty and heads of department, was identified as either a scaffolder or restrictor of practice. Examples of Heads of Departments (HoDs) as scaffolders of change, included their ability to create a supportive culture by leading or championing those who advocated changes in programme design or the student experience, including when met with resistance from colleagues (Lozano, 2013).

> "I'm very much, one of the people that does a lot of field trips, and so I have taken my students away for three or four days on my own…and that is new and again there was some resistance to that. Obviously, it was much better the head of department spearheaded it" (Emily Broagh, Int).

Field trips as part of practice was also mentioned by Claire who suggested:

> "we would have to have it approved but there is a procedure to follow and we're lucky enough that we will get usually get backing if there's any real good learning to be got out of it. We'll have the support from our Heads of Department" (Claire, Toome, Int).

Leah suggested:

> "also you have, I suppose natural development through participation within the department, and having a new head of department with a fresh look at things, has definitely helped as well, different perspectives" (Broagh, Int).

Adam, who joined a computer programming department, described how he was encouraged to act as a change agent by his new HoD:

> "when I came into my current role within this institution 18 months ago, I was given kind of a brief by my head of department at the time saying that look, we teach old technologies here, we need to move on but, you know, you're the first new person that has come in here, we have our philosophy and our ways of doing things" (Adam, Anahorish, Int).

Adam proceeded to introduce new technologies, devised guidelines for programme design and also implemented cross-modular assessments.

Aaron required the support of the head of department when requests to reorganise the layout and wiring of a computer laboratory were not being actioned:

> "Mary was the head of department at the time and she got this intervention. Yeah I can assure you. She got the room reconfigured" (Derry Garbh, Int).

The opportunity and ability to influence curriculum design when devising new programmes or during programmatic review were also reported.

Participants provided examples of where they acted as change agents in curriculum design. Examples of senior manager support were also volunteered. This interaction in a focus group highlights the positive impact a senior manager can have when leading a change initiative involving several staff and departments, as follows:

> "I think the fact that it was led by the Dean and that it was an IoT project that had lots of people involved in it. I think that did make a difference. If you had just discovered the electronic notebooks and you said these are absolutely brilliant. And you were trying to, you know, preach to the, not converted yet, I don't think you'd have got much leverage" (Elaine, Broagh, FG Int).

Her colleague agreed:

> "for the project to get up and running, I agree with you without a dean or without management involved supporting it and putting it out there, you know your right, it would never have gotten off the ground" (Grace, Broagh, FG Int).

This suggests a combined "technical-rational and diffusionist: epidemiological approach" to change management; however, there was further evidence of this supportive culture in that department and faculty when introducing new technologies such as classroom response systems and digital badges indicating "Kai Zen" or continuous quality improvement approach (Trowler et al., 2002, p. 7).

> "I have to say the Dean of Faculty and HoD and they've been very supportive of it as well. So they've been very supportive in terms of giving me time to do this" (Maria, Broagh, Int).

A distinct difference in departmental culture was in evidence within Broagh, with one department appearing collegiate and the other creating a siloed effect. The latter allows for the status quo to persist, including traditional pedagogic approaches (Becher, 1989; Becher & Trowler, 2001; Trowler, 2012). In this instance, managers were viewed as restrictors of change.

When programme teams are encouraged to take a silo approach when designing or reviewing programmes where subject specialists protect content as opposed to adopting a student-centred approach, was identified as a restrictor of change (Toohey,

1999). The resultant learning, teaching and assessment strategies often lack integration and constructive alignment with poor assessment balance (Biggs & Tang, 2011). This finding is in keeping with Toohey's description of adopting a "piecemeal approach" to curriculum design (1999, p. 68). This experience of how programmatic design and, or review is managed evoked criticism and dissatisfaction from participants. Laura, whose role changed from academic manager to quality assurance over the course of the study, commented, "people are in their silos…once they determine their subjects, it becomes a solitary endeavour", leading to the lack of a "philosophical approach" (Lara, Toome, Int). It has been reported that the lack of an integrated approach in programme design, particularly when devising assessment strategies, including feedback, makes it difficult for students to make sense of their programme (Boud & Molloy, 2013; Carless, 2016; Winstone & Carless, 2019).
This was captured by:

> "we talk about the silo effect on students… and students don't see how that module links up or down or sideways. It's a huge problem trying to get that across to them and the same thing applies in certain cases to administration of the programmes" (James, Broagh, Int).

Another restrictor to practice, identified by Grace (Broagh, Int), Emily (Broagh, Int) and Jenny (Toome, Int), was teaching a module that is too broad, leading to a focus on covering content and leaving less time for clarification, interaction and discussion during class time. Grace, when discussing a common first-year biology module, indicated:

> "we need to cover topics, I find myself wanting to do new things, but at the same time, it's this topic, this topic, this topic that I have to get covered in this period of time" (Broagh, Int).

The dimensions of the social, dialogic, relational and reciprocal, identified earlier as key principles to support the adoption and sustainability of practices, become difficult to implement in this scenario.

There was also evidence of intuitive and emotive responses by staff to changes suggested by managers, which may have unintended consequences for their

programme. One example was an institute-wide proposal to introduce electives, giving students the opportunity to engage with a subject outside of their selected programme. The concern from lecturers was the risk of losing professional body accreditation with the reduction in time spent on core modules, which had not been considered. Another example was push back to the proposed introduction by a member of senior management of long placements, across all programmes, with little recognition of the operational aspects or issues for both students and staff if implemented. In general, the management style was considered "top-down versus people on the ground" (Claire, Toome, Int). A final example was given by one respondent who had designed a new programme each year for seven years but stopped due to requests from management to develop programmes on topics or subject areas not aligned with the department, leading to resistance.

These three examples highlight the need to consider the elements of "congruence, salience and profitability" when managers are introducing change initiatives to avoid resistance (Trowler, 2020, p. 121). When planning change initiatives, managers appear to be focusing on the visible elements of Krüger's iceberg model (1996) without giving due consideration to aspects such as relationships, biases and alternative perspectives in addition to the implications of SPT elements of materials, meanings and competences, for both staff and students (Shove et al., 2012, p.14). The orientation of managers towards the institute rather than towards effecting change by challenging the status quo was also apparent (Land, 2001). Mistrust of managers' motivation for implementing change initiatives arose particularly in Derry Garbh and Toome. The orientation of managers toward post-modern managerialist approaches was evident, including a focus on finance and budgeting and the use of metrics (Giroux, 2022; Lynch, 2012; Pugh & Grove, 2017). Described as:

> "what I probably find in the last three years I find most interesting is that everything's moving more towards performance and that belts and braces. And I find it hard to operate in that regime because it stifles creativity and it also detracts from what you are supposed to be doing. And I just see it as a box-ticking exercise and I can't see it contributing to anything much and you don't get any feedback on how it contributes to things overall" (Sam, Toome, Int).

It was indicated that this focus by management can lead to staff working autonomously as a change in or lack of management resulted in cynicism and frustration with staff undertaking initiatives independently. The lack of communication or consultation when introducing change initiatives or making decisions that had an adverse impact on programmes was also commented on. There was evidence of a lack of understanding, interest, or value for specific programmes, with participants referring to the backstory of the manager, from a different discipline area, in contrast with the programme team, scientific versus creative. Described as "cultural differences" (Rory, Derry Garbh, FG Int), this also exemplifies the influence of subjectivities in interaction and power relations in a TLR.

Resistance to change from colleagues and its management was mentioned frequently as the main issue when attempting to alter assessment practice (Bamber et al., 2009; Hedberg & Stevenson, 2014; Krüger, 1996). Emily, when advocating a change in practice away from examinations and rote learning, commented, "to get people to change their assessment strategy is a constant battle" (Broagh, Int). The relational aspect between colleagues when introducing new approaches was also a factor.

> "I did get this idea of the cross modular assessment, because people have huge issues with that, because they seem to think it's almost impossible that you can assess something in one module and assess something in another" (Elaine, Broagh, Int).

Conversely, others mentioned introducing a cross-modular approach with lecturers with whom they work well, indicating that this was part of the reason this change in assessment practice was implemented successfully (Aaron, Derry Garbh and Adam, Anahorish), highlighting the important role of colleagues in either scaffolding or resisting new practices

The contrast in experience across the sites illustrates the resistance which may arise from colleagues when introducing changes to practices and justifying the approach by making implicit theories of learning explicit. In developing a practice sensibility, change agents use strategies to reveal tacit assumptions, recurrent practices and discursive

repertoires to avoid a fear “of incompetence” or “loss of personal identity” when colleagues are required to implement changes to practice (Schein, 2004, pp. 329–320).

These issues also apply when successfully changing assessment practice to involve a multi-disciplinary approach, particularly in computing programmes. Informed by the desire to link theory to practice where assessments are designed based on real-world problems, the approach helps students to integrate knowledge between modules and can also lighten the assessment load when shared with colleagues (Ashford-Rowe et al., 2014; Sambell, 2013a). They can lessen the workload for the student but must be “robust enough to cover everything” (Dean, Toome, Int). Although considered problematic to manage, especially if the responsibility for theory and practical elements is split on a teaching team, the approach requires good communication and collaboration. However, the benefits to both students and teachers justified the change (Sambell et al., 2019). This finding indicates the value of developing a practice sensibility amongst change agents and managing change by shifting the emphasis from the individual to the practices in keeping with SPT (Trowler, 2015). However, being resilient and developing the ability to make justifiable arguments to colleagues, including managers, based on scholarship and taking a team approach led to “bottom-up” change and domestication of new practices. Examples included the introduction of authentic assessment or digital technologies to support teaching and applied to participants on all sites involved in the study.

Students emerged both as scaffolders and restrictors of change to practice. The former was exemplified when participants used strategies to actively engage with students as partners and were open to changing their practice based on feedback (McDowell & Sambell, 1999). Interestingly, a key finding was a commitment to adapt teaching in response to student interactions which involved a dialogic approach, including actively seeking feedback from students in order to inform the design and teaching of modules outside of the standard QA process (García-Carrión et al., 2020; Healey et al., 2014; Mercer, 2013, 2019). Aaron indicated:

> “I am team teaching with another lecturer so we’re gathering at the moment the process of eliciting user or student feedback. And then we’ll sit down together

and say what went well what didn't go well and how can we improve it or how can we restructure it" (Derry Garbh, Int).

Similarly:

> "we are gearing up towards programmatic review knowing that we need to now make changes in regards to the breadth of the module…we're trying to do everything, and again based on student feedback that we might be better placed maybe just narrowing it down to the core base and maybe a little bit more depth in some of some of topics" (Grace, Broagh, Int).

However, students also emerged as restrictors to practice. This was linked to poor motivation, timetabling issues or poor scheduling of classes including the lack of appropriate classroom spaces. In addition, the need to challenge students' tacit assumptions, codes of appropriation, back stories and recurrent practices was apparent, particularly for school leavers but also for mature and international students, which required persistence and resilience in order to achieve buy-in. Elaine commented:

> "Well, what I have observed over time is that they come out of secondary education system rote learning and that the ones who can do rote learning do better in exams and writing up practicals... but these are not the skills they need in industry, if I am employing scientists I don't want someone regurgitating I want them to have the knowledge and certain skills that will not be learned by rote learning" (Broagh, Int).

This required change in classroom and assessment practice. Examples were also given of students not using feedback to improve work leading to frustration amongst lecturers also identified in previous research (Carless, 2016; Winstone et al., 2017). Maria mentioned:

> "it's research methods there is a lot of draft work...some students don't engage literally until the very end, that is annoying. But the very first day I give them all the details, and for those who do engage, we are building it up slowly, they are learning different techniques along the way" (Broagh, Int).

These findings and discussion indicate the role played by people, be it, managers, colleagues, or students in empowering or disempowering those who wish to effect change and are either scaffolders or restrictors.

5.3.2 Physical and digital infrastructure

With regards to the agentic nature of materials, contrasting responses emerged about physical infrastructure, digital infrastructure and the provision of resources. Some lecturers were working in modern purpose-built classrooms that supported practices, others were operating in physical spaces that did not support and sometimes hindered practice. The lack of adequate digital resources was also an issue. However, some participants reported being able to influence the design of the physical infrastructure or accessing classrooms that supported practices such as group work.

Sam (Toome), in the focus group after the commencement of Covid restrictions, contributed details of a novel approach to designing physical learning spaces, although not alluded to in his initial interview. In 2016, the “Willow Classroom”, was designed by students from an Environmental Management and Sustainability module and social care students in conjunction with staff (Figure 5.3).

Figure 5.3 The Willow Classroom

The building was supported by the institute and local authorities. However, the space is in sharp contrast to those associated historically with the institutes of technology or universities, providing an interesting insight into situated cognition (Ó’Riain et al., 2015). The classroom is “living” as the willow is planted and growing. Classroom

resources such as flipcharts are brought for use, and there are facilities for hot refreshments.

> "it gives a very much a social element to some of the classes for some discursive stuff, maybe in philosophy or interpersonal management… and that kind of atmosphere in terms of fostering diversity amongst learners" (Sam, Toome, FG Int).

This physical learning space reflects all the principles identified earlier in changes to practice as it supports the: social dialogic, relational and reciprocal.

Although still being used primarily as a classroom, the use evolved, and it is now timetabled for use in practice by other groups, including by staff for meetings, particularly during Covid 19 restrictions.

In terms of digital resources, participants outlined various digital tools provided by their HEI or through funded change initiatives, which they use in practice. As alluded to earlier, common to all four sites was the VLE, which was used for resource sharing, communication, collaboration, and to manage assessments.

Physical infrastructure played a key role in influencing practice in all sites, with evidence of physical classroom spaces or learning spaces being set up to resemble the workplace, illustrating the agentic nature of artefacts from the proto-practice reservoir and TLR moment of materiality in interaction. Examples included setting up the classroom space to allow for students to collaborate on building designs during class time with a separate individual unseen assessment to address any critics (Jenny, Toome, Int).

Simulated classes were also designed to mimic industry for hospitality management, science, social care, animation and outdoor education students. Although this practice is not new, the need to combine the physical setting with the use of contemporary and real-world scenarios or practice-based learning was viewed as essential, reflecting an enterprise ideology and commitment to authentic learning (Meyers & Nulty, 2009). This approach involves learning through trial and error while being mentored or coached, with students having the experience of taking on specific responsibilities and

reflecting on outcomes. Therefore, an emphasis on supporting the social, dialogic, relational and reciprocal aspects of change to classroom practice is evident through the use of these practices.

However, both physical (Pouler, 1994), and digital infrastructure were also considered restrictors of practice. As discussed previously, referring to the NMC report, the lack of investment in infrastructure, both physical and digital, was evident across all sites indicating the impact of materiality in interaction and the agentic power of artefacts on pedagogic practices (Johnson et al., 2015). In Derry Garbh there was evidence of financial investment in the learning spaces for some disciplines to the detriment of others, although the latter sustained or increased student numbers annually and were considered the "cash cows" (Evanne, Derry Garbh, FG Int 1). Trying to access learning spaces to support practice for these programmes was given as an example:

> "if you want to change it around or have something different. That seems to be a big huge problem and to move to a flat classroom instead of a tiered one because you wanted to rearrange desks for better engagement that seems to be like, I don't know you're asking for the moon. So it seems to be difficult" (Evanne, Derry Garbh, FG Int 1).

Commented on in the focus group session, the finding was evident when conducting the observation of teaching in the Abnormal Psychology class in Derry Garbh (Table 5.3). Testing and observation rooms with computer equipment, required as part of professional body accreditation, were also not resourced, hindering practice for staff and students. It was suggested that classrooms timetabled in the past, which facilitated easy communication and interaction when dealing with small groups or students one-to-one, were no longer available. The lack of appropriate physical infrastructure was apparent amongst other participants from Derry Garbh. For example for animation students, "it's space, bottom line has been critical for five years, we need more space" (Rory, Derry Garbh, FG Int 1).

Similarly, with increasing numbers, in Toome, the strategic provision of physical resources to meet needs and enhance engagement, was not well supported having a

negative impact on practice and perpetuating the traditional linear approach to practice (Kinchin & Gravett, 2022).

> "I actually do think if we had enough resources, enough money to do it, that for engineering, I wouldn't have any lectures because I think students go there …. if you have hundred students in the room most of them are actually disconnected…. I don't think the traditional lecture works at all" (Lisa, Toome, Int).

This corresponds with a comment from Sam, who suggested there is a "need to design more universal spaces in buildings which facilitate a variety of practices" (Toome, FG Int).

According to Aaron (Derry Garbh, Int), implementing a Bring Your Own Device (BYOD) initiative led to a "long battle" when trying to arrange the physical infrastructure required over two years of engagement with estates and the IT department. BYOD was one of the developments identified for Irish HE in the NMC report (Johnson et al., 2015). The reconfiguration of laboratories to a roundtable layout was requested in order to enhance collaboration. The delay was attributed to management being more interested in "metrics" and "student numbers" with less emphasis on "learning" (Aaron, Derry Garbh, Int), indicating a top-down managerial approach (Lynch, 2012). It also highlights the need to take a strategic approach to introduce advancements and awareness of subjectivities in interaction and the power relations at play within a TLR (Trowler, 2020).

Poor office spaces for staff, and the design of open office spaces, were also identified as an issue. In the latter it was difficult to concentrate when there was noise and activity, especially during times of pressure such as during corrections. The lack of canteen facilities after a certain time in the afternoon in Derry Garbh was considered a restrictor of practice for staff and students engaging in evening classes or who wanted to work onsite. Both of these examples were not conducive to creating a supportive work or learning environment. Lack of a common social space was mentioned as a concern in Broagh, where the design of new buildings did not include spaces to encourage informal meetings with colleagues from different areas. This resulted in

losing out on opportunities for the “cross-pollination of ideas” (James, Broagh, FG Int) thus fomenting a tribes and territories approach (Becher, 1989; Becher & Trowler, 2001).

There was evidence of digital infrastructure militating against practice with the legacy of the downturn when the Celtic economy crashed, and there was a sustained lack of funding (Johnson et al., 2015). This was apparent through the use of reconditioned hard drives or “refurbished monstrosities” (Maria, Broagh, FG Int). The lack of appropriate computers was frustrating for those who wished to incorporate platforms and software into their pedagogic practices. The lack of access to stable broadband onsite and in specific classrooms was a deterrent to classroom practice. For example, in Broagh this was an issue when trying to engage engineering students with a Classroom Response System (CRS) designed specifically for calculations and drawings, “students love it but it does not always work” (James, Broagh, Int). This comment is linked to the time and effort to integrate a change in practice if not supported during day-to-day activities (Clegg, 2003).

> “Teaching load is high so you don’t get time to, it’s kind of mm, it’s firefighting if it’s not working. Who do I go to? And then you’re in the next class” (James, Broagh, Int).

Other examples included having a specialist classroom changed to a general classroom without the specific software required for the programme. Requests for specialist software are often rejected by managers for being too costly or not justifiable based on student numbers.

> “I would love to have a computer in my classroom to show different kinds of software programmes for creative work and play” (Anna, Broagh, Int).

This participant requested a digital drawing table, but the price was considered prohibitive, and they reverted to using clipboards which was confirmed in the classroom observation (Table 5.3). Other examples were offered of requests for resources to support practice being rejected by managers. There was a concern that the process for making these decisions was not transparent, indicating the influence of power relations and tacit assumptions on behalf of managers.

Three examples:

> "I'm not quite sure how these decisions are made, I just gave up after a few requests" (Anna, Broagh, Int).
>
> " we were just told there is no money for that" (James, Broagh).
>
> "when you are a programme that just gets on with things, you attract no money, you attract no attention from management, no communication, no meetings (Evanne, Derry Garbh, FG Int 1).

The VLE, although used across all sites, was, in some instances, considered a restrictor to practice. Occasions when the VLE was unstable or where an update implemented at the start of the year resulted in lost resources, leading to emotive responses and frustration. This type of experience has been reported in the #VLE national study and points to the influence of subjectivities and regimes in interaction (Farrelly et al., 2018). Therefore, although interested in using technology to support pedagogic practices, the digital infrastructure resulted in significant issues. An issue with stability arose in Derry Garbh, linked to bandwidth and the timing for installing a new VLE instance annually. This had a negative impact on practice leading to the discontinued use of the VLE for quizzes or screencasts due to loss of time and resources. For one respondent working in a geographically distributed campus, accessing the VLE from the main campus was an issue, leading to them returning to more traditional practices.

> **“**For example if you are trying to do more online quizzes or putting conditionality in to stuff that’s not possible because if it crashes out while loading you lose the whole lot so a couple of evenings, I lost two or three hours work and I thought I’m not going back there again. And so I kind of moved nearly away from more of that to more like what might be seen as a more traditional things” (Sam, Toome, Int).

However, for some, the security of the VLE as a "walled garden" was also considered important in terms of adhering to regulations for managing data (Beasley, 2012). Nationally an issue with broadband access which affects both staff and students was evident, and there was deemed to be a Dublin-centric approach with tacit assumptions

by management that both students and staff had access to good broadband. The pandemic and the move to emergency online teaching brought this to the fore when the agentic power of artefacts was particularly evident, as discussed earlier.

Classroom spaces, both real and virtual, influence teaching and assessments carried out during or outside class time; they can either scaffold or restrict practices. Poor digital infrastructure will impact the selection of technologies to mediate pedagogic practices.

5.3.3 Developing pedagogic practice

In both semi-structured and focus group interviews, all participants commented on the impact of professional development (PD), both accredited and non-accredited, on scaffolding their pedagogic practice. Similar to findings in a previous study by Roxå & Mårtensson, the postgraduate programme was described as helping to develop an understanding of teaching and a language in that discipline, increasing confidence to implement changes informed by scholarship (2012). The initial impact of the postgraduate diploma was explained in terms of developing "the language of education and pedagogical language" (James, Broagh, Int). This was common across all sites and participants.

For one participant, who subsequently became the head of a department, the programme had helped the preparations for a programmatic review. She developed confidence when participating in validation panels, including giving constructive feedback to programme teams (Laura, Toome, Int). The programme was also considered to have given credence to the move to contemporary assessment practices already in place, particularly the use of continuous assessment with feedback similar to findings by Swaffield (2011). It validated the approaches taken, including students critiquing their work and the work of others.

There was evidence of the personal values underpinning practice which were in keeping with the LIN professional values articulated in the case programme. In particular, being open to change and working in collaboration with colleagues and students and committed to continuous improvement (Baume, 2011). Engaging in

reflective practice using a variety of formats was evident, as was the desire to continue with scholarly activities.

Another impact on practice from engaging in the postgraduate programme mentioned by participants was taking on the role of a student. For example, seeing the VLE from their perspective, dealing with assessments and deadlines, thus developing a sense of empathy. Jenny commented:

> "you realise what it's like to be a student yourself …. You're vulnerable you might not be sure about that, and to know that that must be how they must be feeling every time we go in to teach them something new, they must be feeling vulnerable" (Jenny, Toome, Int).

However, it was acknowledged that the accredited modules were challenging for "highly successful and experienced lecturers", which involved "pushback" for some, particularly managers challenged by topics such as learning theory (Rory, Derry Garbh, Int). In contrast, engaging with learning theories was considered critical to change in practice by others. There was also a level of frustration evident in the lack of engagement of colleagues, including managers, in the development of pedagogic practice, which was viewed as a resistor to change. For example, a former head of department, when discussing their role in curriculum design, commented about her management colleagues:

> "they really needed to understand, you know, teaching and learning in all its guises and the modern thinking almost so that they could disseminate that as you say mentor or lead whatever" (Laura, Toome, Int).

This reflects the view of Buller's perspective that managers should see themselves as a leader and not a manager of change when engaging in a transformation agenda (2014).

Concerns were raised about the lack of value placed on professional development and educational research with a managerial approach being adopted, in contrast to national policy (Department of Education and Skills, 2011; McCune, 2021).

> “I’d say it’s not valued but if they’re looking for statistics for a report then there is a lot of value and emphasis placed on it. But is that just a tick the box. We’ve done this and we have these people doing that and here are these metrics” (Maria, Broagh, Int).

There was a strong view that new staff should be supported to engage in the scholarship of teaching and learning at the start of their teaching career, in keeping with recommendations in previous studies (Baume, 2006; Gale, 2011; Postareff et al., 2007).

For example:

> “I think it is essential for staff starting to teach in higher education it is important that they engage with learning and teaching to prepare initially them for their role” (Lisa, Toome, Int).

Or:

> “how people come in and do it without having done any teaching and learning? …just because you’re an expert in the area you think you can come in and teach, it’s bizarre there’s so much more to teaching than one being an expert in a particular area” (Ellen, Broagh, Int).

One participant suggested that having a process to engage in peer observation and providing a mentoring system would be very beneficial to new lecturers to develop their practice (Ellen, Broagh, Int).

In Toome and Broagh, the support provided through centres of learning and teaching was considered to have been invaluable in supporting and enhancing practice, particularly evident during the move to emergency, remote online learning. The contribution by centres has been identified recently, with educational developers being more explicit about "when and how we use our authority" (Stanton & Young, 2022, p. 4). They also suggest that as educational developers, we "move to a more open and potentially transformative conversation with colleagues" as new perspectives often result from those "small interactions whose contours remain undefined and unheralded" and describe this as "style" (Stanton & Young, 2022, p. 4).

However, it would appear from the finding is this study that the aproaches are more in keeping with the development of a practice sensibility which involves awareness of the components of a TLR and how these interrelate

Participants indicated how they have progressed from the initial case study programme to Master's degree and, or PhD studies, and that engaging in the postgraduate programme was often a catalyst for involvement in further research related to teaching and assessment through nationally funded change initiatives. Non-accredited options were also mentioned as a means of staying current, such as engaging in workshops, seminars, webinars, MOOCs and digital platforms such as EdX (Jones, 2013; Johnson et al., 2015).

Changing professional identity, informed by professional development, led to strong reactions, with most participants still strongly identifying with their discipline area or profession prior to commencing their academic role. This reflects the ideology of enterprise associated with the Irish technological higher education sector. For some adopting a dual identity as pedagogy and discipline expert was important in terms of agency when engaging with students and colleagues. However, for others their professional identity was questioned when engaging in professional development, for some this resulted in change. For some, it led to resistance as it challenged their worldview. Educational developers deliberately devise learning activities and teaching artefacts for use in PD to challenge strongly held conceptions about pedagogic practices. The purpose is to reflect on the impact of backstories and challenge tacit assumptions of teaching, discursive repertoires and recurrent practices whilst also engaging participants with learning theory.

Engagement in enhancement initiatives which led to the development of practices emerged as a scaffolder of change to pedagogic practices. Participants indicated that working with colleagues over an extended period of time to investigate and implement changes in pedagogic practice was beneficial. Similarly, involvement in discipline-specific research and dissemination was also evident across all sites. Examples included engaging in:

- professional development in learning and teaching with partner universities in Eastern Europe (Rory, Derry Garbh, Int);
- collaboration between education and business (all sites);
- marine science (Claire, Toome, Int);
- fishing industry (Claire, Toome, Int);
- and leading funded educational development projects, with full-time or part-time secondment to a Centre for Teaching and Learning (Maria and Elaine, Broagh, Int).

Acting as a visiting academic in a European university, publishing in collaboration with students, and conducting research focusing on international perspectives of apprenticeship education are additional examples (Sam, Toome). Publishing on disciplinary practices such as creativity in social care and acting as a change agent nationally by working collaboratively to establish a national creative work network to support colleagues with changing professional body requirements, also scaffolding change to personal practice (Anna, Broagh, Int). Conducting research into teaching, including publication of journal articles, presentations at national and international conferences and engagement with nationally funded enhancement initiatives leading to publications was evident across all sites.

Instances of acting as a change agent in the development of pedagogic practice emerged in Toome with Lisa and Laura. These included the redesign of induction to ensure students engage with the teaching team from the start rather than staff external to the faculty, which in addition to a range of other initiatives, had a positive impact on the retention of first years (Lisa, Toome, Int). Leading the update of programme design software to make it more user-friendly whilst meeting quality assurance requirements was a change management initiative across the whole institute (Laura, Toome, Int). This development informed the implementation in institutes involved in ` a consortium using the software. She also developed a process for disseminating feedback from students to departments to identify issues such as over-assessment. As a result, the integration of assessments across modules occurred, with a commitment to writing programme documents in a more student-friendly way.

These types of approaches have been identified as helping to engage students as stakeholders in assessment, design more authentic assessments and challenge messages and meanings in the hidden curriculum to support students in becoming autonomous learners (McDowell & Sambell, 1999; Sambell & McDowell, 1998).

Engagement in collaborations, networking or communities of practice with colleagues was also identified as a key scaffolder of practice valued by the participants. Contributing to European educational research projects was identified as a scaffolder of change to practice whilst leading to change in pedagogic practices amongst project partners. Figure 5.4 illustrates the areas where participants were active as change agents at the micro-, meso or macro level. All were involved in making changes to practice in the classroom. Examples of change at the department or faculty level were also offered. Change at the institute level was carried out in Toome by the participant who had taken on a management role in quality assurance. Participants from Toome, Broagh and Derry Garbh were also acting as change agents at a national or European level.

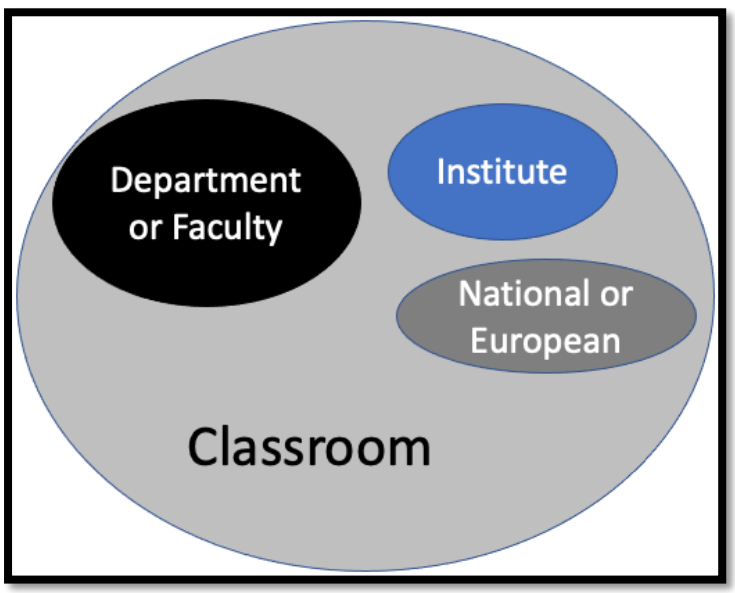

Figure 5.4 Acting as change agents

These examples of the development of pedagogic practice highlight how they are impacted by proto-practice reservoirs, including ripples inwards and outwards, and the possibilities which can arise from subjectivities in interaction when engaging with colleagues over time within a postgraduate programme or community of practice. The

agentic nature of materials, both physical and digital, provided to support this type of engagement are recognised as conditioning factors which scaffold innovation and change in pedagogic practices. From this study, the value-added is evident for HEIs that resource centres aimed at supporting pedagogic innovation and development and initiatives that empower lecturers and managers to act as change agents.

5.3.4 Policy and work processes

The impact of European and national policies, which have led to increased funding, was identified as a scaffolder of pedagogic practices, particularly initiatives funded under national enhancement themes such as student engagement, assessment as of and for learning and the use of digital tools to enhance practice (Bree et al., 2020; Harding, 2018; O'Regan et al., 2016). Funding which emerged as a result of government policy in response to Covid 19 was identified as a scaffolder of practice in focus group interviews (Carrillo & Flores, 2020; Jackson et al., 2020).

However, restrictors of pedagogic practices were also identified. For example, a lack of clear policy and guidelines in relation to the volume of assessments was identified as an issue across all sites, although some efforts had been made to address this (Toome, Anahorish). Quality Assurance processes were considered restrictors also. For example, focusing on an "unwieldy QA process" when trying to implement changes "puts people off" (Grace, Broagh, Int). This was the experience when incorporating innovative and evidence-based approaches such as TBL (Michaelsen & Sweet, 2011).

Increasing workload and lack of time were cited as restrictors to changing practice and the opportunity to engage in PD (McCune, 2018). This was mentioned in relation to changing assessment practice:

> "I just feel people don't have the time to look into assessing. Well, I don't think we have, I think many lecturers would say we don't have time to be the teachers we want to be and for me it is around assessment" (Leah, Broagh, Int).

Although new pedagogic practices were adopted informed by the case programme and there was a commitment to increasing student engagement, increased class size and lack of time led to some being discontinued (McCune, 2018). For example:

> "the minute paper, think pair share just kind of things to get them thinking about the topic, from the start of class and I did that for a while, in reality and I probably have kind of gone back more to question and answer type at the start of class…. just the size of class, the amount of time that I have available to me and that tends to be easier for me" (Grace, Broagh, Int).

Finding the space and time to meet colleagues was an issue. Aaron suggested: "everybody is rushing and have their own timetables… so this kind of sharing and exchanging of expertise, information and opinions is quite rare" (Derry Garbh, Int). The solution for this respondent was team teaching as it forces interaction.

There was a strong sense that HEIs should invest more in staff and incentivise them to engage in initiatives instead of seeing it as part of their job. Sam indicated:

> "if you have an incentive for doing things, then people will do it, and I think your return would be far greater" (Toome, Int).

Indeed, it was also suggested that management appeared to take a "binary approach moving from empathetic to dogmatic" regarding how change was supported (Sam, Toome, Int). There was a sentiment that there is a lack of value placed on teaching and learning with a sense of frustration at the lack of support for change initiatives and indeed lack of engagement by some managers. This was echoed by Jenny who, suggested:

> "teaching is not valued" and as students prefer to learn collaboratively "if management don't change their viewpoint of structure, I think we're all to be fairly challenged" (Toome, Int).

In summary, and to address research question three, the conditioning factors for the adoption and sustainability of change to pedagogic practices and overarching tendencies were identified as either scaffolders or restrictors. The regularities identified were "people and power", "digital and physical infrastructure", "developing pedagogic practices" "policies and work processes". These were considered either scaffolders or restrictors depending on the context or workgroup. Contrary to findings of previous studies and reflected in research by (Roxå & Mårtensson, 2012), engaging

in the postgraduate programme in addition to other conditioning factors had led to change in pedagogic practices at the micro level of the classroom and at the meso-level within the programme teams, departments or at institute level. The main driver for the changes to pedagogic practices implemented was to enhance student learning.

5.4 How and how effectively does Social Practice Theory (SPT) explain changes to pedagogic practices and provide insights to guide change management?

There is a dearth of research, particularly at the meso-level, in relation to change to pedagogic practices in higher education, with calls from experts to have this explored (Trowler, 2020; Trowler & Cooper, 2002). This study of the pedagogic practice of lecturers who teach in the Irish technological higher education sector was initially informed by SPT and the elements of “materials, competences and meanings” which were used to develop a robust research design (Shove et al., 2012, p.14; Spurling et al., 2013). The ontological perspective of CR allowed theory to be applied (Ackroyd & Karlsson, 2014; Archer et al., 1998; Bhasker, 2016; O’Mahoney & Vincent, 2014; Ritz, 2020).

Trowler has questioned why the application of SPT in higher education has been limited (Trowler, 2020, p. 162). My view is that positivist approaches in educational research are still valued over others. Numbers are associated with "scientific precision" however, as evidenced in this study, approaches can be adopted to "preserve the rich messiness of qualitative data", which may be lost through assigning numerical values (Sandelowski et al., 2009, p. 219). In contrast to previous studies, SPT informed the research design by going beyond a narrow focus on the individual to consider and understand situated pedagogic practices using four data collection methods, semi-structured interviews, focus group interviews, observations of teaching and digital artefacts to represent teaching. These were selected and justified, although it is acknowledged that these elements were developed initially to examine consumer behaviour.

I used the SPT elements at the design stage. However, the TLR as a theory became a fundamental aspect of this multi-site case, practice-focused ethnographic study through utilising the proto-practice reservoirs and eleven moments as a framework for

analysis. The study provided the opportunity to test the revised TLR, which now comprises eleven moments as a comprehensive theory rather than a loose framework. The distinct advantage of TLR theory which views pedagogic practices as social practices, offers researchers and those involved in implementing change a theory developed specifically for the HE context. Therefore, the enhanced TLR theory was used to substantiate research findings, offering a conceptual framework to understand and explain pedagogic practices and consider how the TLR theory can be used by change agents focusing on enhancing pedagogic practices (Trowler, 2020, p. 164). My initial concerns in using the TLR framework were twofold at the outset of this study. Firstly, it might limit attention to addressing restrictors of change; however, both scaffolders and restrictors were identified. Secondly, that it was focused on staff experiences within a TLR rather than being inclusive and addressing student experiences. Instead, the student perspective and the enhanced student learning experiences were captured in the descriptions of practice. The TLR moments have potential when engaging students in metacognition to reflect on their tacit assumptions and backstories to empower them to act as change agents within their learning environment.

By using a complementary abductive and retroductive approach in the research design and analysis of data, the evidence of nested and bundled practices within a TLR was illuminated. This process has provided insight in terms of the multiple audiences the TLR theory can address. When focusing at the workgroup level, TLR theory provides a basis for understanding and explaining the trajectory of practices, including why some are adopted, continued or discontinued. The eleven moments of a TLR capture this trajectory from early career practices, including the influence of previous educational experiences. Each of the eleven moments was significant. Although presented in a tabular format in chapter four, the discussion highlights how they cannot be separated as they are intertwined and bundled (Trowler, 2020). The proto-practice reservoirs were also effective in identifying the educational ideologies that are dominant in the sector. Intuitive and emotional responses, combined with the agentic power of artefacts, the significance of embodied behaviours, ripples from the past to the present, and ripples outwards and inwards, indicate a distinct overlap between these

and the eleven moments. The examples of change agents anticipating outcomes by developing an awareness of and sensibility for practices and discourses on the ground confirm how change initiatives are also conditioned by frameworks of meaning and dominant discourses.

The TLR theory also corroborates the key tendencies which emerged in terms of change to pedagogic practice and the conditioning factors of change both scaffolders and restrictors. The principles of the social, dialogic, relational and reciprocal, which were common to changes to pedagogic practice and emerged from the analysis, are also reflective of SPT and TLR theory in moving the emphasis from the individual to the practices. The principles are consistent with the common theme identified in effective change management models such as “CAST” and “Team of Teams”, which focus on providing supportive conditions and resourcing, planned but allowing for unintended consequences and having a locus of power that is open to influence leading to successful change initiatives (Jackson, 2013; McChrystal, 2015). Therefore, TLR theory, in moving the focus away from the individual offers lecturers, managers and administrators and students a means to identify, examine and address aspects of the proto-practice reservoirs and TLR moments which cause resistance to change initiatives.

This research study made me question my use of language as an educational developer. SPT and TLR theory provides a language for engaging with staff, at all levels, including staff who undertake accredited PD, in addition to students. By challenging tacit assumptions, addressing backstories, making learning theories which underpin practice explicit it identifies recurrent practices, allowing for the consideration of “values, perceptions and motivations” (Trowler, 2020, p. 126). These are particularly relevant during the design of programmes a frequent point of resistance (Toohey, 1999).

SPT and TLR theory illuminates the importance of context and the agentic nature of materials and artefacts, the physical and digital infrastructure and the artefacts used in day-to-day practices, which was evident at each data collection point and when analysing the data. These include teaching resources and assessment artefacts

acknowledging their role in situated cognition, contingent on situated practices (Trowler, 2020, pp. 36–37). The prevalent discourses in the workgroup can also be exposed and critiqued using SPT and TLR theory. Although Macfarlane argues that educational developers should use "dualisms cautiously" (Macfarlane, 2015, p. 101), I contend that dualisms, if presented in a questioning way, can be very helpful in countering this type of general characterisation, thereby challenging tacit assumptions and recurrent practices. This is beneficial when used in a considered way, being complementary, in balance or as "yin and yang" and thought of in terms of a "continuum" instead of polar opposites (Macfarlane, 2015, p. 115). Assumptions can also be challenged, and difficult concepts explained not just through text but through the use of images or technologies which develop emotive and embodied responses. Lecturers were using this approach effectively in the classroom.

5.4.1 Practice sensibility as a threshold concept

Implementing change in higher education requires a new way of seeing practices, honing intuitive responses and a heightened awareness of the contextual factors, which, once developed, will not be lost. Therefore, I contend that in building capacity in a new TU, developing a practice sensibility is a threshold concept for those involved in implementing change initiatives and considered an integral part of professional development activities aligned with an authentic assessment to foster the development of an "anthropological awareness" and "local site ontology" (Meyers & Nulty, 2009; Swaffield, 2011; Trowler, 2020, p. 96).

Knowledge of and engagement with TLR theory and the development or affirmation of a practice sensibility for those involved in designing and implementing change initiatives in conjunction with the ability to deploy appropriate change management models, has the potential to transform practices in a new TU.

5.4.2 Using SPT and TLR theory to understand factors conditioning change

In terms of conditioning factors of change, both scaffolders and restrictors were identified in the study, which can be understood and explained using SPT and TLR theory. The development of a practice sensibility by people involved in change management, whether at the micro- or meso-level, informed by the eleven moments

of a TLR, provides the opportunity for lecturers to act as change agents. The ontological perspective of CR adopted in this study in conjunction with SPT and TLR offers a means of understanding change and change management because as humans, we have the intellectual capacity not just to critique but also to act and imagine different and improved futures (Clegg, 2003, p. 11).

When the fundamental changes to pedagogic practice identified are considered in conjunction with the four principles for adopting and sustaining change it is evident that using theoretical perspectives such as SPT and especially TLR theory assist in understanding and explaining the pedagogic practices of staff who teach in the Irish technological higher education sector. Figure 5.5 illustrates how these may be scaffolded or restricted.

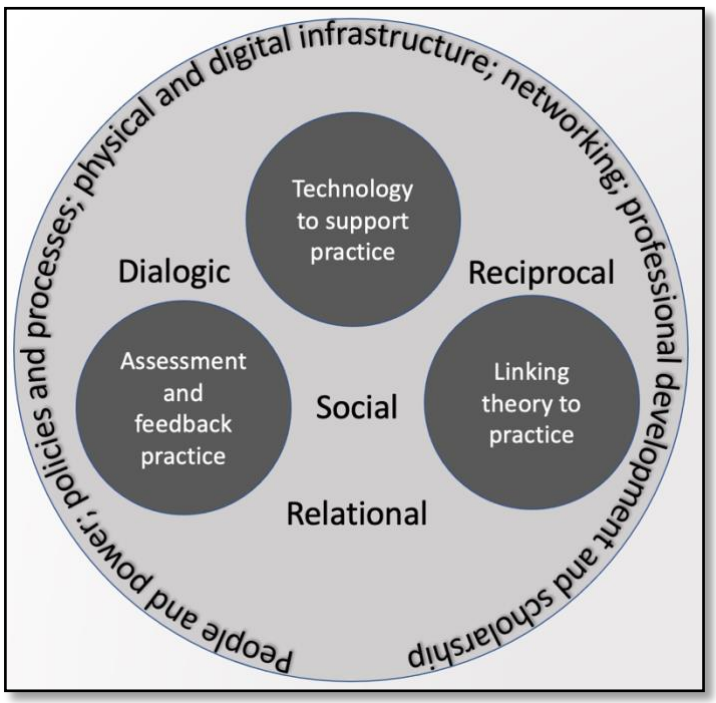

Figure 5.5 Conditioning factors and principles for change to pedagogic practices

The elements of SPT, in conjunction with TLR theory, offer the theoretical and conceptual frameworks for undertaking a critique of practices. Critique in HE involves challenging current thinking, recurrent practices and the practice architectures in which they exist to reconfigure and enhance. SPT and TLR have highlighted that fundamental to this approach involves providing a supportive culture where staff and

students work in a networked and collegiate manner rather than focusing on individual approaches.

5.5 Conclusion

The chapter addressed the research questions by presenting and discussing findings informed by SPT and TLR theory. The concluding chapter will summarise key findings for each research question, and consider the transferability of the findings including impact on pedagogic practice. Suggestions for future research informed by the study are outlined.

Chapter 6: Conclusion

6.1 Aim and scope of the research

This was an empirical, practice-focused ethnographic study designed to research the pedagogic practices of lecturers who teach in the Irish technological higher education sector to explain and enhance practice. The study occurred during a time of radical change in Irish HE with the establishment of five Technological Universities. Underpinned by SPT and adopting the ontological perspective of CR, the research design was theory-driven. The solely qualitative study was mixed-method and deployed four data collection methods. These included semi-structured and focus group interviews, classroom observations and digital artefacts selected by research participants to represent current practice. The study involved nineteen lecturers from across four geographically dispersed HEIs in the sector. The approach shifts the emphasis adopted in previous studies from the individual to the practices resulting in a rich understanding of pedagogic practices, including how they are shaped by context and materiality. The research design involves a novel approach to investigating situated pedagogic practices. The research questions were constructed to understand and explain pedagogic practices specific to the sector. The questions focus on the trajectory of practices and the reasons why they are adopted or discontinued, whilst identifying the factors that condition their change, both scaffolders and restrictors. Underpinned by SPT, the TLR theoretical framework was trialled for the first time in the Irish technological higher education sector to determine its effectiveness.

6.2 Addressing the research questions

The research questions were addressed as outlined in the following.

6.2.1 Trajectory of practices

The trajectory of pedagogic practices showed significant change from early-career, which focused on traditional transmission approaches and exam-based assessment, to more contemporary approaches in both classroom and laboratory teaching. The physical and digital environment impacted this trajectory, as did engagement in professional development, particularly their personal flexible pathway to a postgraduate diploma. The study revealed that changes to pedagogic practices were

underpinned by four important and combined principles, namely, the social, dialogic, relational and reciprocal. These findings indicate the need to support both new and experienced lecturers to engage in professional development over an extended period to consider their conceptions of teaching in a scholarly and collegiate environment, thereby enhancing practices, although requiring appropriate policy implementation and resourcing.

6.2.2 Adopting or discontinuing pedagogic practices

Underpinned by personal and professional values, the implementation of change to pedagogic practices included a desire to link theory to practice, increase student engagement and address traditional approaches to assessment by shifting to an emphasis on designing assessments for and as learning. Feedback practice changed fundamentally with increased opportunities to provide real-time feedback, frequently mediated through digital technologies, indicating the need for lecturers and students to develop digital literacies. It was evident that the knowledge, skills and competences developed on the flexible pathway were transferable to different contexts when required, particularly during Covid 19, indicating the complex patterns of pedagogic practices in a TLR.

Reasons for discontinuing particular pedagogic practices were due to lack of time, resources or infrastructure and changes due to digitalisation. This finding reinforces the need for investment and the provision of the digital and physical infrastructure to support contemporary pedagogic practices that are social, dialogic, relational and involve reciprocity. In addition, rather than viewing time as a commodity, the findings show that it is possible to move from the traditional focus on text, time, and space by taking advantage of increased digitalisation.

6.2.3 Factors that condition change to pedagogic practices in the sector

Factors which condition change, both scaffolders and restrictors were identified. Fundamental to implementing change were people and power, digital and physical infrastructure, developing and informing pedagogic practice through programme participation and engagement in CoPs, and finally, policies and processes. Providing a

supportive culture, particularly at the level of the department or workgroup, can lead to successful change initiatives. However, the converse was also evident for each of the factors identified. Depending on the context each may be viewed as either a scaffolder or restrictor of change.

There was compelling evidence of participants being influenced by the postgraduate diploma to act as change agents, engage in scholarly activity and contribute to professional networks. This finding shows the value accredited professional development and centres that support practice development bring to a university, made apparent, particularly during Covid 19. It also highlights the need to introduce an Irish national recognition framework to encourage continuous improvement of pedagogic practices with the requisite policy and funding.

6.2.4 Using SPT and TLR to explain change and provide insights to guide the management of change

The study identifies the TLR, which is practice-focused in its sensibility, as an effective theoretical framework to capture, describe, and understand pedagogic practices. TLR theory provides a language specific to higher education which can be used by educational developers to empower change agents, particularly at the micro- and meso-level of the university.

Developing a practice sensibility was identified as a threshold concept for those leading change within HEIs. Combined with an understanding of resistance to change and of appropriate change models, the study shows that moving the focus away from the individual and concentrating instead on the practices as an alternative perspective provides the opportunity to diffuse situations whilst acknowledging that any planned change initiative may follow a different course to that originally intended. To address the resistance often associated with change initiatives, whether at the micro-, or meso- level, adopting a social practice perspective and TLR theory offers the opportunity to illuminate issues in relation to the implementation of change to pedagogic practices, consider alternatives and open opportunities for new ways to experience learning, teaching and assessment in the sector. The TLR concepts may seem complex to those new to the discipline of teaching and educational research. The

role of the educational developer is to present them using various strategies and resources, which lead to an understanding of the practice architectures that exist within a new TU.

6.3 Contribution of the study

Underpinning the study by SPT involved adapting a theoretical framework designed to study consumer behaviour to the context of the Irish higher education technological sector to explore the pedagogic practices of lecturers. This type of research study has not been undertaken previously in that context. There was a deliberate focus on pedagogic practices rather than individual self-reporting involving an intensive study using a variety of qualitative methods, which has not been conducted heretofore. This research design has the potential to be replicated.

The study was theory-driven, using CR as the ontological perspective. However, there is a lack of guidance for implementation and in selecting the methodological approach to adopt using this perspective. Therefore, based on theory, I developed a step-by-step process for the design and analysis of data. This included utilising both abductive and retroductive approaches in research design and data analysis. The research design for the study was novel and can be adopted in future research.

The study tested the revised TLR theory (Trowler, 2020), for the first time in the context of Irish HE to determine its effectiveness. To undertake this testing during the study I devised a systematic procedure for data analysis, including a process for mapping data to the TLR framework. This mapping process will be available for future use and adaptation by researchers and educational developers. Underpinning change with SPT and TLR theory introduces the opportunity to link “research and professional action” (Trowler, 2020, p. 161). Consequently, the study clearly illustrates focusing on social practices provides an effective alternative to individualistic change management approaches by offering an ontological perspective which involves people working together, conditioned by the lived reality within a situated context and TLR.

6.4 Transferability and implications for practice

Change is the "new constant" in Irish higher education (O'Hara, 2010, p.1). This applies to the Irish technological higher education sector at a time of significant cultural and structural change in Irish HE. The sector has been transformed with the establishment of five Technological Universities with distributed and geographically dispersed campuses. On commencement of the study, there were fourteen IoTs. Subsequently, mergers have occurred involving three of the four sites. The sector now comprises five TUs with two IoTs remaining, as indicated previously in chapter two. These are significant structural changes, however, it would appear that change at the micro- and meso- levels can be slow unless an intervention or change initiative occurs. Considering the extent of change management which will be required in the newly configured sector, utilising SPT and TLR theory as part of transformational change within a TU is justified by this study. TLR theory, designed for the context of higher education, offers the conceptual frameworks through which a shift in thinking about organisational models can occur with the development of expertise in change management.

The development of a practice sensibility has been identified in this study as a threshold concept for managers, educational developers and to empower change agents in programme teams. Therefore, for academic leaders developing a practice sensibility becomes critical to their professional development as leading change in situated contexts can be considered a social practice and includes creating a supportive environment to respond to resistance and sustain systemic change. This study provides insights to guide change management in the Irish technological higher education s ector and it is of practical and professional significance for educational developers in informing engagement opportunities, including the design of both accredited and non-accredited professional development which incorporates the development of a practice sensibility as a threshold concept.

TLR theory, devised for higher education, allows for the examination, understanding, explanation and communication of practices, thereby providing a conceptual and theoretical framework for enhancement initiatives involving a change to pedagogic

practices. The study adds significantly to understanding and knowledge of professional development in learning, teaching and assessment by identifying in-depth and valuable insights and reframing pedagogic practices with the potential to enhance the design of change initiatives in the sector for lecturers, change agents and managers leading change. Therefore, the study can inform the change agenda in the new technological universities in Ireland, which focuses on enhancing the learning experience for a diverse student population.

6.5 Further study

There is potential to design a further extensive research study based on the findings, which focuses on the meso-level of a new TU to inform capacity building in the leadership of change management. There is also an opportunity to investigate the pedagogic practices of staff who have not as yet engaged in a postgraduate programme by adapting the research design of the study.

This study was designed to focus on pedagogic practices rather then the individuals who implement them, my final words come from a translation of the ancient poem Beowulf by Seamus Heaney (2001, p. 20):

> **"Anyone with gumption and a sharp mind will take the measure of two things: what is said and what is done".**

Appendix One: Current flexible pathway modules

Modules/Special Purpose Awards aligned to the Postgraduate Diploma in Learning and Teaching	ECTS
Certificate in Learning and Teaching	15
Certificate in Technology Enhanced Learning	15
Certificate in Assessment and Evaluation	15
Certificate in Developing Online Learning, Teaching and Assessment Practice	15
Certificate in Formative Assessment and Evaluation	15
Certificate in Inclusive Practice in Learning, Teaching and Assessment	15
Reflection, Evidence, Action, and Review – Capstone Module	5

Appendix Two: National Framework of Qualifications – Strands, sub-strands and descriptors from level 6 to level 10.

LEVEL 6	LEVEL 7	LEVEL 8	LEVEL 9	LEVEL 10	
Specialised knowledge of a broad area	Specialised knowledge across a variety of areas	An understanding of the theory, concepts and methods pertaining to a field (or fields) of learning	A systematic understanding of knowledge, at, or informed by, the forefront of a field of learning	A systematic acquisition and understanding of a substantial body of knowledge which is at the forefront of a field of learning	**KNOWLEDGE** BREADTH
Some theoretical concepts and abstract thinking, with significant underpinning theory	Recognition of limitations of current knowledge and familiarity with sources of new knowledge; integration of concepts across a variety of areas	Detailed knowledge and understanding in one or more specialised areas, some of it at the current boundaries of the field(s)	A critical awareness of current problems and/or new insights, generally informed by the forefront of a field of learning	The creation and interpretation of new knowledge, through original research, or other advanced scholarship, of a quality to satisfy review by peers	**KNOWLEDGE** KIND
Demonstrate comprehensive range of specialised skills and tools	Demonstrate specialised technical, creative or conceptual skills and tools across an area of study	Demonstrate mastery of a complex and specialised area of skills and tools; use and modify advanced skills and tools to conduct closely guided research, professional or advanced technical activity	Demonstrate a range of standard and specialised research or equivalent tools and techniques of enquiry	Demonstrate a significant range of the principal skills, techniques, tools, practices and/or materials which are associated with a field of learning; develop new skills, techniques, tools, practices and/or materials	**KNOW-HOW & SKILL** RANGE
Formulate responses to well-defined abstract problems	Exercise appropriate judgement in planning, design, technical and/or supervisory functions related to products, services, operations or processes	Exercise appropriate judgement in a number of complex planning, design, technical and/or management functions related to products, services, operations or processes, including resourcing	Select from complex and advanced skills across a field of learning; develop new skills to a high level, including novel and emerging techniques	Respond to abstract problems that expand and redefine existing procedural knowledge	**KNOW-HOW & SKILL** SELECTIVITY
Act in a range of varied and specific contexts involving creative and non-routine activities; transfer and apply theoretical concepts and/or technical or creative skills to a range of contexts	Utilise diagnostic and creative skills in a range of functions in a wide variety of contexts	Use advanced skills to conduct research, or advanced technical or professional activity, accepting accountability for all related decision making; transfer and apply diagnostic and creative skills in a range of contexts	Act in a wide and often unpredictable variety of professional levels and ill defined contexts	Exercise personal responsibility and largely autonomous initiative in complex and unpredictable situations, in professional or equivalent contexts	**COMPETENCE** CONTEXT
Exercise substantial personal autonomy and often take responsibility for the work of others and/or for the allocation of resources; form, and function within, multiple, complex and heterogeneous groups	Accept accountability for determining and achieving personal and/or group outcomes; take significant or supervisory responsibility for the work of others in defined areas of work	Act effectively under guidance in a peer relationship with qualified practitioners; lead multiple, complex and heterogeneous groups	Take significant responsibility for the work of individuals and groups; lead and initiate activity	Communicate results of research and innovation to peers; engage in critical dialogue; lead and originate complex social processes	**COMPETENCE** ROLE
Learn to evaluate own learning and identify needs within a structured learning environment; assist others in identifying learning needs	Take initiative to identify and address learning needs and interact effectively in a learning group	Learn to act in variable and unfamiliar learning contexts; learn to manage learning tasks independently, professionally and ethically	Learn to self-evaluate and take responsibility for continuing academic/professional development	Learn to critique the broader implications of applying knowledge to particular contexts	**COMPETENCE** LEARNING TO LEARN
Express an internalised, personal world view, reflecting engagement with others	Express an internalised, personal world view, manifesting solidarity with others	Express a comprehensive, internalised, personal world view manifesting solidarity with others	Scrutinise and reflect on social norms and relationships and act to change them	Scrutinise and reflect on social norms and relationships and lead action to change them	**COMPETENCE** INSIGHT

Appendix Three: Participant information sheet and protocols for data collection methods

Participant information sheet

An exploration of the social world of academic staff in Irish Higher Education, using a practice perspective

I would like to invite you to take part in a research study. Please take time to read the following information carefully before you decide whether or not you wish to take part.

Who is conducting this study?

Nuala Harding, PhD student in the Department of Educational Research, Lancaster University, UK working in the Learning and Teaching Unit, Athlone Institute of Technology, Ireland.

What is the study about?

This study aims to explore the situated learning teaching and assessment practices of academic staff *in four institutes of higher education in Ireland.*

Why have I been invited?

I am inviting you to part-take in this study because you completed an accredited professional development programme – the Postgraduate Diploma in Learning, Teaching and Assessment between 2011 and 2015 and I am interested in studying the practices you have enacted, sustained or defected from within your working context. I would be very grateful if you would agree to take part in this study.

What are the possible benefits from taking part?

If you take part in this study, your insights will contribute to our understanding of the social world of academic staff with a focus on learning, teaching and assessment practices. In particular, the study will focus on the material environment in which your practice occurs and contextual factors that condition the enactment of practices. Therefore by sharing your experiences and allowing an in-depth examination of your current practices you will be involved in an alternative approach to the exploration of pedagogic practices that does not rely solely on self-assessment.

What will I be asked to do if I take part?
If you decided to take part, this would involve the following:

Data collection method	Time requirement
Semi-structured interview This will focus on your learning, teaching and assessment practices. The interview will be digitally recorded and transcribed verbatim. You will be forwarded a copy of the transcription to approve. The interview will be undertaken in your place of work.	45-60 minutes
Focus group interview This will be conducted with colleagues from your institute (if applicable). It will focus on learning, teaching and assessment practices from the perspective of your department or institute. You will be asked to complete a short pre-focus group reflection, which will act as a prompt for the discussion, and a post-focus group reflection to gather any other ideas after the event. You will be forwarded a copy of the transcription to approve. The interview will be undertaken in your place of work.	Pre and post reflections 15 minutes each Focus group interview 45-60 minutes
Observation of your teaching This will be conducted where appropriate and invited. You will be fully briefed in advance of the process, this will include advice on how to consulting with your students. The observation will take place at a place and time of your choosing.	Duration of the class selected
Learning teaching and assessment resources or artefacts You will be invited to share learning teaching and assessment resources or artefacts, which are offered as examples of enacted practices.	Time for selection and sharing 45-60 minutes

Do I have to take part?

No. It's completely up to you to decide whether or not you take part. Your participation is voluntary. Refusal to take part, changing your mind or withdrawing from the study will not involve a penalty of any kind and will have no bearing on your relationship with the researchers or any institution associated with the study.

What if I change my mind?

If you change your mind, you are free to withdraw at any time during your participation in this study. If you want to withdraw, please let me know, and I will extract any data you contributed to the study and destroy it. Ideally you should inform me of your withdrawal up to 2 weeks after taking part in any of the data collection stages of the study: semi-structured interview; focus group; peer observation of teaching and/or the sharing of learning, teaching and assessment artefacts. Data means the information, views, ideas, etc. that you and other participants will have shared with me. Therefore, it is difficult and often impossible to take out data from one specific participant in a focus group session when this has already been anonymised or pooled together with other people's data. However, I will try to disregard these views when analysing the focus group data, although this is not always possible.

What are the possible disadvantages and risks of taking part?

It is unlikely that there will be any major disadvantages to taking part. However it will require some commitment of time on your behalf as outlined for the stages of data collection outlined above. The students involved in the observation session will be informed in advance and asked if they are willing to be involved. You will inform them that the focus of the observation is on the teacher and no individual data will be kept on them.

Will my data be identifiable?

After the semi-structured interview/; focus group; observation of teaching and sharing of resources, only the following will have access to the data you share:

- myself as the researcher conducting this study:
- my supervisor, Professor Paul Trowler

In addition, in order to expedite the analysis of data the following will have access:

- a professional transcriber who will listen to the recordings and produce a written record of what you and others have said. The transcriber will sign a confidentiality agreement.

I will keep all personal information about you (e.g. your name and other information about you that can identify you) confidential that is I will not share it with others. I will anonymise any audio recordings and hard copies of any data. Audio files will be transferred from the recording device to an encrypted personal computer and deleted from the recording device. The anonymised audio file will be kept for the duration of the study and then destroyed. All information collected from you will be stored in a dedicated, password-protected computer folder. This means that I remove any personal information.

Participants in the focus group will be asked not to disclose information outside of the focus group and with anyone not involved in the focus group without the relevant person's express permission.

Any publications arising from this project will not identify you or your institution. All information will be stored in the secure computer folder, in line with the requirements of the Data Protection Act and Lancaster University Ethics Committee requirements.

How will my data be stored?

All data will be stored in encrypted files (that is no-one other than me, the researcher will be able to access them) and on password-protected computers.

I will store hard copies of any data securely in locked cabinets in my office.

I will keep data that can identify you separately from non-personal information (e.g. your views on a specific topic).

In accordance with Lancaster University guidelines, I will keep the data securely for a minimum of ten years.

How will I use the information you have shared with us and what will happen to the results of the research study?

I will use the data you have shared with only in the following ways:

I will use it for academic purposes only. This will include my PhD thesis and other publications, for example journal articles. I may also present the results of my study at academic conferences, practitioner conferences or use it to inform policy-makers.

When writing up the findings from this study, I would like to reproduce some of the views and ideas you shared with me. When doing so, I will only use anonymised quotes (e.g. from our interview with you), so that although I will use your exact words, however you will not be identified in publications.

In the unlikely event that anything you tell me in the study suggests that you or somebody else might be at risk of harm, I will be obliged to share this information in the first instance with my supervisor. If possible I will inform you of this breach of confidentiality.

Who has reviewed the project?

This study has been reviewed and approved by the Faculty of Arts and Social Sciences and Lancaster Management School's Research Ethics Committee and the Athlone Institute of Technology's Research Ethics Committee.

What if I have a question or concern?

If you have any queries or if you are unhappy with anything that happens concerning your participation in the study, please contact myself or my supervisor, contact details below:

Researcher	**Address**	**Email**	**Phone**
Nuala Harding	**Learning and Teaching Unit Athlone Institute of Technology Athlone, Co. Westmeath.**	n.harding@lancaster.ac.uk or nharding@ait.ie	**+353 (0) 90483051**

Supervisor	**Address**	**Email**	**Phone**
Professor Paul Trowler	Educational Research County South LA1 4YL Lancaster	p.trowler@lancaster.ac.uk	+44 (0)1524 592879

If you have any concerns or complaints that you wish to discuss with a person who is not directly involved in the research, you can also contact:

Head of Department of Educational Research	**Address**	**Email**	**Phone**
Professor Paul Ashwin	Educational Research County South LA1 4YL Lancaster	p.ashwin@lancaster.ac.uk	+44 (0)1524 594443

Thank you for considering participation in this project.

SEMI-STRUCTURED INTERVIEW PROTOCOL

The following are the main questions that will be asked during the interview.

Because this is a semi-structured interview, the researcher may ask additional questions to encourage you to expand on your responses. Those follow-up questions cannot be prepared in advance and so do not appear on this list.

Main questions

1. Please describe learning, teaching and assessment practices you have enacted as part of your practice.
2. Please identify examples of practices you have discontinued or have discounted.
3. What theories underpin your learning, teaching and assessment practices?
4. Please outline examples of where engaging in reflective practice led to changes in practice.
5. Please indicate how you use technology to support and enhance your learning, teaching and assessment practices.
6. In relation to assessment practices, please outline examples of how these have changed or been adapted and why?
7. Please outline examples of your engagement and contribution to curriculum design and review.
8. Please outline examples of where you have acted as a change agent.
9. How do you engage in the scholarship of teaching?
10. Please outline strategies you adopt to manage classroom settings – real or virtually.
11. Please outline any opportunities you have had to engage with a group of practitioners in relation to change to learning, teaching and assessment practice or curriculum change.

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FOCUS GROUP INTERVIEW PROTOCOL

The following are the main questions that will be asked during the focus group interview. Because this is a semi-structured interview, the researcher may ask additional questions to encourage participants to expand on their responses. Those follow-up questions cannot be prepared in advance and so do not appear on this list.

Main questions:

1. Please describe how the introduction of new practices, for example, a new assessment strategy or new technology, has been supported in your institute and department.
2. Were there occasions when these were not supported? Please explain.
3. Please identify examples of practices you have discontinued or have discounted because they were unsuitable to your discipline area or unsustainable.
4. How does the infrastructure in terms of the learning spaces provided - classrooms, labs etc. support your learning teaching and assessment practices?
5. Please indicate examples of how you have been supported to use technology to enhance your learning, teaching and assessment practices.
6. Please outline the extent to which you have engaged/collaborated with colleagues in your institute to effect change in your practice. For example: have you been involved in an educational research project, have you published with colleagues, have you engaged in the review of curricula?
7. Please outline the extent to which you have engaged/collaborated with colleagues outside your institute to effect change in your practice. For example: have you been involved in an educational research project, have you published with external colleagues, and have you engaged in the review of curricula?
8. Please outline how the workspace/s you are provided with support your efforts to modify or enhance your practices.
9. What improvements would you recommend within your institute and/or department to support colleagues in their learning, teaching and assessment practices?

Additional questions post-March 2020

1. How has Covid 19 impacted your practices generally?
2. How has Covid 19 impacted your assessment practices?
3. Are there practices you will retain post-Covid?
4. How have you been supported in the move to emergency online teaching?
5. What impact will merging with others into a Technological University have?

OBSERVATION OF TEACHING PROTOCOL

Details of pre-observation activity

Observee's name and position:	
Date, time and place of pre-observation communication:	
Duration of pre-observation communication:	
Date, time and place of observation activity:	
Duration of observation activity:	

Context of Observation Environment

Module name:
Module Aim:

Module Learning Outcomes:

Assessment Strategy:

Learning and Teaching arrangements:

Contextual comments on the course from the Observee (e.g. 1st year, practice-based, teaching philosophy/approach, rationale for assessment, rationale for L&T arrangements selected during discussions with the researcher from the "Potential environments and elements for PhD observation and resource selection" document)

Dimensions selected by participant for the observation activity

Dimensions of learning and teaching

☐ 1. Students are actively engaged in learning

☐ 2. Students" prior knowledge and experience is built upon

☐ 3. Teaching caters for student diversity

☐ 4. Students are encouraged to develop/expand their conceptual understanding

☐ 5. Students are made aware of key learning outcomes

☐ 6. Actively uses links between research or industry and teaching

☐ 7. Uses educational resources and techniques appropriately

☐ 8. Presents material logically

☐ 9. Seeks feedback on students" understanding and acts on this accordingly

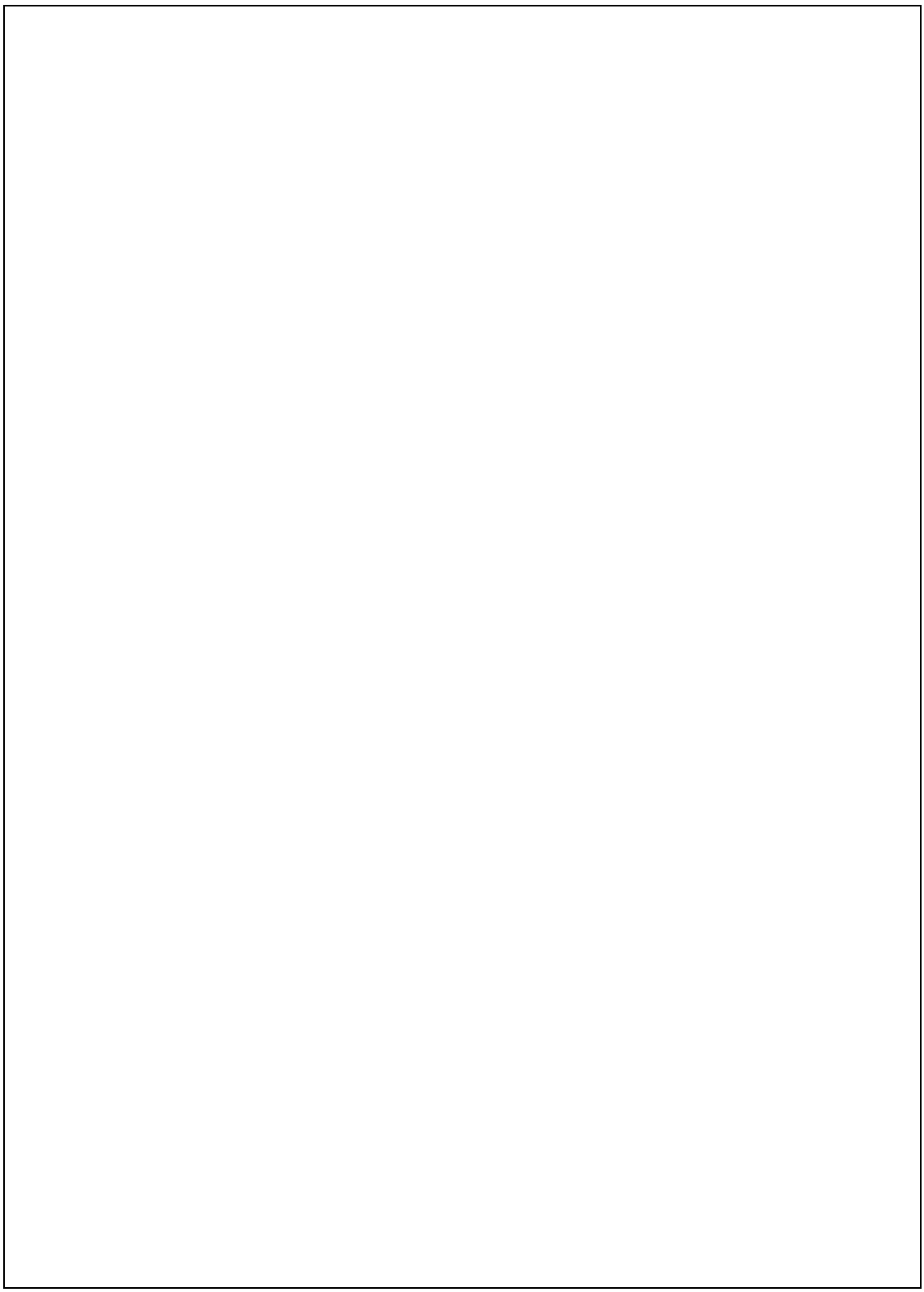
☐ 10. Other areas relevant to research study

Specific requests from the "Observee":

Lancaster University **Observer Report**

Dimensions of learning and teaching	**Quality of evidence & Observer comments with examples**
	☐ Effectiveness not clear ☐ Effective ☐ Very effective Observer comments/examples:
	☐ Effectiveness not clear ☐ Effective ☐ Very effective Observer comments/examples:

	☐ Effectiveness not clear ☐ Effective ☐ Very effective Observer comments/examples:
	☐ Effectiveness not clear ☐ Effective ☐ Very effective Observer comments/examples:
Observer summary of the observation including physical space and resources	



Guide to dimensions of teaching

Dimension 1: Students are actively engaged in learning

Indicative practices for demonstrating this dimension may include:

- Fostering a supportive, non-threatening teaching/learning environment.
- Encouraging students to express views, ask and answer questions, and allow time and opportunity for this to occur.
- Using questioning skills which encourage student engagement.
- Providing immediate and constructive feedback where appropriate.
- Demonstrating enthusiasm for teaching and learning.
- Fostering extensive interaction (for smaller groups).
- Presenting in such a manner as to achieve maximum engagement (for very large groups).

Dimension 2: Students' prior knowledge and experience is built upon

Indicative practices for demonstrating this dimension may include:

- Being fully aware of and/or determining students" prior knowledge and understanding.
- Building on students" current knowledge and understanding and taking them conceptually beyond this level.
- Where appropriate, using and building upon student contributions and preparation.

Dimension 3: Teaching caters for student diversity

Indicative practices for demonstrating this dimension may include:

- Demonstrating an appreciation of the different levels of knowledge and understanding in a group.
- Addressing, as appropriate, different learning needs and styles within the group.
- Focusing on building confidence, enthusiasm and intrinsic motivation.
- Fostering students" responsibility for their own learning, encouraging them towards being self-directed learners, (as distinct from teacher-directed learners).
- Using appropriate strategies for different needs, balancing discursive interactive strategies with those that are more didactic (where simple transmission of knowledge is needed).
- Recognising, at times, the need for teacher-directed strategies such as explaining and being able to implement these effectively.
- Exercising balance between challenging and supporting students.
- Designing activities/tasks that allow students of differing abilities to participate/engage and demonstrate/enhance their learning.
- Providing examples or opportunities for discussion that cater for cultural diversity.

Dimension 4: Students are encouraged to develop/expand their conceptual understanding

Indicative practices for demonstrating this dimension may include:

- Helping students bridge the gap between their current conceptual understanding and the next "level".
- Helping students become aware of what the next levels are.

- Encouraging students to become self-directed learners by using the "lecture"/presentation as the stimulus for individual study/learning.
- Challenging students intellectually e.g. by extending them with question/answer/discussion components where students' conclusions must be justified to the teacher and peers. This usually involves questions such as "What do you think is going on"; "Why"; "What if…?" etc.
- Encouraging students to internalise or "construct "their individual conceptual understanding (ultimately, the learner must be responsible for his/her own learning).
- Encouraging deep (intrinsic) rather than surface (extrinsic) approaches to learning.
- Working cooperatively with students to help them enhance understanding.
- Clearly demonstrating a thorough command of the subject matter.

Dimension 5: Students are aware of key learning outcomes

Indicative practices for demonstrating this dimension may include:

- Ensuring students are progressively aware of key learning outcomes.
- Focusing on learning outcomes at key points in the presentation.
- Ensuring a synthesis of key learning outcomes is emphasised towards the conclusion of the session so that individual student follow-up work is well focused.
- Encouraging each student to accept responsibility for learning issues to follow up and consolidate.
- Ensuring students are aware of the link between key learning outcomes and assessment (formative and summative), as appropriate.

Dimension 6: Actively uses links between research and teaching

Indicative practices for demonstrating this dimension may include:

- Emphasising, where appropriate, links between research outcomes and learning.
- Using research links appropriately, given the level of student conceptual development.
- Raising students" awareness of what constitutes research.

Dimension 7: Uses educational resources and techniques appropriately

Indicative practices for demonstrating this dimension may include:

- Using IT techniques effectively, e.g. PowerPoint or multimedia presentations of a professional standard.
- Using, as appropriate, a balance of IT and other strategies.
- Using available classroom resources to support student learning effectively.
- Supplying resources, materials, and literature to support student learning.
- Using specific educational strategies and techniques in the design and delivery of teaching sessions, to achieve key objectives.

Dimension 8: Presents material logically

Indicative practices for demonstrating this dimension may include:

- Providing an early brief structural overview of the session.
- Developing this structure in a coherent manner, ensuring students are constantly aware of the development of the session.
- Providing time for reviewing at key stages, including closure.

• Establishing closure, aiming at helping students draw together and understand major issues and identify individual learning needs and shortcomings.

Dimension 9: Seeks feedback on students" understanding and acts on this accordingly

Indicative practices for demonstrating this dimension may include:

• Seeking feedback progressively during the session e.g. through constant observation of interest level and engagement and by using specific questions to test understanding.
• Modifying the presentation to accommodate feedback messages.
• Seeking feedback towards the conclusion of the session to assist students to determine individual work to be consolidated

(Adapted from the University of South Australia)

Appendix Four: Abbreviations

Abbreviation	Term
AISHE	All Ireland Society for Higher Education
AQF	Australian Qualifications Framework
CAO	Central Applications Office
CELTs	Centres for Excellence in Learning and Teaching
CoP	Community of Practice
CR	Critical Realism
CRS	Classroom Response System
CA	Continuous Assessment
DFHEIRS	Department of Further and Higher Education, Innovation, Research and Science
ECTS	European Credit Transfer and Accumulation System
EDIN	Educational Developers in Ireland Network
ELNs	Electronic Laboratory Notebooks
HE	Higher Education
HEA	Higher Education Authority of Ireland
HEA	Higher Education Academy
HEI	Higher Education Institute
ILTA	Irish Learning Technology Association
IRAT	Individual Readiness Assurance Test
IoT	Institute of Technology Ireland
LAMS	Learning Activity Management System
LIN	Learning Innovation Network
MOOCs	Massive Open Online Courses
NFETL	National Forum for the Enhancement of Learning and Teaching
NFQ	The Irish National Framework of Qualifications
NMC	New Media Consulting
PBL	Problem Based Learning
PD	Professional Development
QA	Quality Assurance
OECD	Organisation for Economic Co-operation and Development
QQI	QQI Quality and Qualification Ireland
RAP	Readiness Assurance Process
RTC	Regional Technical College (up to 1998)
SEDA	Staff Educational and Development Association (UK)
SIF	Strategic Innovations Fund
SME	Small to medium enterprise
SPT	Social Practice Theory
SRHE	Society for Research into Higher Education
TBL	Team Based Learning
TEF	Teaching Excellence Framework
THEA	Technological Higher Education Association – the current umbrella organisation for the technological sector
TLR	Teaching and Learning Regime
TRAT	Team Readiness Assurance Test

TU	Technological University
UNiSA	University of South Australia
VLE	Virtual Learning Environment

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